

Untangling second career teachers' entry process in TVET schools

**From the suitability of entry profiles to the benefits of
social capital for a successful work socialization
process**

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Abstract

Over the past years, policymakers and scholars have become increasingly interested in second career teachers. As they are seen as a solution to tackle the teacher shortage, policies have been implemented to attract and recruit second career teachers. Consequently, we observe an increase in the second career teacher population in educational systems worldwide. However, research evidence has shown that second career teachers suffer from a high attrition rate, showing that they are two times more likely to leave the profession during their first 5 years compared to first career teachers. This thesis aims to understand this attrition phenomenon by untangling second career teachers' process of entry into technical and vocational education and training schools. The entry process is presented as shaped by two "momentums". The first is the transition to the teaching profession and the second is the induction into this new professional role of being/becoming a teacher. This thesis builds on an interdisciplinary theoretical framework combining teacher research literature and organization science literature in order to analyze these two momentums.

Résumé

Au cours des dernières années, nous pouvons observer un intérêt grandissant dans le chef des décideurs politiques et des chercheurs en éducation pour les enseignants de deuxième carrière. Cette tendance trouve son origine dans l'idée qu'ils représentent une solution à la pénurie d'enseignants. Suivant cette hypothèse, de nombreuses politiques ont été mises en œuvre ces dix dernières années pour attirer et recruter des enseignants de deuxième carrière. En conséquence, nous observons une augmentation de la population d'enseignants de deuxième carrière dans les systèmes éducatifs du monde entier. Cependant, certaines recherches montrent que ces enseignants souffriraient d'un taux d'attrition élevé. Ces études mettent en évidence qu'ils seraient deux fois plus susceptibles de quitter la profession au cours de leurs cinq premières années que leur homologues première carrière. Cette présente thèse vise à comprendre ce phénomène d'attrition en analysant le processus d'entrée des enseignants de deuxième carrière dans les écoles d'enseignement technique et professionnel. Ce processus d'entrée est présenté comme étant façonné par deux "momentums". Le premier est le processus de transition vers la profession enseignante et le second est le processus d'insertion dans ce nouveau rôle professionnel d'être/devenir un enseignant. Cette recherche doctorale s'appuie sur un cadre théorique interdisciplinaire combinant le champ de l'insertion professionnelle des enseignants et celui des sciences organisationnelles afin d'investiguer ces deux momentums.

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Chapter 1

General introduction

General introduction

1. Introduction

This thesis is the result of a 4-year research project, initiated in October 2018, funded by a FRESH doctoral scholarship from the National Fund for Scientific Research [F.R.S-FNRS, F 6/40/5 - FRESH/FC 29830] and hosted by the University of Louvain in Belgium (UCLouvain). The present manuscript follows the structure of an article-based thesis. As such, this manuscript includes a General Introduction chapter, several core chapters corresponding to the different studies conducted during the doctoral research, and a General Discussion chapter. The General Introduction and the Discussion chapters complement the scientific papers by delving more deeply into the theoretical foundations of our research and by opening up our conceptual reflections more widely than is possible within the restricted format of a scientific article. Both chapters furthermore allow clarification of the connections between the different studies conducted.

The present General Introduction chapter has as its objective to present (1) the problem statement, (2) the conceptual framework, and (3) the research design of our doctoral research. In the problem statement section, we aim to present our research interest in ‘*second career teachers*’ (SCTs)¹, specifically in their *entry process* when entering into schools offering technical and vocational education and training programs (TVET schools). We start by explaining the reasons why these particular teachers have received increasing attention in the political discourse and scholars’ reflections in many countries. We articulate these elements within the situation of Federation Wallonia-Brussels² to anchor our problem statement in the local context of this doctoral research. Then, we highlight several empirical and theoretical gaps that we have identified concerning the topic of second career teachers. Next, we present the context of TVET schools and why we focus specifically on SCTs entering this educational area. Finally, we outline the overarching purpose of this doctoral research, which is to untangle the *entry process* of *second career teachers* joining TVET schools.

In the conceptual framework, we present and connect the different theoretical elements forming the overarching conceptual framework of this thesis and discuss the epistemological posture associated with this conceptual framework. For the development of this theoretical framework, we combined concepts from different disciplines using an interdisciplinary

¹ Throughout this chapter, italics are used when a concept first appears before being defined. Definitions follow further along in the text.

² Referred to as French-speaking Belgium in the thesis.

approach. We argue that the *entry process* of *SCTs* is shaped by two key momentums³, namely the *transition* and the *induction* phases. For these two momentums, we present the theoretical considerations that led us to approach the transition phase through *transitioner profiles* and the induction phase through the *teachers' work socialization* concept. Based on our theoretical reflections, we identified two additional needs for achieving our overarching goal of untangling the *entry process* of *second career teachers* entering into TVET schools. First, we needed to develop the concept of *teachers' work socialization*. Second, we needed to clarify and discuss the concept of *social capital*. This conceptual section ends with an epistemological reflection. We explain how our conceptual framework, by bringing to bear different social science disciplines, uses the dynamics of *integrating* and *linking* that constitute the value of interdisciplinary research.

In the research design section, we present the objectives, research questions, research designs, and methodological choices of the studies presented in this manuscript's core chapters. Altogether, these studies are parallel reflections about the two momentums. For the second momentum specifically, the studies follow a linear logic, as they build on each other.

Following this General Introduction, the four next chapters (Chapters 2-5) are composed of one (Chapters 2–4) or two (Chapter 5) scientific articles each, and deepen our understanding of *SCTs' entry process* either theoretically or empirically (or both). Chapter 2 reports an empirical study that focuses on the first momentum of the *entry process*, that is, the *transition* phase. Chapters 3 to 5 focus on the second momentum of the *entry process*, that is, the *induction* phase. Chapters 3 and 4 include theoretical and methodological reflections about two key concepts for understanding the second momentum. Because *SCTs* discover and become integrated into a completely new work environment, the school organization, Chapter 3 develops the *teachers' work socialization* concept through the development and validation of the *teachers' work socialization* scale. As the social dimension of this work socialization process is of extra importance, Chapter 4 discusses the concept of *social capital* through a critical and conceptual reflection. The fifth chapter focuses on *teachers' work socialization* process, and reports two empirical studies.

The General Discussion chapter summarizes and discusses the main findings of this thesis. In this last chapter, we highlight the theoretical, methodological, and practical implications of our results.

³ In this thesis, we are using momentum as a metaphor related to its meaning: the force that creates a movement

2. Problem statement

Are second career teachers (in part) the future of the teaching workforce?

SCTs are professionals who decided to leave a prior occupation to become teachers (Chambers, 2002). While they were a minority among teachers in the past, their number has steadily increased over the last twenty years, especially recently (Nielsen, 2016). As a result, they are now no longer a minority among the teachers in many countries (Paniagua & Sánchez-Martí, 2018). This increase is associated with challenges regarding SCTs' professional realities that are becoming more and more prevalent as these teachers make up an increasing proportion of the teaching workforce. One of the most alarming challenges is their critical attrition rate. This problem statement section presents the reasons for this increase in SCTs, the situation in French-speaking Belgium and abroad, and the alarming challenge related to their retention. It then highlights the need for research about SCTs' *entry process* to address this challenge, and presents the educational area analyzed in this doctoral research: TVET schools. We end this problem statement by stating the overarching purpose of this thesis, which is to untangle the *entry process* of SCTs entering TVET schools.

2.1 The growing importance of second career teachers

Over the past years, policymakers and scholars have become increasingly interested in SCTs. Two reasons can be highlighted to explain this growing interest. First, SCTs are seen as a solution to tackle the teacher shortage (Ruitenburg & Tigchelaar, 2021). Second, they are seen as a promising potential added value for schools (Trent, 2018). Consequently, policies have been implemented to attract and recruit SCTs, leading to an increase in this sub-category of teachers (Newman, 2010; Paniagua & Sánchez-Martí, 2018). We further discuss these two reasons and this increase in the following two sections.

2.1.1 A solution for the teacher shortage and added value for schools

In the last two decades, the massive shortage of teachers has become a worldwide problem, especially in secondary education (Organisation for Economic Co-operation and Development, 2018; Ruitenburg & Tigchelaar, 2021; Unesco Institute for Statistics, 2016). The teacher shortage is often presented as one of the most pressing issues policymakers have to face (Podolsky et al., 2016). A report from Eurydice showed that 26 out of 38 European countries reported teacher shortages in several disciplines (Eurydice, 2018). In particular, according to the Education, Audiovisual and Culture Executive Agency (2012), the educational system in French-speaking Belgium is among those most impacted by this shortage. One strategy identified in research and policy discussions for tackling this shortage is attracting and recruiting people from professions other than teaching, namely, second career teachers (Baeten & Meeus, 2016; Tigchelaar et al., 2008; Troesch & Bauer, 2017). Indeed, they are seen as an untapped potential teaching workforce that could fill the gap

created by the teacher shortage. Below are presented some illustrative typical quotes from researchers and policymakers that illustrate this reasoning.

Regardless of the underlying causes of international teacher shortages, creating alternative avenues for placing qualified teachers in classrooms is paramount. Governments, universities, and school districts have all designed a vast array of programs intended to quickly transition second career training teachers from other occupations into primary and secondary classrooms. (Brindley & Parker, 2010, pp. 577, 578)

The fight against the teacher shortage is one of my priorities. (...). We need to go beyond what has been already done. This is why we will improve the work conditions of novice teachers and the attractiveness of the teaching job for second career teachers. (Free trans., interview of French-speaking Belgium educational minister: *La Libre*, 2021)

More and more people in Dutch-speaking Belgium are leaving their private-sector jobs to become teachers, according to Dutch-speaking Belgium Minister of Education Ben Weyts. Last school year, 2818 Dutch-speaking Belgians switched from the private sector to education, the highest number ever. (...) which is 15% more than in the 2019-2020 school year, when there were 2458 lateral entrants, and 23% more than in the 2015-2016 school year. "This is one of the measures to tackle the shortage of teachers," explained Ben Weyts. (*The Brussels Times*, 2021)

While the need to address the teacher shortage has been a prevailing argument among policymakers and researchers for turning their attention to SCTs, non-governmental organizations (such as the Organisation for Economic Co-operation and Development, Teach for America, Teach for Belgium, Foundation for Teaching [*Fondation pour l'enseignement*]) and researchers have highlighted a second argument that has also emerged in recent research. SCTs have been described as desirable because of their professional experience (Paniagua & Sánchez-Martí, 2018). They might be an added value for schools (Hunter-Johnson, 2015; Nielsen, 2016; Tigchelaar et al., 2008). They have been presented as a resource for schools at two levels. At the classroom level, SCTs possess specific knowledge, skills, and experience acquired from their previous career that shape their teaching practices and which they can incorporate in their instruction (Haim & Amdur, 2016). They have the ability to connect in-school knowledge and its usefulness outside of the school setting (Haggard et al., 2006). At the organizational level, SCTs can bring transversal skills and new perspectives into the school. These range from communication and management skills to "contribut[ing] positively to changing the culture of the school" (Richardson & Watt, 2005, p. 476). In their previous careers, SCTs may have developed competencies for working in teams or leading projects, and they may have developed a strong sense of professionalism. They have also been presented as potential positive school leaders (Freedman et al., 2008). In sum, the view is that SCTs certainly "do have the potential to make a distinctive contribution" (Wilkins & Comber, 2015, p. 1028).

2.1.2 *The growing number of SCTs*

Mostly because SCTs are seen as a solution for the growing teacher shortage — and this is certainly also supported by the idea that they could represent added value for schools — several governments have implemented alternative certification programs (Zhang & Zeller, 2016) and policies to make the requirements for entry into the teaching profession more flexible (Mathou et al., 2020)⁴. There are more and more initiatives to attract and recruit SCTs (Kee, 2012). Many countries have adopted this type of governmental initiative (Paniagua & Sánchez-Martí, 2018), leading to an increase in the SCT population in educational systems worldwide (Marinell & Johnson, 2014; Newman, 2010). Nowadays, SCTs represent approximately 25% of the new entrant teachers in the U.S. (Redding & Smith, 2016); 27% of the new entrant teachers in the secondary schools in the U.K. (Paniagua & Sánchez-Martí, 2018); and approximately 10% in Israel (Paniagua & Sánchez-Martí, 2018). SCTs are also a substantive part of the teaching workforce in Québec (Holgado, 2019) and are more and more present in France through the increasing use of contract teachers (Gautié, 2013).

When it comes to French-speaking Belgium, the latest legislative initiative to date to make entry into the teaching profession more flexible has been the governmental decree, “Decree on measures to counteract the shortage [free trans.]”, which became effective in 2020 (FW-B, 2020). This legal text represented a further step toward more flexibility regarding entry conditions into the teaching profession⁵, as it gave more autonomy to school leaders to recruit new teachers with fewer diplomas required. In November 2021, the minister of education of French-speaking Belgium mandated a task force combining representatives of the ministry of education and other government departments, school actors, and myself, with the objective of “helping to identify opportunities for career transition paths for second career teachers” (Task Force SCTs report, unpublished document). The purpose of this task force is to identify ways to facilitate access to the teaching profession for SCTs as an answer to the teacher shortage.

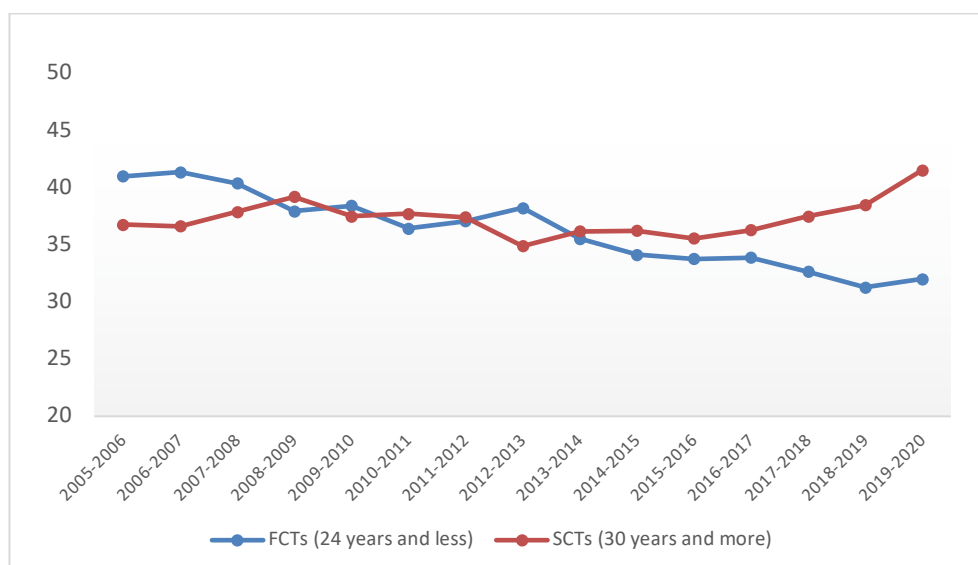
The increase in SCTs is particularly pronounced in French-speaking Belgium. The proportion of second career teachers among new entrant teachers in secondary education has never been so high as these past years. Figure 1 summarizes unpublished data from the French-speaking Belgium Teaching Administration that we were authorized to analyze. These data are related to the secondary schools teaching workforce only. This figure shows that since 2013-2014, the proportion of new entrant SCTs has been higher than the proportion

⁴ The consensual discourse presenting SCTs as an added value for educational systems has been part of this trend, but to a lesser extent.

⁵ We should note that the implementation of what was called the “Decree Titles and Functions” [Décret réglementant les titres et fonction] in 2016 could have represented an unanticipated step backwards, as that decree reinforced the entry conditions, thereby opposing increased flexibility, but adjustments were made very quickly. The “Decree on measures to counteract the shortage” represents the latest adjustment.

of new entrant first career teachers each year, and that since 2015-2016, there has been a large increase in the proportion of new entrant SCTs. In 2019-2020, we reached the highest proportion in the last 15 years, representing 1073 new entrant SCTs (≥ 30 years of age) versus 827 first-career teachers (≤ 24 years of age). Information about how first- and second career teachers were identified in this database is provided in Appendix A.

Figure 1. Proportion (%) of new entrants into the teaching profession (secondary education) by academic years (N = 42 830).



Note: New entrants between 25 and 29 years old are not presented in the graph. See details in Appendix A.

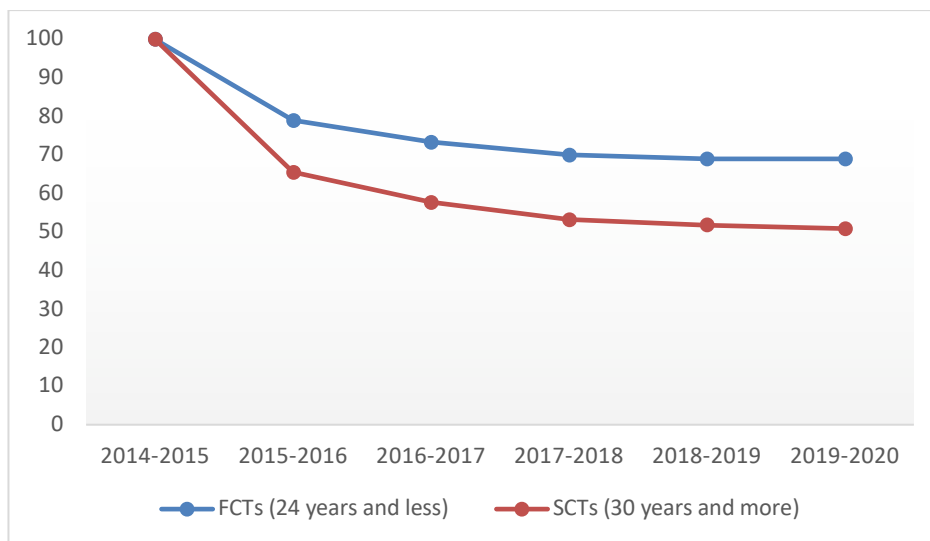
2.2 Second career attrition: The revolving door effect

These two reasons (i.e., a solution to the teacher shortage and added value for schools) depict SCTs as important for alleviating the teacher shortage and for educational quality. Yet, while governments are very capable of attracting and recruiting SCTs into the teaching profession, as we have seen for French-speaking Belgium, they are generally less effective at retaining them. Research evidence has shown that SCTs suffer from a high attrition rate (Laming & Horne, 2013; Redding & Smith, 2016; Tigchelaar et al., 2014). Some studies have shown that SCTs are two times more likely to leave the profession during their first 5 years compared to first career teachers (Chambers Mack et al., 2019; Redding & Smith, 2016; Zhang & Zeller, 2016). This situation may fluctuate depending on the national context (e.g., see Lucksnat et al., 2021, for equivalence between FCTs and SCTs in Germany on intention to stay in the profession). Nonetheless, in a recent systematic literature review, Ruitenburg and Tigchelaar (2021) highlighted retention as an important theme in SCT research, showing

that, for several of the national contexts represented in the reviewed studies, retention of SCTs seemed to be an issue. As this attrition rate can vary between different countries, below we present the attrition situation for SCTs in French-speaking Belgium, showing that this issue is particularly problematic in this context.

We again analyzed the unpublished data from the French-speaking Belgium Teaching Administration. We selected the most recent 5-year period, from 2014-2015 to 2019-2020⁶, to compare the attrition rate of first and second career teachers⁷ ($N = 1669$) working only in secondary education. Results showed that half (49.6%) of the SCTs who entered the profession in 2014-2015 left before 2019-2020. As a comparison, this dropped to 30.9% for first career teachers (see Figure 2 for the proportions of SCTs and FCTs staying in the profession). This attrition rate was up to 65.7% among the SCTs who did not have pedagogical certification (representing 54.9% of the SCTs). The attrition rate was therefore almost 20% higher for second career teachers than for first career teachers, and more than twice as high for SCTs without pedagogical certification.

Figure 2. Proportion (%) of SCTs and FCTs staying in the teaching profession between 2014-2015 and 2019-2020 among those who entered the teaching profession in 2014-2015.



⁶ The teacher attrition rate is usually computed after 5 years for a given cohort of new entrants (Lothaire et al., 2012; Watters & Diezmann, 2015).

⁷ See Appendix A for an explanation of how we assigned first- and second career teacher status based on age.

For several national contexts, including French-speaking Belgium, this attrition rate highlights a contradictory situation that is visible in both political discourse and the literature about SCTs. On the one hand, it is argued that recruiting SCTs is a promising solution for the teacher shortage. This leads to attraction and recruitment initiatives and to a growing proportion of SCT new entrants into the teaching profession. On the other, these particular teachers experience a high attrition rate.

This contradictory situation was presented in the literature by Tigchelaar and colleagues (2010) and Troesch and Bauer (2017) as a “revolving door effect,” reusing the metaphor proposed by Ingersoll (2001) to illustrate a U-shape curve of teacher recruitment and retention. Regarding this situation, a serious issue then emerges: What is the point to recruiting and attracting SCTs more and more if they do not stay in the profession? Indeed, as stated by Ingersoll and Smith, “Pouring more water into the bucket will not do any good if we do not patch the holes first” (2003, p. 32). Meaning here, recruiting more and more SCTs into the teaching workforce is not a sustainable solution if we do nothing to keep them in it.

2.3 Addressing the lack of research about SCT induction

2.3.1 *The need for research specifically dedicated to SCT induction*

Since teacher retention/attrition is mostly an issue of early career attrition (Long et al., 2012), there is widespread agreement among scholars that induction is a key element in teacher retention (Ingersoll, 2012; Kelley, 2004; Ronfeldt & McQueen, 2017). Teacher induction can refer to the induction *period*, representing the early teacher career phase (Kelchtermans, 2019), to induction *programs*, referring to initiatives (often formal programs) to meet new teachers' needs (Bickmore & Bickmore, 2010), or to the induction *process* occurring during the early career phase through formal and/or informal initiatives and/or individual experience (Papatraianou & Le Cornu, 2014). Regardless of how the term induction is used (*period*, *program*, *process*), the vast majority of teacher research literature on induction pursues the ultimate objective of teacher retention (Feiman-Nemser, 2010). As the issue of early career teacher attrition is becoming an increasing concern worldwide (Craig, 2017), teacher induction has received a lot of attention from scholars over the past decades (Kelchtermans, 2019). Nevertheless, while teacher induction research has provided many recommendations for understanding and tackling teacher attrition (Ingersoll, 2012; Ingersoll & Strong, 2011; Ronfeldt & McQueen, 2017), the vast majority of this research domain is dedicated to first career teachers (Ruitenburg & Tigchelaar, 2021). There is a dearth of research about second career teacher induction (Bar-Tal et al., 2019; Brindley & Parker, 2010; Goodwin et al., 2019; Haim & Amdur, 2016; Müller et al., 2009; Ruitenburg & Tigchelaar, 2021; Troesch & Bauer, 2017).

While initial reflections on this topic appeared in the early 90s (Crow et al., 1990; Freidus & Maris, 1991), the research field addressing SCTs could be considered as quite new, and

growing over recent years⁸. The growing interest in SCTs has mainly turned to their motivations to join the teaching profession, in order to give insights for effective recruitment strategies, following the idea that governments seek to attract more SCTs into the profession (Tigchelaar et al., 2010). This has left aside research and reflections about their attrition and retention, which has surprised some scholars (Brindley & Parker, 2010; Goodwin et al., 2019; Haim & Amdur, 2016). As a consequence, as highlighted by Ruitenburg and Tigchelaar (2021) in a recent systematic literature review on SCTs, we know very little about SCTs' induction experiences. This joins the observations previously by other researchers highlighting that we are in need of research on SCT induction (Bar-Tal et al., 2019; Brindley & Parker, 2010; Goodwin et al., 2019; Haim & Amdur, 2016; Müller et al., 2009; Troesch & Bauer, 2017). Indeed, SCTs are not the same as FCTs, not only with regard to their induction (Haggard et al., 2006), which shows that we need to study how SCTs experience their induction, but also with regard to how they arrive in the teaching profession (Lee, 2011), which shows that we need to study their transition from a prior occupation to the teaching profession.

2.3.2 To each their path: the heterogeneity of second career teachers' transition stories

SCTs do not follow a homogenous path, as is the case for first career teachers. Mostly, they do not decide at 18 years old to enter a program of studies to become a teacher, do not study for 3 or 5 years with other future teachers, do not experience an internship and at the end graduate. Their path is much more heterogeneous. SCTs can have many different professional backgrounds and many different career-transition stories. Scholars have recognized the heterogeneity of SCTs' stories, professional backgrounds, motivations for the transition, and so forth (Nielsen, 2016; Tigchelaar et al., 2008), and the possible different effects of these transition stories on their induction experiences (Bar-Tal et al., 2019; Berger & D'Ascoli, 2012c; Tigchelaar et al., 2008). When studying SCTs' realities, in addition to exploring their induction experience, which begins when they enter into the teaching profession, we argue that it is necessary to take into account the heterogeneity of their career-transition story, which occurs before their first steps as teachers (Berger & D'Ascoli, 2012c). In addition to the lack of research about SCTs' induction experience, to our knowledge, no study has linked the transition stories of SCTs with their induction experiences, although we consider that this transition is also a part of their entry process.

⁸ For example, a Scopus search with the terms ["second career teacher*" OR "second-career teacher*" OR "career changer* teacher*" OR "career-changer* teach*" OR "career switcher* teach*" OR "career-switcher* teach*" OR "alternativ* certifi* teach*"] provided only 80 scientific articles, more than half of which were published after 2012.

2.4 TVET schools: A particular context that specifically needs SCTs

In French-speaking Belgium, TVET schools refer to schools offering technical and vocational programs. These programs target young people between the ages of 14 and 18 (theoretical ages; practically speaking, most of these youths are a year or more late in their educational trajectory). TVET schools in French-speaking Belgium mainly propose both an academic program and a TVET program side-by-side. In addition, TVET programs combine both academic and technical and/or vocational courses. In French-speaking Belgium, more than half of the students in upper secondary compulsory education follow TVET programs (FW-B, 2020). Nevertheless, this educational area has a lower standing than academic general/academic education (CEDEFOP, 2001).

From an organizational perspective, TVET schools are a particular type of school organization. While secondary schools in general are neither homogeneous nor uniform organizations (Bidwell & Yasumoto, 1999; De Lima, 2007; März & Kelchtermans, 2013; Moolenaar, 2012), this is particularly true for TVET schools. Because TVET schools combine academic courses and technical and vocational courses, their departments can be very distinct (Hodkinson & Hodkinson, 2003; Stevens, 2007). Research has shown that this can create a fragmented internal landscape dividing the school into different sub-structures (Paulsen, 2008). De Lima (2007) has shown that this kind of organizational departmentalization might impact the day-to-day work experience of teachers and therefore also the induction experience of SCTs.

In this doctoral study, we chose to focus on SCTs transitioning to such TVET schools as a particular (sub)category of SCTs. This choice was driven by several reasons. First, the teacher shortage is particularly prevalent in TVET schools, SCTs are particularly needed in this educational area as a solution to the shortage (Devier, 2019). Second, their professional background makes them particularly relevant to teach TVET curricula and to prepare TVET students (Berger & D'Ascoli, 2012a). SCTs have been presented as assets for educational systems for the two reasons explained in a previous section (i.e., teacher shortage and added value for schools). For these very same reasons, SCTs are particularly valuable for the context of TVET schools. TVET schools are suffering the most from the teacher shortage (Kayode & Akanni, 2016; Organisation for Economic Co-operation and Development, 2009; Wilkin & Nwoke, 2011), which is likely due to the low status of the teaching profession combined with the low image of TVET schools (Franquet et al., 2010; Misra, 2011). A report published by the Asia-Pacific Economic Cooperation (2008) presented the challenges that faced TVET programs in Australia, Brunei, China, Japan, New Zealand, Peru, the Philippines, Chinese Taipei, Thailand, and the United States. Among the challenges, "traditional mindset and discrimination held by society towards TVET" and "Shortage of qualified teachers and trainers" were the two more often reported prevailing challenges. Regarding their added value for TVET schools, because of their professional background, SCTs understand both how to learn their discipline and how to use their disciplinary skills in professional contexts. They are able to bridge the often-experienced gap between both worlds in their teaching

instruction. SCTs can facilitate students' transition from school to the labor market, which is specifically relevant for TVET (Berger & D'Ascoli, 2012b). The two main arguments putting second career teachers in the spotlight (i.e., teacher shortage and added value for schools) are therefore particularly relevant for the TVET context. Third, in French-speaking Belgium, a substantial proportion of SCTs enter TVET schools: since 2005-2006, 52% of all new entrants SCTs have entered TVET schools. Fourth, SCTs entering TVET enter a particular organizational context that may be challenging to become integrated within because of the fragmented organizational structures that are particularly marked in TVET schools (as mentioned earlier). Fifth, TVET schools and TVET teachers are often overlooked in educational research and policy reflections⁹ (Grollmann, 2008).

2.5 The general purpose of this thesis

In the previous sections, we highlighted that, for different reasons, there is growing interest in second career teachers and that the proportion among the teaching workforce of this category of teachers is increasing. However, they suffer from a high attrition rate, even higher than first-career teachers. This shows that beyond and certainly before reflecting on additional recruitment strategies to attract SCTs — which is the actual trend in policies and scholars' discourse — it is necessary to reflect on their retention and therefore on their induction. Additionally, we highlighted that when reflecting on SCTs' entry process, it is important to consider the heterogeneity of their transition stories, as research has shown that they have an impact on SCTs' induction experiences. Finally, we explained why the topic of SCTs is of particular concern for the TVET context.

Given the observations described in the problem statement, the overarching objective of this thesis is to untangle second career teachers' process of entry into TVET schools as their new workplace by considering that this entry process is shaped by two "momentums". The first is the transition to the teaching profession and the second is their induction into this new professional role of being/becoming a teacher. With these as a basis, we aim to conceptualize, describe, and analyze the entry process of second career teachers. Understanding SCTs' entry process and their needs during these first years of experience is of extra importance for promoting their retention (Ronfeldt & McQueen, 2017; Ruitenburg & Tigchelaar, 2021).

In the second part of this introductory chapter, in the theoretical section, we will use the term *second career teachers' entry process* to refer to both the transition aspects and the induction aspects, as both are part of their entry process. We could have considered that second career teachers' induction process as shaped by both of these aspects, but using the term induction to refer also to the transition aspects could be confusing. Indeed, in (first

⁹ A good illustration is the current reform of initial teacher training in French-speaking Belgium. This reform aims to extend teacher training (preschool, primary and lower secondary) from 3 years to 4 years to 'better' prepare the future teachers. This new curriculum should also improve the new teachers' salary. In this reform, there is no intention to do the same for alternative certification programs training SCTs.

career) teacher research, induction is usually used for the period/process/program that begins once teachers start working as teachers. We therefore use the *term second career teachers' entry process* to refer to the entire picture, encompassing both the transition and induction aspects of this process.

One general question drove this thesis:

How can we describe and understand the entry process of SCTs entering TVET schools?

This general question was divided into two questions. To address the need to understand the heterogeneity of SCTs' transition profiles entering TVET, which is necessary in order to understand the first momentum of their entry process, the first question was:

- **How can we understand the heterogeneity among SCTs' transition processes (i.e., the first momentum of their entry process)?**

To address the need for more research on SCT induction experience entering into TVET schools, which is necessary in order to understand the second momentum of their entry process, the second question was:

- **How do SCTs experience their induction process (i.e., the second momentum of their entry process) and why?**

The following theoretical section presents the overarching theoretical framework on which we relied when answering these questions. In developing the theoretical framework, we identified two other objectives that must be pursued to address the overarching objectives stated above. The first is the need to develop the concept of "teachers' work socialization", and the second is the need to clarify and discuss the concept of "social capital". The emergence of these objectives is presented in the section discussing the development of the theoretical framework.

3. Conceptual framework: Three strands of research to conceptualize and analyze second career teachers' entry process

In this section, we describe the development of our theoretical framework, which led us to combine concepts from three different strands of research in order to conceptualize SCTs' entry process. Those strands of research were teacher motivation, teacher induction, and organizational socialization research. Teacher motivation and teacher induction represent our starting points of our reflection to which we added organizational socialization. Teacher motivation research helped us to conceptualize SCTs' transition phase. We combined teacher induction and organizational socialization into an integrative concept that we call teachers' work socialization in order to conceptualize SCTs' induction phase.

As we stated earlier in the introduction, there is a dearth of research on second career teacher entry process (Bar-Tal et al., 2019; Brindley & Parker, 2010; Goodwin et al., 2019;

Haim & Amdur, 2016; Müller et al., 2009; Ruitenburg & Tigchelaar, 2021; Troesch & Bauer, 2017). Studies investigating early career teachers' experiences have focused mainly on first career teachers. Research on early career teachers represents a large body of the teacher research literature, as these studies have often been related to the prevailing and important issue of teacher shortage (Ingersoll & Strong, 2011). We relied on this long research tradition regarding early career (first career) teachers when reflecting on SCTs' entry process. We propose two starting points that have mainly been presented in (first career) teacher literature that fit particularly well with the realities of SCTs' entry process. These two starting points refer to the two momentums that make up SCTs' entry process. First, SCTs make a professional transition, with different transition stories. Second, they enter into teaching practice and become teachers, which refers to their induction process.

Our first starting point draws on teacher motivation theory and research, and supports the argument that when reflecting on SCTs' entry process, we must consider who they are as transitioners, which requires understanding why they left a prior occupation, why they chose the teaching profession and what their personal resources are for coping with this transition. Teachers' motivations to choose teaching as a career have been gaining more and more attention in research on preservice and early career teachers (Fray & Gore, 2018; Watt & Richardson, 2008). Undoubtedly, this interest is partially driven by the need for effective recruitment strategies to meet the teacher shortage¹⁰ (Fray & Gore, 2018), but not entirely.

The initial rationale behind this current interest was that the research lacked integrative perspectives combining “why people choose teaching careers and why many leave the profession in their early years,” considering that there is a link between choosing to join and choosing to leave (Richardson & Watt, 2006, p. 31). This growing interest was mainly inspired by the work of Helen Watt and Paul Richardson and their well-known “FIT-choice” project (factors influencing teaching choice: Watt & Richardson, 2007), which is mainstream in the teacher motivation research (Fray & Gore, 2018). These authors rooted their questioning of teachers' motivations in two objectives. First, they aimed to obtain new insights for recruitment strategies, highlighting the elements to emphasize in order to convince people to join the teaching profession. Second, they postulated that such questioning would help us to understand why so many teachers are disappointed by the teaching profession and prefer to leave for another career. Since then, following this second objective, the literature on pre-service/early (first career) teachers' motivations has shown that motivations to choose the teaching career influence self-efficacy (Bilim, 2014), burnout (McLean et al., 2019), professional engagement (Watt & Richardson, 2014), professional commitment (Fokkens-Bruinsma & Canrinus, 2012), and retention (Alexander et al., 2020). While the FIT-choice framework is currently mainly used to interrogate pre-service or novice

¹⁰ This is understood here as an argument presented in the literature—recruiting more teachers will solve the teacher shortage—and not something we defend. The idea that it is more desirable to work on existing teachers' retention than on attracting more teachers flows in the background of this thesis.

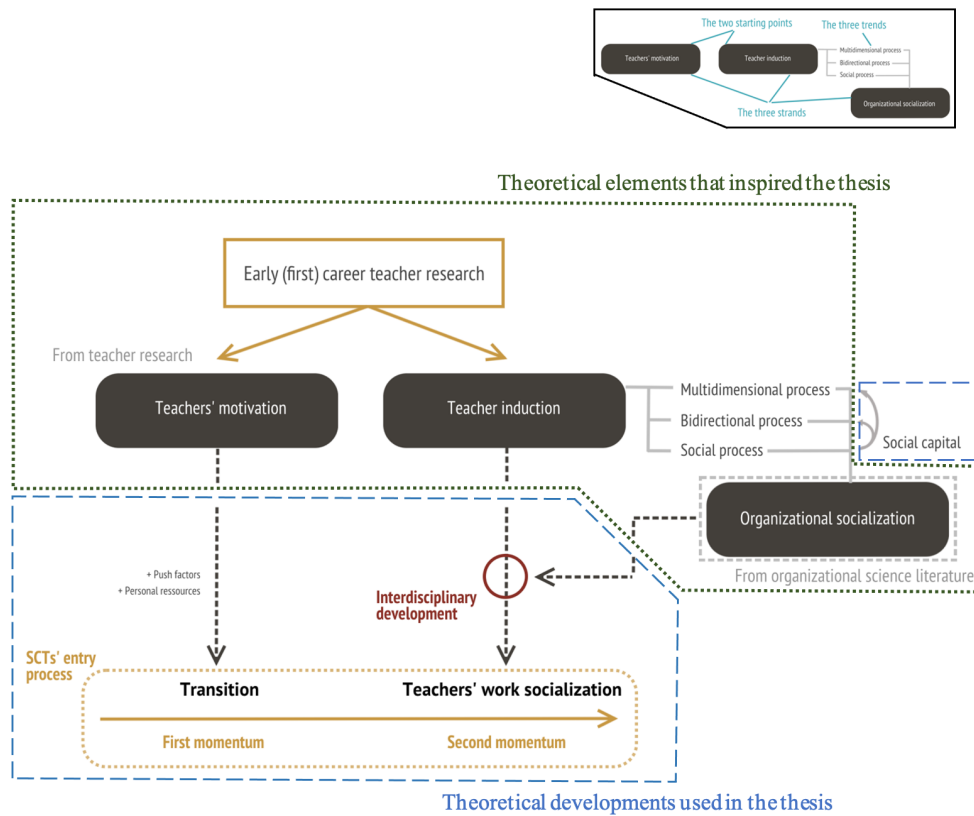
first-career teachers' motivation (Goller et al., 2019; Watt et al., 2012), interestingly, the first thoughts that led to the FIT-choice project were related to the motivations of SCTs to join the teaching profession (Richardson & Watt, 2005). We argue that understanding SCTs' entry motives is specifically relevant, not only to obtain insights for attraction strategies, but also to understand their entry process, as this choice represents an important part of their transition. We develop this point further in section 3.2. on the first momentum: SCTs as transitioners.

Our second starting point draws on the literature on beginning teachers, and specifically on three current trends that are particularly relevant when reflecting on second career teachers' induction. Recently, Kelchtermans proposed a historical and critical overview of the research on early career teachers (Kelchtermans, 2017, 2019). These two texts drew a picture of the literature on teacher induction and attrition/retention phenomena with both a bird's-eye view and a critical view. We extracted three elements from these texts. In our opinion, they represent emerging trends in the teacher induction literature. These concern the induction process as (1) a multidimensional process, (2) a recognition process (bidirectional process referring to a non-deficit approach), and (3) a social process. These three elements represent workplace conditions (Chao, 2012; Korte & Lin, 2013; Özdemir & Ergun, 2015), thereby emphasizing that entering the teaching profession is a complex story that involves entering into a particular organization (the school) as a workplace (März & Kelchtermans, 2020). They make visible that the school organization is not in the background, but rather in the foreground of the induction process (Kearney, 2015). This led us to seek further inspiration from the organizational science domain, and to develop the teachers' work socialization concept by integrating the concept of organizational socialization into existing theoretical frameworks in teacher induction. We describe these three trends, their relevance for analyzing second career teacher induction, and the development of the teachers' work socialization concept in section 3.3 on the second momentum: Teacher induction, organizational socialization, and teachers' work socialization.

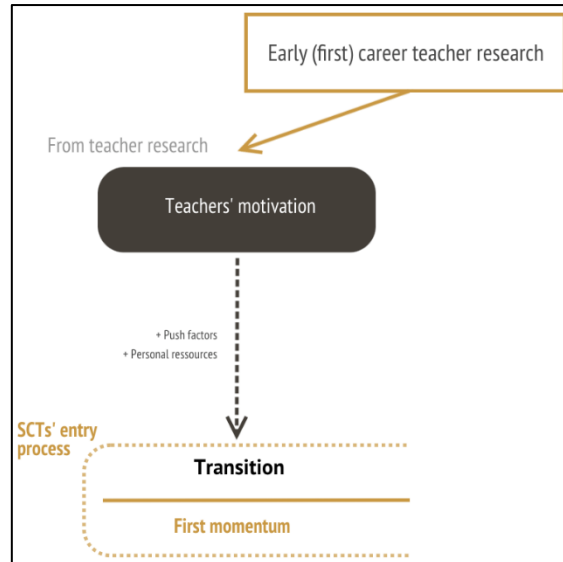
For all the reasons we have just sketched, and as we develop in detail further on, we believe that three different strands of theory/research, teacher motivation, teacher induction and organizational socialization, are required in order to conceptualize and analyze SCTs' entry process. Figure 3 represents a brief overview of the theoretical foundations of this doctoral research and the articulations between what we have presented as (1) two starting points of reflection from early career teacher research, (2) three trends in teacher induction research and (3) three strands of theory/research. It shows that we began with the early (first) career teacher research and more specifically, we took as our starting points teacher motivation and teacher induction theory/research. We then enriched what we had drawn from the literature on teacher induction with insights from the literature on organizational socialization. On the one hand, the literature on teacher motivation helped us to conceptualize the first momentum of SCTs' entry process, that is, their transition. On the other, teacher induction and organizational socialization, when integrated into the teachers' work socialization concept, helped us to conceptualize the second momentum of SCTs' entry

process. This entire illustration (Figure 3) was developed step-by-step as described in the following sections and shown in the partial figures that follow each sub-title.

Figure 3. A brief overview of the theoretical foundations of this doctoral research



3.1 The first 'momentum': SCTs as transitioners



Research addressing teachers' motivations to join the teaching profession has often been based on the need to develop effective strategies to attract people to the teaching profession (Fray & Gore, 2018). Through the FIT-choice project and its many related publications, Watt and Richardson argued and showed that teacher motivation theory and research can also help scholars to understand teacher induction experiences and, ultimately, can provide important insights regarding the teacher attrition phenomenon (Watt et al., 2012; Watt & Richardson, 2007, 2012, 2014). As such, a substantial body of research on pre-service and first career teachers' motivations has shown that "good" motivations to enter the teaching profession influence several factors associated with teacher retention (Alexander et al., 2020; Bilim, 2014; Fokkens-Bruinsma & Canrinus, 2012; McLean et al., 2019; Watt & Richardson, 2014). Mainly, research has shown that intrinsic motivations, social utility motivations, and desire to work with youth, as "good" motivations, have a positive influence on retention, while situations involving a fallback career choice and personal utility motivations are negatively related to teacher retention (Bilim, 2014; Fokkens-Bruinsma & Canrinus, 2012; Watt & Richardson, 2014). The FIT-choice model was inspired by occupational choice theories and career fit theories (Watt & Richardson, 2012). With regard to the dual objectives addressed by the model (understanding (1) why they enter in order to understand also (2) why they leave), we could say that the FIT-choice name for the model refers as much to "the choice that fits" as to "factors influencing teaching choice". This suggests that some types of motivations do not fit with the teaching profession. A mismatch between the motivations to become a teacher and early experiences as a teacher is likely to impact the induction

experience negatively, and subsequently, is likely to cause early career attrition that can be considered legitimate¹¹.

To deepen this reflection about such a ‘mismatch’ between motivations and the realities of the profession, we would like to turn to the article by Kelchtermans (2017) discussing the meaning of attrition and retention. Proposing avenues to solve teacher attrition presumes that teacher attrition is a problem. When presenting teacher attrition as a problem¹², it is important to clarify that it is only a problem when it refers to “good” teachers who leave the profession for “wrong” reasons (Kelchtermans, 2017). Following Kelchtermans, we can thus argue that “(...) not every teacher who leaves the profession constitutes an ‘educational loss’” (2017, p. 5). Just because someone enters the teaching profession does not mean that they should absolutely stay in it. They can feel themselves ‘not in the right place’. This is particularly critical for SCTs, as previous research has shown that while they report the same motivations as first career teachers, they also have particular motivational patterns related to strong expectations regarding their professional transition into the teaching profession (Lee, 2011; Lee & Lamport, 2011; Newman, 2010). These patterns are sometimes described as shaped by a desire for job security and time for family (Anthony & Ord, 2008; Richardson & Watt, 2005) as well as by strong intrinsic and sense-of-calling motivations (Laming & Horne, 2013).

This shows that for second career teachers, the motives for the professional transition may be complex and are likely to be related to different expectations and ultimately, different induction experiences (Backes & Burns, 2008). As an illustration, a study conducted by Berger and d’Ascoli (2012b) showed that not all second career teachers join the teaching profession for “good” reasons and that second career teachers with their choice driven by what these authors called ‘maladaptive motivations’ are more likely to leave the profession. By maladaptive motivations, they meant personal utility motivations such as job security, having time for family, and having long holidays. Berger and D’Ascoli (2012b) argued that understanding the heterogeneity of motivations for the professional transition of second career teachers is important, both in order to know the most significant factors that attract these teachers and in order to understand what motivational factors are related to satisfaction with the choice to become a teacher. Yet, apart from the study by Berger and D’Ascoli (2012b), although there is a substantial body of literature about SCTs’ motivations, these studies have mainly aimed at developing strategies for recruitment instead of considering the influence of these motivations on SCTs’ induction (Anthony & Ord, 2008).

¹¹ Whether this leaving is beneficial to the educational system, to the teacher or to both.

¹² Understood here as an educational issue, meaning a loss for the students, the schools, or the educational system. Attrition may also be considered as a problem from other perspectives, such as an economic perspective (Kelchtermans, 2017).

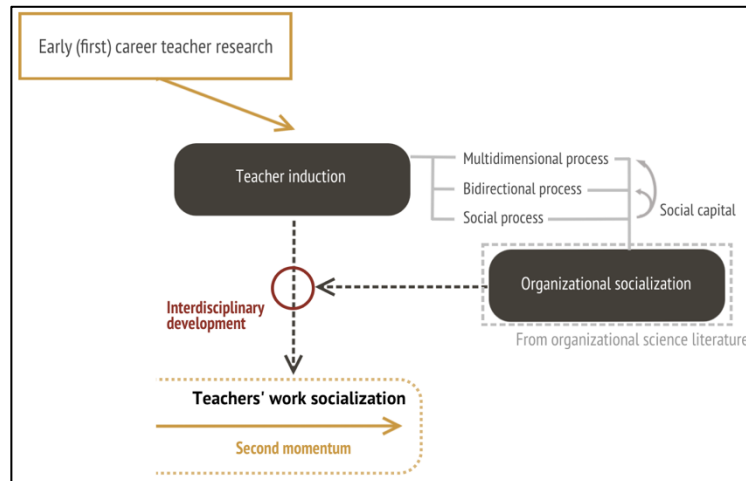
The study by Berger and d'Ascoli (2012b) on SCTs' motivations showed that SCTs have highly heterogeneous reasons for the transition. This goes with the idea developed in the problem statement that SCTs have different transition stories. However, their transition stories are not only shaped by pull factors such as motivations to join the profession. They can also be shaped by push factors (Anthony & Ord, 2008). The literature on career transitions highlights three elements related to a professional transition. A career transition can be defined as the period or the phase during which a professional changes his/her career orientation (Fernandez et al., 2008). It implies: disengaging from a previous occupation, as a voluntary choice or not; choosing a new profession, which could be a new vocation or not; and adapting to this new profession (Balleux & Perez-Roux, 2011). By focusing on SCTs' choice to join teaching as a new profession, studies have shown that understanding the motivations of SCTs to join the teaching profession is interesting for gaining insight into how they live through the transition period and, ultimately, through their induction process (Anthony & Ord, 2008; Daguplo, 2013). Additionally, studies have suggested that understanding the reasons for the transition among SCTs is a relevant way to grasp the heterogeneity of the SCT population, by making visible an important part of their transition story (Paniagua & Sánchez-Martí, 2018; Tigchelaar et al., 2010). Berger and D'Ascoli (2012b) followed this suggestion and analyzed the different motivational profiles among a sample of TVET second career teachers. They found strong heterogeneity across SCT transition stories and highlighted five different motivational profiles: maladaptive, low opportunity, high personal utility, high opportunity, and multiple motivations. Their results showed that these different profiles predicted different feeling of satisfaction about the choice to join the teaching profession.

Nevertheless, as the definition of a career transition highlights, a career transition is not just choosing a new career; it also implies leaving a prior occupation, representing push factors, and adapting to a new one, representing personal resources (Balleux & Perez-Roux, 2011). Therefore, we argue that by adding these aspects we can go one step further and contribute to a finer-grained understanding of who SCTs are as *transitioners* and how heterogeneous this population might be. To grasp the entry profiles of SCTs more precisely, it is necessary to grasp the three aspects of their transition: who they are (1) as professionals who left a previous career (push factors), (2) as professionals who decided to join the teaching profession (pull factors), and (3) as professionals who must adapt to this new profession (personal resources). We believe that these three aspects of the SCT transition must be considered to obtain a more complete picture of their professional transition stories. These different career transition stories are likely to explain different induction experiences and, as such, are part of their entry process (Bar-Tal et al., 2019; Berger & D'Ascoli, 2012b; Tigchelaar et al., 2008).

Existing research has shown that understanding the heterogeneity of SCTs' motivational profiles could be interesting for understanding their entry process. We have contributed theoretically by developing an approach to SCTs' entry profiles, not only on the basis of their motivations, but also by taking into account push factors that lead them to leave a previous occupation and personal resources that enable them to adapt to a new profession. In their

entry profiles, we try to grasp the three aspects making them *transitioners*: they left, they chose, and they have to adapt.

3.2 The second momentum: Teacher induction, organizational socialization, teachers' work socialization



In this section, first, we describe three research trends in the teacher induction literature. Then we highlight their relevance for the case of SCTs. Second, we highlight the need to supplement the (first career) teacher induction research with the concept of organizational socialization. Third, we develop how we integrated teacher induction and organizational socialization into the concept of teachers' work socialization. Finally, we define the concept of social capital, as it is a fine-grained theoretical lens for understanding specifically the importance of the social dimension of teachers' work socialization process (Fang et al., 2011).

3.2.1 Teacher induction research



First, teacher induction research has focused for a long time on the classroom-level challenges of early career teachers (Kelchtermans, 2019). More recently, we can trace a shift

to considering teacher induction and professional development processes related not only to competence to work in classrooms, but also to work in schools (Tang, Wong, & Cheng, 2016). This shift is a trend that became particularly visible these past few years but is rooted in seminal studies that have been published more than twenty years ago. We could cite notably Bullough (1989) who highlighted the organizational realities that novice teachers have to deal with; Kelchtermans and Ballet (2002) who shed light on the interaction between the novice and the school organization through the micro-political perspective; Feiman-Nemser (2003) who explained that novice teachers pass through an enculturation process when discovering the school as an organization with a particular culture. These studies and the recent trend that builds on them show that the teacher induction process occurs at the organizational level (i.e., meso level), as well as at the classroom level (i.e., micro-level; März et al., 2019; März & Kelchtermans, 2020). As a result of this shift, there are more and more references in the scientific literature to teachers' socialization process "into the school as an organization," referring particularly to familiarization with the school culture and the relational dynamics between colleagues (Kelchtermans, 2019, p. 84). The concept of organizational socialization has also begun appearing in teacher induction research, inspired by work in organizational science domain (Kearney, 2015; Kelchtermans, 2019).

Second, teacher induction research has been marked by a deficit approach toward perceiving novice teachers (Kelchtermans, 2019). Novices are often considered lacking in expertise and studies have tended to mainly focus on the problems they encounter (Ulvik & Langørgen, 2012). Such an approach creates a form of rhetoric identifying the novice teacher as someone who must grow to become a fully functional professional. Nevertheless, recently, studies have shown that beginning teachers have their own expertise and that their experienced colleagues can learn from them, too (März & Kelchtermans, 2020; Ulvik & Langørgen, 2012). Recognizing beginning teachers in their expertise facilitates their induction and contributes to the development of their self-efficacy (März & Kelchtermans, 2020). In the teacher research, scholars have begun considering more and more that beginning teacher socialization is not only about novices learning, but also about recognizing the possible contributions of these novices (Cherubini, 2009; see also Acfas symposium on non-deficit approach, 2021).

Third, the induction process of teachers has come to be more and more described as a socially embedded process occurring in their workplace: the school (Kelchtermans, 2017). In this sense, teacher induction and professional development are no longer considered as individual constructs, but rather as constructs embedded in a collaborative and fundamentally social dynamic (Baker-Doyle, 2015; Vangrieken et al., 2017). In line with this trend, a large amount of studies have highlighted the importance of new teacher informal workplace learning through interactions with peers (Baker-Doyle & Yoon, 2020), the importance of interactions for teachers' self-efficacy (Neugebauer et al., 2019), to support teacher induction (März & Kelchtermans, 2020), and to limit teacher turnover (Hopkins et al., 2019). This trend can be readily summarized by the increasing popularity of this statement about teachers' professional development: "Relationships matter" (Moolenaar, 2012, p. 31). As a matter of fact, following this conceptual shift, educational researchers turned to social capital theory

and to a social network approach for considering teachers' professional development and induction issues, trying to capture patterns of ties between teachers to better understand teachers' collaboration, teachers' interactions, teachers' support, teachers' learning, and so forth. We could say that the social network approach has become mainstream in the teacher research domain (Baker-Doyle & Yoon, 2020).

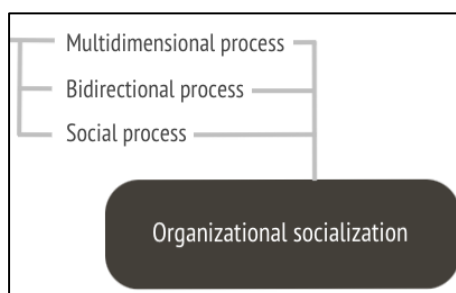
These three recent trends seem particularly relevant for grasping SCTs' reality. First, going through the literature on second career teachers, we can find three general themes that characterized the multiple difficulties experienced by novice SCTs. One of the most predominant themes is related to familiarization with their new workplace: the school. For SCTs, it is difficult to grasp the school ethos (Varadharajan et al., 2018). They enter into a totally new organization with its own culture, shaped by bureaucratic, but at the same time not very formalized, dynamics (Haggard et al., 2006). Schools' routines are full of hidden or poorly defined norms and habits that are difficult for these particular teachers to understand (Gordon & Newby Parham, 2019; Lee, 2011). SCTs also report difficulty familiarizing themselves with the collective dynamics of the other teachers and difficulty in becoming integrating into the workgroup (Chambers, 2002; Cuddapah & Stanford, 2015). They have the feeling of being professionally isolated (Haim & Amdur, 2016), which creates an obstacle for SCTs' familiarization with their new profession and their new workplace (Brindley & Parker, 2010). A second predominant theme reported by SCTs is the heavy workload they experience during their first years in the profession (Haggard et al., 2006). This workload is often considered to be a consequence of their double work-training schedule (Brouwer, 2007). A number of SCTs begin their certification program during their first year in the teaching profession, which means that they suffer from double work pressure (Deschenaux & Roussel, 2010). The third theme is related to their classroom practices. Some studies have highlighted that possessing professional expertise does not always imply being able to transfer it (Baeten & Meeus, 2016). Researchers have also found that SCTs struggle with classroom management because of their lack of a pedagogical background, and they encounter difficulties in motivating their students (Brouwer, 2007; Powers, 2002). These elements show that – besides the classroom-level – the meso-level of the SCT induction process is particularly salient (i.e., becoming integrating with the collectivity and familiarizing themselves with the school organization). Indeed, SCTs enter the school with another professional life behind them, and encountering the school organization and its culture and routines is especially challenging for them (Cuddapah & Stanford, 2015; Gordon & Newby Parham, 2019).

Second, SCTs are experienced novices with a strong professional background (Nielsen, 2016). Several authors have emphasized the importance for SCTs of having opportunities to share their prior skills and experiences (Tigchelaar et al., 2010; Varadharajan et al., 2019). In their recent systematic literature review, Ruitenburg and Tigchelaar (2021) highlighted that the induction experience of SCTs is highly driven by recognition from their colleagues and their school of what they have to offer. Yet, SCTs report being frustrated by the lack of recognition they experience (Ruitenburg & Tigchelaar, 2021).

Third, the social dimension of SCT induction seems to have extra importance. Lee argued that “collegiality is of extra importance to second career teachers, many of whom enter the teaching profession from the business world with its work teams and collaborative projects” (2011, p. 4). Day-to-day professional exchanges with colleagues have been reported by SCTs as one of the most useful sources of learning and professional development (Csíkos et al., 2018). Nevertheless, studies have shown that SCTs often struggle with becoming integrated into the workgroup, which results in a lack of contact with colleagues (Haim & Amdur, 2016).

To sum up, these three elements (induction as a multidimensional process, induction as a recognition process, and induction as a social process) are emerging in teacher research and seem to be particularly relevant and important regarding SCT induction realities. As these trends emerge, we can find some scholars highly rooted in these trends, representing interesting theoretical sources. Nevertheless, a body of literature representing systematic and in-depth research about these aspects is lacking. Because these aspects are particularly salient for SCTs, we need to supplement these emerging research trends by relying also on another research tradition that has sought to understand the process of entering an organization as a workplace for a long time, that is, research on organizational socialization.

3.2.2 Organizational socialization



We chose to enrich and complete the emerging teacher research trends by linking them with another research field that has a long research tradition regarding these trends: the organizational sciences domain. The organizational sciences research domain has considered the processes involved during the entry of newcomers into an organization through the concept of organizational socialization (Chao, 2012; Van Maanen & Schein, 1979): “Organizational socialization is about new beginnings—individuals starting new jobs within an organizational context” (Wanberg, 2012, p. 3). Organizational socialization begins at entry into an organization and is defined as “the process through which individuals acquire the knowledge, skills, attitude, and behaviors required to adapt to a new work role” (Wanberg, 2012, p. 3). This research field is intrinsically related to novices’ discovery of the job and familiarization with the organization, which makes this research field quite inspiring for

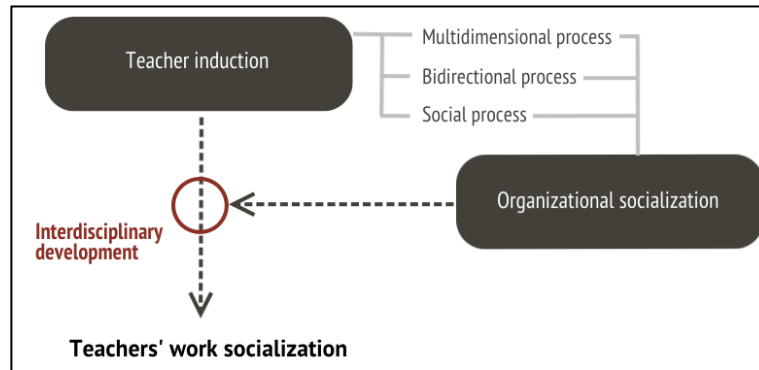
teacher induction research (Fletcher et al., 2008) and for second career teacher induction research in particular.

Organizational socialization is defined as a multidimensional process (Chao et al., 1994). A number of researchers have tried to grasp the complexity of the organizational socialization process by trying to highlight the dimensionality of the concept. These studies created a sub-research tradition focused on the *domains* of socialization (Klein & Heuser, 2008). For example, Chao and colleagues (1994) developed a psychometric instrument measuring six different dimensions of socialization: performance proficiency, people (colleagues), politics (micro-political climate), language (specific jargon), organizational goals and values, and history (of the organization). Haueter et al. (2003) highlighted three dimensions: group socialization, task socialization, and organization socialization. Taormina (2004) found four dimensions: training, understanding, co-worker support, and future prospects. Several organizational socialization scales based on different numbers and types of dimensions have been developed over the years (Chao, 2012). This is understandable, as organizational socialization is a highly contextualized concept, given that one profession will not require the same socialization process as another (Bourhis, 2004). Up until now, no organizational socialization scale had been developed for the teaching profession (Richards et al., 2014).

The organizational socialization process is characterized by a bidirectional dynamic (Feldman, 2012; Jokisaari & Nurmi, 2012; Pogodzinski, 2012) that has been studied for a long time (Feldman, 1994). On the one hand, socialization can be characterized as an “incoming” process, which refers to the process of learning about the professional role to be assumed and learning about the environment in which this role takes place (Klein & Heuser, 2008). On the other hand, socialization is an “outgoing” process, with reference to recognition for specific knowledge and expertise (Feldman, 2012).

Several approaches have been described in the organizational studies literature that help to explain how the organizational socialization of newcomers can be facilitated (Saks & Gruman, 2012). These approaches can mainly be identified as either managerial approaches (i.e., questioning what the organization has put in place to support the socialization of novices) or individual approaches (focusing on individual characteristics that facilitate the socialization process). Beyond these two approaches, there is growing recognition of the importance of social relations in the workplace as the implicit mechanism by which socialization occurs (Korte & Lin, 2013; Pogodzinski, 2012). Across many disciplines, several authors have argued that professional relations are the most important factor for both learning the ropes of the job and sharing knowledge, as well as feeling recognized as a resource for and by peers (Fang et al., 2011; Jokisaari & Nurmi, 2012; Korte & Lin, 2013). It appears that relationships with colleagues as socialization agents are the dominant factor in successful socialization (Klein & Heuser, 2008; Korte & Lin, 2013).

3.2.3 Teachers' work socialization



We made the decision to complement the three recent trends from the teacher induction research domain highlighted previously (multidimensional, bidirectional, and social process) with insights from the organizational sciences domain, in order to benefit from the expertise coming from the long historical development of the latter about the multidimensionality, the bidirectionality, and the social dimension of the newcomer work socialization process. As such, in this thesis, we define teachers' work socialization as a multidimensional, bidirectional, and social process.

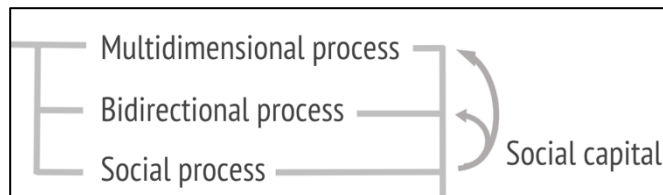
At this stage, it should become clear that the concept of organizational socialization is promising for research on second career teacher induction. Nevertheless, it must always be contextualized for a specific profession (Ashford & Nurmohamed, 2012). Each job differs in terms of the specificities of its socialization process (Bourhis, 2004). Even though there are more and more references to the concept of organizational socialization in the recent teacher induction literature, a theoretical framework contextualizing insights from the organizational socialization literature to teacher induction is lacking. It should be noted that some elements emphasized in organizational socialization research have been addressed in teacher induction research such as understanding the school culture (Tang et al., 2016), integrating the teaching staff (Kearney, 2015), or trying to map the socialization phases of teachers (Fletcher et al., 2008). Some of these had even already been developed in seminal studies on the organizational dimension of teacher induction (Bullough, 1989; Feiman-Nemser, 2003; Kelchtermans & Ballet, 2002). However, there is a lack of studies aiming to develop all these aspects within a coherent theoretical framework that would contextualize the organizational socialization concept to the teaching profession.

Until this contextualization is done, the concept cannot refer to *teachers'* work socialization. In the chapters of this manuscript reporting the studies that were conducted, we develop the contextualized concept of teachers' work socialization, based on an adapted framework combining organizational socialization research and teacher induction research to yield an integrative concept that we have called teachers' work socialization. This has situated our theoretical ambition in line with current work that considers teacher induction

and professional development as multidimensional, bidirectional, and socially embedded (Kearney, 2015; Kelchtermans, 2019; Leroux & Mukamurera, 2013; Martineau et al., 2009; März et al., 2019; März & Kelchtermans, 2020; Mukamurera, 2010; Perez-Roux, 2011; Richards et al., 2014; Tang, Wong, et al., 2016; Tang, Cheng, et al., 2016). The concept of teachers' work socialization refers as much to an evolved perspective of teacher induction as to a contextualized perspective of organizational socialization. We explain in the General discussion section (p. 227) why we choose "teachers' work socialization" to (re)name this concept.

As the social aspect is presented as the main factor in teachers' work socialization, in the next section, we introduce the concept of social capital, which captures this aspect theoretically.

3.2.4 Social capital: The key lever for familiarization and recognition



A trendy concept

In the teacher induction and organizational socialization literature, several authors have specifically emphasized the social dimension of the socialization process and have argued that professional relations are the most important factor for both learning the ropes of the job and sharing knowledge, as well as feeling recognized as a resource for and by peers (Fang et al., 2011; Korte & Lin, 2013; März & Kelchtermans, 2020). Socialization agents are presented as the dominant factor in successful work socialization (Klein & Heuser, 2008; Korte & Lin, 2013):

(...) employees learn about their job and organizations through social relations and interactions in the workplace. Through their positions in the social networks, individuals are able to attain information (...) and resources that enable them to progress in their job and integration into the workplace. (Jokisaari & Nurmi, 2012, p. 78)

(...) it is not necessarily the challenges of the field, nor the characteristics of the individual that determine if one stays or leaves; it is the structure of the social-professional support. It appears that a combination of difficult elements in a high intensity situation will only result in a departure if there are not strong social-professional relationships intact. (Newberry & Allsop, 2017)

These different elements have led the fields of both teacher induction and organizational studies to capture the importance of peers theoretically through the concept of social capital (Fang et al., 2011; Lin, 2001; Penuel et al., 2009). In sum, it is through their professional network that novices learn how to do their job, and this network represents an opportunity to share their own knowledge and be considered as resources. This social dimension seems to be specifically important for SCTs. In a recent empirical study, SCTs reported “discussions with colleagues” as the most used and the most useful source of professional development (Csíkos et al., 2018). In a systematic literature review on SCT induction, colleagues were described as “powerful informal sources of support” (Ruitenburg & Tigchelaar 2021, pp. 11-12). The review concluded that supporting collegiality around SCTs could be a key factor to promote retention. Given these elements, we argue that social capital is “a fine-grained theoretical lens” (Fang et al., 2011, p. 143) for exploring the work socialization process of SCTs.

In the teacher research domain the concept of social capital has become mainstream (Baker-Doyle & Yoon, 2020). Studies have highlighted social capital as a resource for teachers' learning (Daly et al., 2020), novice teacher recognition (März & Kelchtermans, 2020), teacher induction (Thomas et al., 2019), teachers' self-efficacy (Neugebauer et al., 2019), teachers' well-being and job satisfaction (Edinger & Edinger, 2018), teachers' support (Bristol & Shirrell, 2019), and teacher turnover (Hopkins et al., 2019). However, even though this increasing body of literature seems to build on the same fundamental concept, namely, social capital, these studies identify important differences about the nature of social capital.

Two different conceptualizations of social capital

The term “social capital” is more than 100 years old. The origin of the concept is not clearly identified. Some sources have attributed the first use of the term to Hanifan or Weber (Claridge, 2004), while others have pointed to Durkheim and Marx as setting out its conceptual foundations (Portes, 1998). Through the years, the idea of social capital has been used in many disciplines (i.e., economy, sociology, psychology, education, etc.; Dika & Singh, 2002), and with several different meanings (Farr, 2004). Modern uses of the construct of social capital have built particularly on the works of Putnam (1994), Bourdieu (1980), Coleman (1988), Nahapiet and Ghoshal (1998), and Lin (2001). In its broadest sense, social capital refers to capital that is “very social, very relational, unlike other forms of capital – notably economic capital” (Tlili & Obsiye, 2014, p. 553).

Through Putnam, Bourdieu, Coleman, Nahapiet and Ghoshal, and Lin, representing the foundations of modern conceptualizations of social capital, we can highlight two different conceptualizations of social capital that reflect two different natures (Son, 2020). Individual social capital is the benefits that a person has as a function of their social position in a social network. As such, individual social capital has also been called network-based social capital (Lin, 2001). Collective social capital is the collective good that is shaped by a community. As such, collective social capital has also been called civic capital (Paccagnella & Sestito, 2014). Individual social capital and collective social capital are sometimes interconnected,

as in Coleman's conceptualization (1988), or radically opposed, as in Lin's (2001) and Putnam's (1994) conceptualizations. Regardless of the possible interconnection or opposition of these concepts, scholars have agreed that the individual and the collective form of social capital are not the same idea (see Figure 5 for an illustration of these two conceptualizations). This duality represents a "considerable disagreement about whether social capital is a collective attribute of communities of societies, or whether its beneficial properties are associated with individuals and their social relationships" (Poortinga, 2006, p. 293). In addition, Coleman's (1988) stance of using the umbrella term "social capital" to present both individual and collective forms of social capital has been highly criticized:

Coleman obscures the notion of social capital by including under this term mechanisms that generate social capital (such as mutual expectation and group reinforcement and norms), the consequences of possessing it (such as privileged access to information), and the 'appropriable' social organization that provides the context for the former two (sources and effects). (Marrero, 2006, p. 5)

The disagreement is not problematic in itself. However, it becomes a problem when the umbrella term "social capital" is used while overlooking the debate. The risk is in mixing arguments based on collective social capital and individual social capital without knowing that these are distinct conceptualizations, from which can arise "conceptual chaos" that could lead to the downfall of the concept of social capital (Fine, 2010). In particular, in the teacher research domain, these two conceptualizations of social capital (i.e., individual and collective social capital) have sometimes been used under the umbrella term "social capital", although they represent two different concepts. In the teacher research that uses social capital, there is no one consensual definition of social capital, but several that are, given the debate over individual and collective social capital, not reconcilable. Liou et al. (2017) serves as an illustration of a study mixing these two conceptualizations under the umbrella term "social capital." They defined social capital as "the resources embedded in social networks that are formed by social relations" (Liou et al., 2017; p. 636), referring to Lin's (2001) work on individual social capital. But they also described social capital as shaped by two dimensions: social network structure and culture of trust between teachers. However, according to Lin (2008) and to Son (2020), and illustrating the incompatibility of these two definitions of social capital under the same umbrella term:

(...) trust has also been employed as a component or an indicative of social capital. However, its "social" nature is uncertain, and conceptually it might be more appropriate to consider it as an antecedent or effect rather than a component of social capital. (...) These discussions do not take away the conceptual significance of trust in its various forms (...). Rather, they remind us that it behooves us to refrain from equating trust with social capital. (Lin, 2008, p. 17)

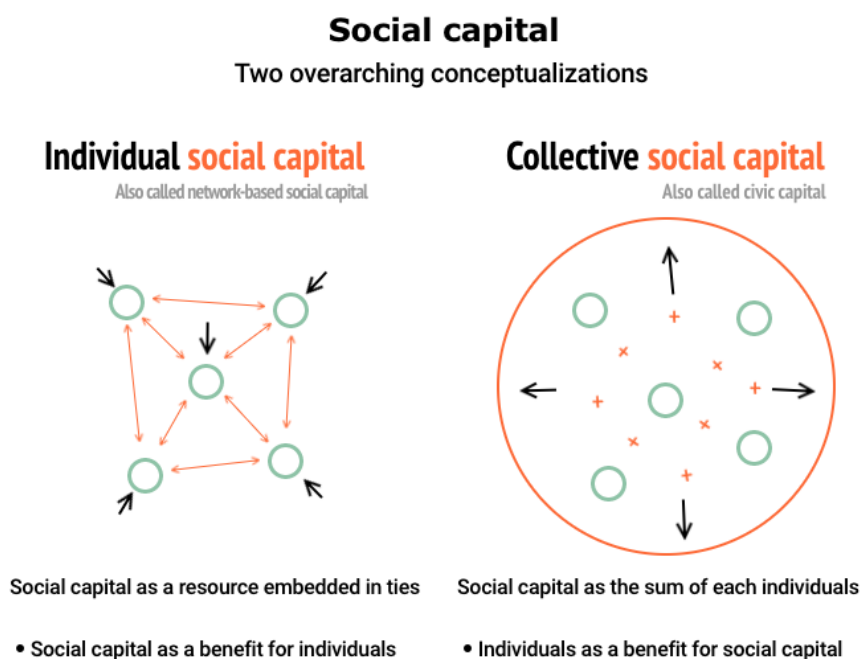
Trust is exogenous to [individual] social capital. Trust is an attitude toward people. [Individual] Social capital indicates the volume of instrumental and expressive resources within a network. In extreme cases, social capital can exist regardless of the degree or even the presence or absence of trust as long as there are operational ties. (...) If one understands social

capital in a figurative and symbolic way, detached from the concrete resources commonly held by a network of people, one may call trust social capital. (...) Of course, a network-based theory of social capital refutes this idea because trust and norms are not resources in themselves. (Son, 2020, p. 149, 150)

Many other studies in the teacher research also show this lack of conceptual clarity about the concept of social capital (see also Beusaert et al., 2021; Brown et al., 2016; Hopkins et al., 2019; Moolenaar et al., 2014). We argue that current teacher research using social capital may have contributed to making the concept fuzzy, and that there is a risk that the concept will become too general to be meaningful (Li, 2015). Therefore, we believe it is relevant to critically reflect on the uses of the concept of social capital in the teacher research in light of the scientific historical contexts of the concept (marked by a duality between individual and collective social capital) in order to highlight the need to clearly define social capital.

The use of the concept social capital in the context of teacher research is grounded in the idea that teachers' relationships matter because they represent resources, as a form of capital, for teachers' development (Moolenaar, 2012). Because this perspective of relational resources relates to individual social capital, we use the individual social capital perspective in our empirical studies (after clarifying the definitions of and the distinctions between individual and collective social capital in Chapter 4).

Figure 5. Individual and collective social capital



3.3 Linking and integrating: Beyond the rationales, an epistemological reflection

The theoretical framework we have developed in this introductory chapter is based on three strands of theory/research coming from either the research on early career teachers or organizational studies. We used two mechanisms from the interdisciplinary approach of sciences to create a whole theoretical framework about the entry process of second career teachers. The first mechanism is *integrating*, and the second is *linking* (Boon & Van Baalen, 2019). We *integrated* the teacher induction and organizational socialization literature to create the concept of teachers' work socialization. We *linked* the teacher motivation literature and the teachers' work socialization concept to capture the two momentums of the second career teachers' entry process.

As described by Boon and Van Baalen (2019), in following these two mechanisms, first, we combined insights from two fields of scholarship (i.e., teacher induction and organizational socialization) to integrate them into a concept that we have called teachers' work socialization, representing a new *epistemic resource*¹³. Second, we put side-by-side two *epistemic resources* (teacher motivation and teachers' work socialization) to capture the entry process of second career teachers. In plain text, in the effort of *integrating* teacher induction and organizational socialization, we confirmed some trends that are particularly emerging currently in teacher research by the same trends existing in organizational socialization research for a long time. It led us to consider the teachers' work socialization as a multidimensional, bidirectional, and social process. Additionally, we were inspired by the research tradition of the organizational socialization literature that aims to highlight specific dimensions of the socialization process for several work contexts (i.e., research about the *domains* of organizational socialization). As a result, we pursued the objective to investigate these dimensions for the teaching profession (see chapter 3). Regarding the effort of *linking* teacher motivation and teachers' work socialization, we developed in this General introduction the need to look into both the transition (on the basis of the motivations) and the work socialization phases to understand the entry process of SCTs. While we have not connected these two research fields in the core chapters of this thesis, having conducted empirical studies using them separately enabled us to tell a complete story about the entry process of SCTs.

From an *isolationist* epistemological point of view (Girod-Séville & Perret, 2012), we acknowledge that the *integrating* process merging teacher induction research and organizational studies could be discussed, as it brought together two research traditions with different epistemological postures. In a simplistic description, reductive for the sake of clarity, and based on our own experience of diving into these research traditions, we could say that research on early career teachers is often characterized by a constructivist and

¹³ Understood here as “the ‘knowledge’ used in generating new ‘knowledge’” (Boon & Van Baalen, 2019, p. 15).

inductive approach, revealing in depth the specific experiences of (early career) teachers in their particular context. Organizational studies are mostly driven by a positivist and deductive approach, trying to grasp common realities between workers that are shared by different organizational contexts, often by using established models built to represent the realities. Thus, theoretical frameworks developed in these two research domains can have very different natures. As typical examples, the personal interpretative framework (Kelchtermans, 1993, 2009), well-known in the teacher research, is based on the idea that “to understand the lives, one must get the story” (Kelchtermans, 1993, p. 454), which is conducive to qualitative approaches to the phenomena (especially the narrative and biographical approach in the work of Kelchtermans). In contrast, the concept of organizational socialization, mainly developed in organizational studies, has been quite exclusively dedicated to creating indicators to measure the socialization of workers and to building theoretical models that can be tested statistically to be validated or completed (Wanberg, 2012). Indeed, these concepts do not refer to the same realities but to some degree represent typical types of theoretical frameworks for their respective research domains.

Nevertheless, from the epistemological *pluralism* point of view (Miller et al., 2008), combining research traditions that do not share the same epistemological traditions in an interdisciplinary approach can be desirable as it “open[s] the mind” of a research field (Girod-Séville & Perret, 2012). Without saying that our purpose was to open the mind of the teacher induction research (or that we have succeeded in doing so to some extent), we wanted at least to open our own mind about different theoretical approaches that could enrich the existing theoretical status of teacher induction research.

(...) from an epistemological perspective linking and integrating is perhaps one of the severest challenges of utilizing highly-fragmented scientific disciplines in solving highly-complex ‘real-world’ problems. In such interdisciplinary research, having expertise means that scientific researchers are able to use, link and integrate ‘knowledge’ (i.e., epistemic resources including data, concepts, models, and theories) and methods from disciplines DA, DB, etc., such as to generate ‘knowledge’ for solving the ‘real-world’ problem. (Boon & Van Baalen, 2019, p. 16)

4. Research design

4.1 Methodological posture

Methods used to answer research questions directly depend on the epistemological paradigm in which the research is anchored: “The choice of a particular epistemological base leads to a preference for a particular method on the grounds of its greater appropriateness given the preceding philosophical deliberations” (Bryman, 1984, p. 76).

As our epistemological approach is rooted in epistemological pluralism, it is not surprising that we combined multiple methods to answer our research questions. To conduct

our empirical studies, we opted for mixed-method designs (study 1 and study 4.1) or for quantitative designs (study 2 and study 4.2).

We also decided not to restrict ourselves to existing and usual methods used in the chosen research fields, but to use what seemed to us the best adapted to answer our research questions. Therefore, we used several data-analytic strategies: structural equation models (i.e., latent profiles analysis, see Chapter 2) used in many research disciplines; methods to develop and validate psychometric instruments, coming mainly from psychology (see Chapter 3); social-network analysis coming mainly from sociology (see chapter 5); a combination of social network analysis and hierarchical modelling in a multilevel multiple-classification multiple-membership social-network model (see Chapter 5) that is very specific and not commonly used; and qualitative interview analysis used in many research disciplines (see Chapter 2 and Chapter 5).

4.2 Data collections

As we used different research designs through the thesis (i.e., mixed-method and quantitative designs), we collected different data types. We collected these data following several sampling strategies according to the purpose of the studies and the accessibility of the sample. We conducted two large-scale quantitative data collections, two qualitative data collections, and social network data collections in three TVET schools. The first large-scale quantitative survey was sent to in-service SCTs with the support of the SeGEC (General Office of Catholic Education) and pre-service SCTs with the support of the FeProSoC (Federation of Catholic Social Promotion Education). The second large-scale quantitative survey was sent to teachers working in French-speaking Belgium and compulsory education (without other conditions) with the support of students following the master's program in educational sciences of our university. The qualitative data were collected from people who agreed (as a response in the questionnaire) to be contacted for interviews. As we were particularly interested in interviewing one SCT who did not respond to our multiple invitations, we proposed her a financial incentive. Then she agreed to be interviewed. For the social network data collection, we directly contacted several school principals of TVET schools of different sizes. We did not explain the purpose of the research project. Instead, we proposed to map the social network structure of their schools. While some data collection strategies, such as using a financial incentive or opening the sample to in-service SCTs when the study focused on pre-service SCTs, were not ideal, we made these choices on purpose and to serve the empirical and methodological needs of our studies. For these choices, we have carefully considered the pros and cons.

4.3 Chapters reporting studies

We conducted four studies in order to pursue our main research objective, which is understanding the entry process of second career teachers entering TVET schools. The four studies linked together tell one complete story about the entry process of second career

teachers. Meanwhile, each study pursued specific objectives and used a specific methodological approach.

Because we wanted to understand the transition of SCTs as the first momentum of their entry process, in the **first study** (Chapter 2), we focused on SCTs' transition stories (leaving a job, choosing to be a teacher, adapting to teaching) in order to understand the heterogeneity of SCTs' entry profiles and the impact of these profiles on their induction. Because we argued that we needed to develop the concept of teachers' work socialization, the **second study** (Chapter 3) linked teacher induction research and the organizational sciences domain to contextualize the organizational socialization concept to teaching. This new theoretical lens was called teachers' work socialization. This study involved scale development and validation. The scale was focused on the first direction of the work socialization process (learning and adapting). This second study also showed differences between first- and second career teachers in terms of work socialization. Because the social dimension has extra importance for teachers' work socialization process, the **third study** (Chapter 4) was a critical conceptual reflection about the concept of social capital. In this study, we discussed the two historical conceptualizations of the social capital concept: individual social capital and collective social capital. We argued that the teacher research is mainly rooted in the individual social capital research tradition, while mixing conceptual and methodological aspects derived from both collective and individual social capital conceptualizations. We developed why this can be problematic and proposed future prospects for the use of the social capital concept in teacher research. The second and third studies were theoretical and methodological reflections about the second momentum of SCTs' entry process. Because we wanted to describe, understand, and analyze the second momentum of SCTs' entry process, the **fourth study** (Chapter 5) was shaped by two empirical sub-studies and was about the social dimension of the work socialization of second career teachers into an organizational context. The first aimed to understand how the school professional network into which second career teachers enter explains their work socialization process. In this sub-study, we also developed the idea that the work socialization process is not only about learning the job, but is also about being recognized for specific expertise and competencies (referring to the non-deficit approach). The second sub-study aimed to quantitatively objectify the impact of the teacher professional network on teachers' work socialization process, comparing first and second career teachers.

Figure 6 presents how these studies are linked around the two general questions that we formulated in the section on "The general purpose of this thesis". Table 1 presents the contributions of the different studies: empirical (that is, how these studies contribute to better understanding of SCTs' entry process), theoretical (that is, how these studies contribute to our conceptual framework for SCTs' entry process), and methodological (that is, how these studies contribute to developing tools to analyze SCTs' entry process).

Figure 6. Links between the different studies

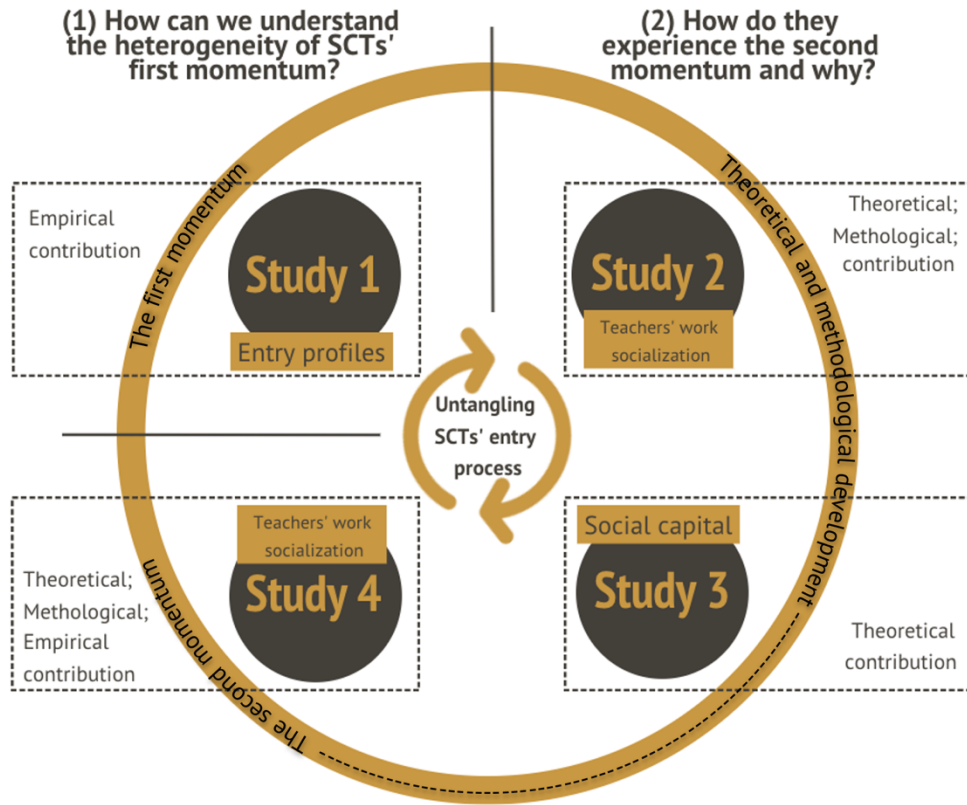


Table 1. Empirical, theoretical, and methodological contributions of the studies

Contribution Study	Untangling second career teachers' entry process (Empirical contribution)	Development of the teachers' work socialization concept and reflection about the social capital concept (Theoretical contribution)	Development of tools to analyze teachers' work socialization (Methodological contribution)
Study 1	• SCTs' profiles • Relation between profiles and induction experience		
Study 2		• Bringing together teacher induction and organizational socialization literature to shape the teachers' work socialization concept	• First psychometric instrument to measure teachers' work socialization
Study 3		• Two different concepts under the umbrella term social capital → stay consistent • Teacher research rooted in individual social capital research tradition	
Study 4	• How SCTs experience their work socialization process in light of their social capital • Impact of social capital on their work socialization	• Teachers' work socialization as a bidirectional process • Teachers' work socialization as a social process	• Procedure to predict teachers' work socialization with social network data (Multilevel multiple-classification multiple-membership social-network Model - MMMSNA)

4.4 Study 1. Transitioning into TVET schools: An exploration of second career teachers' entry profiles

The first empirical study was conducted during the 2018-2019 academic year. This study focused on the heterogeneity of SCTs' career transition stories. We operationalized this in terms of profiling based on SCTs' motivations to join the teaching profession, career adaptability, and prior job satisfaction. The outcome of their entry process was operationalized as teachers' self-efficacy. The specific research questions were:

- RQ1. What SCT profiles related to their entry into teaching emerge when taking into account specific combinations of entry-related variables addressing motivation to choose teaching, career adaptability, and prior job satisfaction?
- RQ2. How do teachers with these different profiles differ with regard to their sense of efficacy?
- RQ3. What does a closer look into these profiles reveal in terms of similarities and differences?

For this study, we combined a deductive and an inductive approach in a mixed-method research design (Creswell & Tashakkori, 2007). The complexity of the phenomenon of profiling SCTs calls for an inductive methodology to complement the deductive approach (Johnson & Onwuegbuzie, 2004). We explored the first and second research questions with quantitative analysis, and the third with qualitative analysis. Two hundred sixty-two SCTs participated in the quantitative study and 7 participated in the qualitative study through semi-structured interviews. Our results revealed three profiles having their own specific characteristics and predicting different levels of teachers' sense of efficacy.

4.5 Study 2. Measuring teachers' induction through the multiple aspects of work socialization: development and validation of the ISaTE scale

The second empirical study was conducted during the 2019-2020 academic year. This study represents an evolution toward the development of the teachers' work socialization concept. In this study, we linked teacher induction literature and organizational socialization literature to define teachers' work socialization and we refined the dimensionality of this concept through a scale development and validation. This scale is the first to operationalize a measure of socialization specifically for the teaching profession. For this study, 1427 teachers (first- and second career) responded to an online questionnaire.

Results highlighted four dimensions of teachers' work socialization: teaching tasks socialization, workgroup socialization, micro-political climate socialization, and organizational socialization. The scale presented a stable factor structure with four first-order factors and one second-order factor and strong arguments for predictive and inter-group validities. The scale showed strong measurement invariances between first- and second career teachers and strong measurement invariances between novices and more experienced teachers. In addition, comparisons between first- and second career teachers showed that

second career teachers reported lower scores on all dimensions of the teachers' work socialization scale.

4.6 Study 3. Social capital: A trendy but blurry concept

This study was a conceptual and critical reflection about the concept of social capital. In this study, we clarified the different definitions of social capital, illustrated them for the teacher research domain, presented individual social capital as a trendy concept in teacher research, discussed the consequences of mixing different conceptualizations of social capital, and explored the operationalization of individual social capital. The aim of this study was not to write a review on the concept of social capital, but rather to critically discuss the concept, especially its use in the teacher research domain.

4.7 Study 4. Second career teachers' work socialization process: How and why?

Study 4 focused on the social dimension of the teachers' socialization process. The first empirical part aimed to understand the social capital situation of second career teachers and how novice SCTs experience their work socialization process in light of this social capital situation. The second empirical part quantified the importance of the social capital for both first and second career teachers' work socialization process and compared the respective importance.

4.7.1 Empirical sub-study 1. Becoming second career teachers in TVET: A mixed-method social network perspective

This first empirical sub-study within the fourth study was conducted during the 2019-2020 academic year. In this study, we developed a new aspect of the teachers' work socialization concept. We presented teachers' work socialization as a learning process (as we did before) and also as a recognition process. This highlighted the bidirectionality of this process, that is, that it has an ingoing part (learning) and an outgoing part (recognition). Additionally, we presented work socialization as a social process, highlighting the importance of socialization agents to facilitate this process. The main objective of the study was to understand the social capital situation of novice SCTs in the particular context of TVET schools and the influence that situation may have on their work socialization process. The specific research questions were:

- RQ1. What is the position of SCTs in the network structure of TVET schools?
- RQ2. What does this position imply in terms of social capital for SCTs, both as to the availability of resources and as part of the social capital themselves?
- RQ3. How do novice SCTs describe their access to a professional network and how does this access contribute to their work socialization?
- RQ4. How do novice SCTs feel they are seen as a resource and how does this feeling contribute to their work socialization?

In this study, we used a mixed-method social network analysis approach (Froehlich et al., 2020), combining qualitative interpretation of social network visualizations, quantitative social network analysis, and qualitative analysis of interviews. This design was particularly relevant for understanding the interactional structure and how people experience their social position within the school network (Sarazin, 2019). Two schools (entire school staff) participated in the social network part of the study and five novice SCTs (three in the first school and two in the second) participated in the interviews. Quantitative network analyses were done specifically to address the position of SCTs within the school's internal structure and the impact of this position on their social capital (RQ1 and RQ2). Qualitative interview analysis aimed to obtain an in-depth understanding of how novice SCTs experience their socialization process in terms of having access to resources and being seen as resources (referring to the two directionalities of the work socialization process).

Our results showed that SCTs were mainly relegated to the periphery of the school network with little possible interaction with the rest of the school. Because of this situation, they struggled with the two directionalities of their work socialization process. They had fewer opportunities to ask for advice from their colleagues and fewer opportunities to share their expertise with peers than first career teachers. As a consequence, SCTs did not feel part of the school, or even did not feel that they were considered as “real teachers”.

4.7.2 Empirical sub-study 2. (Second career) teachers' work socialization as a networked process: New empirical and methodological insights

This second empirical sub-study within the fourth study was conducted during the 2020-2021 academic year. In this study, we analyzed the effect of social capital on teachers' work socialization for first and second career teachers. This study pursued two objectives. First, it aimed to give new insights into the importance of social capital in SCTs' work socialization process (in comparison with first career teachers). Second, it aimed to propose a methodological routine and a statistical model for assessing the link between social network data (here social capital) and individual outcomes (here teachers' work socialization). Two specific research questions were addressed to pursue our first objective:

- RQ1. To what extent does social capital predict the work socialization of teachers?
- RQ2. How does this prediction differ comparing first and second career teachers?

Our results showed that social capital had extra importance for both first and second career teachers, and even more for second-career teachers. Our results also highlighted the relevance of the methodological routine and statistical model we developed in this study.

Appendix A

In order to compare the proportion of first and second career new-entrant secondary teachers in the Belgian (FR) teaching workforce, we considered all new entrants under 25 years of age (excluding 25) as first career teachers and all new entrants 30 years of age and older as second career teachers. We made this choice because no available data existed to know the possible previous occupation of teachers, which would be the only ideal way to classify new teachers as first or second career teachers. The first cut-off age of 25 was chosen following several definitions of second career teachers characterizing them as 25 years old and up (Bar-Tal et al., 2019; Haim & Amdur, 2016; Varadharajan et al., 2018). It is, therefore, to be expected that those under 25 years old are mostly first career teachers. We did not consider new entrants between 25 and 29 years old. Indeed, we cannot completely assume that new teachers entering the job at 25, 26, or even 27 are not first career teachers who were delayed in the completion of their studies. So, we decide to set the cut-off at 30 years old for second career teachers, considering that the vast majority of new entrants aged 30 and over must have had a prior professional occupation.

To control how these cut-offs biased the representation of the current recruitment trends, we used another distinctive trait of second career teachers, which that a substantial part of them lack pedagogical certification. In our data set, 54.9% of new entrants over 30 years old (whom we expect to be 100% of second career teachers) did not possess pedagogical certification. Within those 25-29 years old, this proportion dropped to 40.8%. This showed that new entrants between 25 and 29 were not all second career teachers (if they were, we could expect the same proportion lacking pedagogical certification). It showed also that number of them were second career teachers, at least more than half of them. Consequently, using these cut-offs and omitting the 25-29 age group could lead to an underestimation of the growing proportion of new entrant second career teachers. This can only strengthen the trends we highlighted in figure 1, which does not represent a problematic bias.

Chapter 2

Transitioning into TVET schools

An exploration of second career teachers' entry profiles

In this study, we present and evaluate a way to profile second-career teachers in technical and vocational education and training schools that goes beyond the traditional motivational approach. More specifically, by considering multiple entry-related variables (entry motivation, career adaptability, and prior job satisfaction). Analyses based on a mixed methods design (262 prospective and in-service second-career teachers for the latent profile analysis and 7 in-service teachers for the multiple case study) revealed three profiles with their own specific characteristics, and predicting different levels of sense of efficacy for teaching. This study confirms the heterogeneity of the population of second-career teachers and invites reflection on the implications for their entry into teaching.

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Transitioning into TVET schools

An exploration of second career teachers' entry profiles

1. Introduction

Over the last two decades, many countries have faced growing teacher shortages (Berger & d'Ascoli, 2012a; Flynt & Morton, 2009; Haggard, Slostad, & Winterton, 2006; OECD, 2005; Serow & Forrest, 1994). In particular, according to the Education, Audiovisual and Culture Executive Agency (2012), "Belgium (French Community), Germany, Luxembourg and Turkey are the most affected by teacher shortages" (p. 113). Technical and vocational education and training schools (TVET schools) are the educational area suffering most from this shortage (OECD, 2009), due to the low status of the teaching profession and the poor public image of TVET schools (European Commission, 2004; Franquet, Friant, & Demeuse, 2010; Misra, 2011). One strategy identified in research and policy discussions to tackle this shortage is to attract and recruit second-career teachers (SCTs) in TVET schools (Baeten & Meeus, 2016; Tigchelaar, Brouwer, & Korthagen, 2008; Troesch & Bauer, 2017). SCTs are teachers with a prior occupation in another profession than teaching (Chambers, 2002). These teachers can add value to TVET schools in many ways (Haggard et al., 2006). They bring specialized occupational knowledge and skills into TVET schools due to their prior job experiences (Troesch & Bauer, 2017), such as "the ability to incorporate very specialized, practical and real-world knowledge into their instruction; possession of effective interpersonal skills; and possession of management and organizational skills" (Salyer, 2003, p. 20).

Nevertheless, according to Müller, Alliata, and Benninghoff (2009), the concern is not just about attracting and recruiting SCTs but also about retaining them. Research shows that the career transition into TVET schools is often challenging for SCTs (Baeten & Meeus, 2016; Coppe, März, & Raemdonck, 2020; Tigchelaar, Vermunt, & Brouwer, 2014; März, Mäki-Hakola, Raemdonck, & Coppe, 2018). Career transition can be defined as "the period during which an individual objectively takes on a different role and/or subjectively changes orientation to a role" (Fernandez, Fouquereau, & Heppner, 2008, p. 385). It involves workers' disengagement from their prior employment situation and engagement in a new one (Fernandez, Fouquereau, & Heppner, 2008). While transitioning into the teaching profession, SCTs also change their status from being an expert to becoming a novice (Berger et al., 2018). More specifically, they are experts in their professional field and at the same time novices in the teaching profession, which makes it challenging to develop a teacher identity (Eick, 2009). Research shows that TVET schools struggle with this dual status of SCTs (Tigchelaar, Brouwer, & Vermunt, 2010). For instance, schools often overestimate SCTs' teaching skills—they receive no "special training induction during their first year of teaching" (Salyer,

2003, p. 21)—and underestimate their prior competences (Laming & Horne, 2013). Research has therefore emphasized the importance of induction programs that specifically take into account both the need for support and the need for recognition of novice teachers' expertise (Anthony & Ord, 2008; März & Kelchtermans, 2020). For Berger et al. (2018), in addition to constructing a teacher identity, it is important for SCTs to maintain an identity in their original field and to find a balance between these two areas of expertise.

Despite the importance of SCTs' induction process, research regarding their induction process is limited (Baeten & Meeus, 2016; Berger & Girardet, 2015; Brindley & Parker, 2010). The focus in the existing literature is mostly on understanding SCTs' motivation to join the teaching profession (Anthony & Ord, 2008; Berger & d'Ascoli, 2012b). Studies have shown that motivational profiles are interesting to gain insight into how SCTs live through the transition period and how to characterize the expectations of these teachers (Anthony & Ord, 2008; Berger & d'Ascoli, 2012b; Crow, Levine & Nager, 1990; Daguplo, 2013). In addition, Tigchelaar et al. (2010) and Paniagua and Sánchez-Martí (2018) also highlighted the heterogeneity of experiences and reasons to make the transition among SCTs and invited future researchers to take this into account, in order to be as close as possible to what SCTs go through when joining the teaching profession.

However, SCTs' successful career transition is not just determined by pull factors such as their motivations to enter teaching. Push factors related to the previous job, such as their prior job satisfaction (Anthony & Ord, 2008), and personal resources, such as their career adaptability (Savickas & Porfeli, 2012), also play a role in career change and in how successful the induction process is experienced. Indeed, SCTs in particular are career switchers who had to adapt to a new career in a completely different sector than their previous job.

Therefore, we chose to go beyond describing profiles of SCTs in TVET only on the basis of their motivation to enter teaching. We take into account three entry-related variables that drive the career transition and may have an impact on the success of their transition: 1) their entry motivation, 2) the personal resources they possess for adapting, as career switchers, and 3) their prior job satisfaction. In this way, we assume that by considering their career adaptability and their prior job satisfaction, we can go one step further and contribute to a finer-grained understanding of who SCTs are (Berger & d'Ascoli, 2012b) and how heterogeneous this population might be (Hayenga & Corpus, 2010). Examining these multiple factors might also help to explain differences in the success of SCTs' career transition.

The aim of this study is therefore to identify and describe the heterogeneity in profiles of SCTs making the transition into TVET schools on the basis of three different factors. For this profiling, we use a person-centered approach. Following Bergman and Magnusson, person-oriented approaches are a way to consider the individual as a whole, "on the basis of their patterns of individual characteristics that are relevant for the problem under consideration" (1997, p. 293). By distinguishing different subgroups in our population, we present a typology that allows taking into account all types of professionals who decide to leave a prior

occupation to join TVET schools as teachers. To identify, describe, and understand the heterogeneity in SCT profiles, we employ a mixed methods design combining quantitative and qualitative research methods. The quantitative analyses will provide us a way to identify profiles based on several variables and the qualitative data will give us in-depth comprehension of these particular identified profiles. In particular, in order to identify profiles of SCTs, we used latent profile analysis based on three main concepts: (1) *the factors influencing teaching choice* (Berger & d'Ascoli, 2012b; Watts & Richardson, 2007), (2) *career adaptability* (Savickas & Porfeli, 2012), and (3) *prior job satisfaction* (Eisenberger et al., 1997). Additionally, we study the relation between SCTs' profile and an outcome variable, their self-efficacy beliefs, as an indicator of the success of their transition (*teachers' sense of efficacy*; Tschannen-Moran & Woolfolk Hoy, 2001). In order to come to an in-depth understanding of the different profiles, we opted for a multiple case study design with semi-structured interviews. The cases were selected as representative of the profiles identified in the latent profile analysis.

2. Theoretical framework and research questions

In this section, we first discuss the three entry-related variables we will use to profile SCTs: (1) *factors influencing teaching choice*, (2) *prior job satisfaction*, and (3) *career adaptability*. Second, we discuss *teachers' sense of efficacy*, which gives us a way to explore whether our profiles predict one aspect of SCTs' successful transition into the teaching profession. Finally, we develop the research questions.

2.1 FIT-Choice: An exhaustive model of teachers' motivations to join the teaching profession

Following Watts and Richardson (2007), Berger and d'Ascoli (2012b), and Anthony and Ord (2008), who highlighted the need for an exhaustive motivation model to explore SCTs' motivations, the FIT-choice model is a relevant choice for conceptualizing SCTs' motivations. This framework was initially constructed for first-career teachers, and was inspired by expectancy-value theory (Wigfield & Eccles, 2000). The original FIT-Choice scale contained two main parts: *entry motivations* and *entry beliefs*. While *entry motivations* refer to personal desires or situations, *entry beliefs* refer to perceptions about teaching status. As shown in Table 1, *entry motivations* have 12 dimensions and *entry beliefs* 5 dimensions (Watts & Richardson, 2007, p. 194).

Berger and d'Ascoli (2012b) adapted and tested the FIT-Choice scale for SCTs in Switzerland. Using factorial structure analyses, they identified similar dimensions as in the original FIT-Choice scale, but with some differences. Table 1 shows details and comparisons between the two versions. The main changes were the elimination of two dimensions, *job transferability* and *fallback career*, because they are irrelevant for SCTs, and the addition of the dimension *opportunity* to replace *fallback career* (Berger & d'Ascoli, 2012b). They defined opportunity as "choosing teaching simply by opportunity" (p. 228).

Table 1. Comparison between Fit-Choice and Adapted Fit-Choice

	Watt & Richardson (2007)	Berger & d'Ascoli (2012b)
	Entry motivations	
Personal utility motivation	Intrinsic career value	Intrinsic career value
	Job security	Job security
	Time for family	Time for family
	Job transferability*	N/A*
Social utility motivation	Shape future of children/adolescents*	Shape future of youth*
	Enhance social equity	Enhance social equity
	Make social contribution	Make social contribution
	Work with children/adolescents*	Work with youth*
	Perceived ability	Perceived ability
	Prior teaching and learning experiences	Prior teaching and learning experiences
	Social influences	Social influences
	Fallback career*	N/A*
	N/A*	Opportunity*
	<i>Moved down</i> *	<i>Social dissuasion</i> *
	Entry beliefs	
Task demands	Expert career	Expert career
	High demand	High demand
Task returns	Social status	Social status
	Salary	Salary
	Social dissuasion*	<i>Moved up</i> *

* Changes between original and adapted FIT-Choice scales

Berger and d'Ascoli (2012b) selected five dimensions from the adapted FIT-Choice scale as key concepts for understanding teachers' motivational profiles: *perceived teaching ability*, *intrinsic career value*, *social utility value*, *personal utility value*, and *opportunity*. On the basis of these dimensions, they identified five different motivational profiles of SCTs. The first is *maladaptive motivation*, which refers to "low intrinsic career value, low perceived teaching ability and low social utility value" (p. 238). The second is the *low opportunity* profile, which refers to "high intrinsic career value and low opportunity" (p. 238). The third is *high personal utility*, which involves "low intrinsic career value, low perceived teaching ability and high personal utility" (p. 238). The fourth is *high opportunity*, involving "low personal utility value and high opportunity" (p. 238). The fifth is the *multiple motivations*

profile. SCTs in this fifth profile score high on every factor. The names of the profiles depend on the extreme score in the profiles (very low or very high). The fourth and the fifth profiles accounted for the largest groups of SCTs.

2.2 Beyond a motivational framework: Prior job satisfaction and career adaptability

SCTs choose to join the teaching profession, but they also choose to leave another occupation. For some of them, the need to leave seems to be more important than the need to join. Anthony and Ord (2008) highlighted that in addition to *pull factors* such as motivations to teach, SCTs also mention *push factors* such as motivations to leave the prior profession. In order to take push factors into account, a measure of prior job satisfaction is relevant for the profiling of SCTs.

Career adaptability refers to an individual's resources for coping with current and anticipated tasks and transitions (Savickas & Porfeli, 2012). It is a stable, context-general, and trait-like psychological characteristic that involves the readiness and willingness to adapt to career changes. Career adaptability provides a way to anticipate and deal with career changes (Savickas et al., 2009). It is a *self-regulation process* that "allows people to face adverse work and professional situations, helping them to master school-to-work and work-to-work transitions" (Rossier, 2015). In a meta-analysis done by Rudolph, Lavigne, and Zacher (2017), adaptability was positively related to career identity, socialization and fit with the work role. Likewise, career adaptability might be an important factor in predicting success in career transitions. Based on previous results (Hirschi & Valero, 2015), we can expect variability in SCTs' personal resources for coping with career change.

Savickas and Porfeli (2012) developed the Career Adaptability scale, having four dimensions: *concern*, *control*, *curiosity*, and *confidence*. *Concern* is the ability to be prepared for what might come next. *Control* is the ability to evolve, to shape oneself and the environment for what comes next. *Curiosity* refers to the ability to think about oneself in different situations and different roles. *Confidence* is the ability to believe that choices about life projects can be made. These four adapt-abilities build a "psychological construct that denotes an individual's resources for coping with current and anticipated tasks, transitions, traumas in their occupational roles" (Savickas & Porfeli, 2012, p. 662).

2.3 Teachers' sense of efficacy

Teachers' sense of efficacy is measured based on personal perceptions of their own likely success in teaching (Duffin, French, & Patrick, 2012). This measure is frequently seen as strongly related to the persistence of teachers, their enthusiasm, their commitment, and their behavior as instructors (Tschannen-Moran & Woolfolk Hoy, 2001). In an empirical research, Yost (2006) found that novice teachers with a higher sense of teacher efficacy are more resilient when they enter the profession and are less likely to leave the profession, while

teachers with a lower sense of efficacy are more at risk. We expect similar results for SCTs and so we use this as an indicator of a successful transition into teaching.

2.4 Research questions

This study aims to identify and describe in-depth the heterogeneity of profiles of SCTs based on entry-related variables. Moreover, it considers the connection of the profiles with teachers' sense of efficacy. To this end, we address three research questions.

- RQ1. What SCT profiles related to their entry into teaching emerge when taking into account specific combinations of entry-related variables addressing motivation to choose teaching, career adaptability, and prior job satisfaction?
- RQ2. How do teachers with these different profiles differ with regard to their sense of efficacy?
- RQ3. What does a closer look into these profiles reveal in terms of similarities and differences?

3. Method

In this study, we use a mixed methods research design (Creswell & Tashakkori, 2007). Mixed methods research is a theoretically pragmatic approach that gives us the opportunity to answer diverse research questions with a diversity of relevant data (Johnson & Onwuegbuzie, 2004). The complexity of the phenomenon of profiling SCTs calls for an inductive methodology to complement the deductive one (Creswell & Tashakkori, 2007). More specifically, a mixed methods approach provides us with a way to interpret quantitatively-based SCT profiles (phase one) using semi-structured interviews (phase two). We explore the first and second research question with quantitative analysis, and the third with qualitative analysis.

3.1 Profiling second-career teachers: Quantitative study

3.1.1 Participants

Two hundred sixty-two SCTs (both prospective¹⁴ and in-service teachers) from the French community in Belgium (Mean age = 40.6 years, $SD = 10.5$) participated in the study. 40% percent of the participants were prospective teachers being in the transition process to become SCTs, 32% had been teaching as SCTs for up to five years, and 28% had been teaching as SCTs for more than five years (see Table 2).

¹⁴ Prospective teachers refer in this article to teacher candidates who were enrolled in a teacher training program and have had at least one teaching internship experience.

Table 2. Descriptive Statistics for the Sample (N= 262)

		n	%
Gender	Female		52.4
	Male		47.6
Teaching experience	0 years (still in teacher training program)	105	40.1
	1-5 years	84	32.1
	5 years and more	73	27.9
Prior sector	Health/Well-being	54	20.6
	Economy/Management	33	12.6
	Industry	28	10.7
	Social/Education (not teaching)	27	10.3
	Administration/Justice	20	7.6
	Construction	20	7.6
	Hotel/Catering	19	7.3
	IT/Telecom	13	5.0
	Communication	8	3.1
	Missing data	40	15.3

3.1.2 Measures

Types of motivations were measured through the adapted *FIT-Choice* scale developed by Berger and d'Ascoli (2012b). We selected five motivational dimensions from the *FIT-Choice*, consisting of nine sub-dimensions addressed in 29 items (7-point Likert scale). We did not include *social dissuasion* or *prior teaching and learning experiences*, as they are considered antecedents of motivational beliefs (Berger & d'Ascoli, 2012b). These five motivational dimensions are: 1) *personal utility* motivation (with two sub-dimensions: *time for family* and *job security*), 2) *social utility* motivation (with four sub-dimensions: *enhance social equity*, *shape future of youth*, *make social contribution*, and *work with youth*), 3) *perceived ability*, 4) *intrinsic motivation*, and 5) *opportunity*. This model with nine first-order factors and two second-order factors showed adequate fit ($N = 262$; CFI = .90; RMSEA = .06; Little, 2013). These dimensions have adequate reliability levels (see Table 3 for Cronbach's alphas).

Career adaptability was measured with the career adaptability scale - short form by Maggiori, Rossier, and Savickas (2015). This short form contains twelve items to measure four dimensions (7-point Likert scale). This scale is well known and has strong theoretical foundations (Maggiori et al., 2015). Since we are interested in the SCTs' resources for successfully undertaking a career transition and not specifically in the four dimensions of the scale, we ran a CFA with one factor, which showed adequate fit ($N = 258$; CFI = .95; RMSEA = .08). This construct has adequate reliability as well (see Table 3).

Prior job satisfaction was measured through the *overall job satisfaction* scale (Eisenberger et al., 1997), which consists of four items (7-point Likert scale). We adapted the formulation of some of the items to fit with SCTs' context. Subsequently, we ran a CFA with one factor to verify whether each of the four items belonged to the factor. Results indicated a perfect fit ($N = 246$; $\chi^2 = 0.21$, $df = 1$, $p = .88$; CFI = 1.00; RMSEA = .00) as well as adequate reliability levels (see Table 3).

To measure *teachers' sense of efficacy*, we used the short form of the scale developed by Tschannen-Moran and Woolfolk Hoy (2001) (7-point Likert scale). Originally, this scale had three sub-dimensions: engagement, instruction, and management; since we are using it as an indicator of the relevance of our profiling and not as a variable under investigation, we used a single score. CFA with one factor showed adequate fit ($N = 257$; CFI = .96; RMSEA = 0.08). This scale has adequate reliability levels.

Table 3. Description of the Scales

Scale/dimension	Sub-dimensions	N. items	Example of an item	α
Social utility motivations		10		.86
	Shape future of youth	2	Teaching allows me to influence the next generation	.65
	Enhance social equity	2	Teaching allows me to raise the ambitions of underprivileged youth	.77
	Make social contribution	3	Teaching allows me to provide a service to society	.81
	Work with youth	3	I like working with youths	.86
Personal utility motivations		8		.83
	Job security	3	Teaching is a secure job	.86
	Time for family	5	Teaching hours will fit with the responsibilities of having a family	.82
Perceived ability to teach		3	I have the qualities of a good teacher	.76
Opportunity		3	I simply got the chance to teach	.70
Intrinsic career value		4	I like teaching	.71
Career adaptability		12	(...)becoming aware of the educational and vocational choices that I must make	.90
Prior job satisfaction		4	If a good friend of mine told me that he/she was interested in working in a job like the one I did, I would strongly recommend it	.85
Teachers' sense of efficacy		12	To what extent can you provide an alternative explanation or example when students are confused?	.92

3.1.3 Analysis

We went through different steps in order to answer our first and second research question. First, to identify SCT profiles, we extracted latent factor scores (DiStefano, Zhu, & Mindrila, 2009) for our seven factors of interest: (*social utility motivation*, *personal utility motivation*, *opportunity*, *perceived ability*, *intrinsic motivation*, *career adaptability*, and *prior job satisfaction*). Second, to calculate latent profiles, we used the seven latent factorial scores as profile indicators. Five constructs were part of the adapted FIT-Choice scale (Berger & d'Ascoli, 2012b): *opportunity*, *intrinsic motivations*, *perceived ability*, *social utility motivations*, and *personal utility motivations*. The two other scores were for *career adaptability* (Maggiori et al., 2015) and *prior job satisfaction* (Eisenberger et al., 1997). For the last quantitative step, related to our second research question, following the identification of SCT profiles, we used this latent profile assignment as a predictor for *teachers' sense of efficacy* by using the Wald chi-squared difference test in Mplus 7.4.

Latent profiles

Latent profile analysis (LPA) is a person-centered approach, which provides a way to “describe similarities and differences *between individuals* with respect to how variables relate to each other” (Masyn, Nathan, & Little, 2013, pp. 552-553). There is no unique method for choosing the number of latent profiles; it involves combining statistical indices and meaningful interpretation (Masyn et al., 2013; Nylund, Asparouhov, & Muthén, 2007). Therefore, we ran the analysis for two to six classes and we chose to use four common indices to decide which model is the best: AIC, BIC, LMRT (*p*-value) and BLRT (*p*-value). In addition, AIC, BIC, adjusted LMRT and BLRT were used to compare which model fit better (Aldridge & Roesch, 2008). The *entropy* of the models was taken into account as well, as it indicates how distinct our profiles are (Masyn et al., 2013). The model with the lowest AIC and BIC indices or the model in which these indices begin to level off fits better (Muthén, 2004). A significant *p*-value in an adjusted LMR-LRT (Lo-Mendell-Rubin likelihood ratio test) and BLRT (bootstrapped likelihood ratio test) shows that this model with *K* profiles is better than the model with *K-1* profiles. An *entropy* index higher than .70 shows that, in this model with *K* profiles, the profiles are well separated (Masyn et al., 2013). LPA was conducted with Mplus version 7.4.

Wald chi-squared difference test

There are several procedures for considering profiles as predictors of a distal outcome. LPA provided us a way to take classification uncertainty into account, so to keep this level of accuracy, we chose the three-step procedure from Asparouhov and Muthén (2014). This procedure provides a way to avoid the major weakness of the classify-analyze approach (like the classical analysis of variance test), which is the assumption of no classification error in profile assignment (Grosemans, Vangrieken, Coertjens, & Kyndt, 2020; Nylund-Gibson, Grimm, & Masyn, 2019).

3.2 Multiple case study: qualitative study

Our third research question was addressed through a multiple case study approach, because we consider our different profiles as revealing different realities (Yin, 2003). More specifically, the aim was to describe and explain the differences and the similarities between the identified profiles or cases (Baxter & Jack, 2008). Each profile represents a case. In this way, our profiles are our unit of analysis (Baxter & Jack, 2008).

3.2.1 Participants

To deepen our understanding of the three identified profiles, we contacted by mail participants who indicated in the questionnaire that they would be willing to be interviewed in the second phase of the study. To be as close as possible to the realities of the entry profiles, we opted only for participants who had a maximum of four years of teaching experience. Fourteen percent of them responded positively, but none of them belonged to the third profile. For the first and second profiles, we choose three different participants each, based on the

type of course(s) they were teaching and their previous work sector. The purpose was to have participants from different professional backgrounds to get rich information concerning each profile. In order to convince participants from the third profile to participate in an interview, we offered them a financial compensation. This allowed us to recruit one participant in this third profile.

Table 4. Description of Participants

Profile	Participant	Age	Teaching experience	Course	Gender	Previous profession
Profile 1	Freya	50	4	Communication Sales Marketing	F	Sales representative
	Fabian	32	2	Electricity Microtechnology	M	Refrigeration engineer
	Frank	52	4	Computer sciences	M	IT specialist
Profile 2	Nora	41	2	Management Accounting	F	Financial analyst
	Natalie	52	2	Secretarial skills Office automation Computer sciences	F	Administrative secretary
	Nash	38	1	Reception desk Business management Economic and social training Employment law	M	Middle manager in automotive industry
	Maeva	34	4	Nursing	F	Nurse

3.2.2 Data collection and analyses

Interviews were conducted to deepen our understanding of the three profiles identified based on the quantitative study and to highlight similarities and differences between the profiles. Semi-structured interviews were conducted by the first author. The interview guide was tested in a pilot interview with one SCT. The interview questions focused on the reasons for their career transition and their feelings of confidence and ability to achieve this transition successfully. All interviews were recorded, transcribed, and interpretatively coded. The main author divided the interview transcripts into text fragments and assigned them meaningful codes using NVIVO11. The coding was done using a combination of predetermined (a priori, based on the theoretical framework) and emergent codes (in vivo). These codes were regrouped in categories and themes according to the axial coding strategy (Strauss & Corbin, 1990). Categories and codes are described in appendix A. The next step was a within-case analysis, which provides us with comprehension of each individual profile (Miles & Huberman, 1994). This made it possible to go to the following step: the cross-case analysis,

the final step leading to our results, looking for similarities, differences, and cross-interpretation between our three profiles. Preliminary interpretations were discussed between the authors to avoid interpretation bias.

4. Results

4.1 Identification of profiles

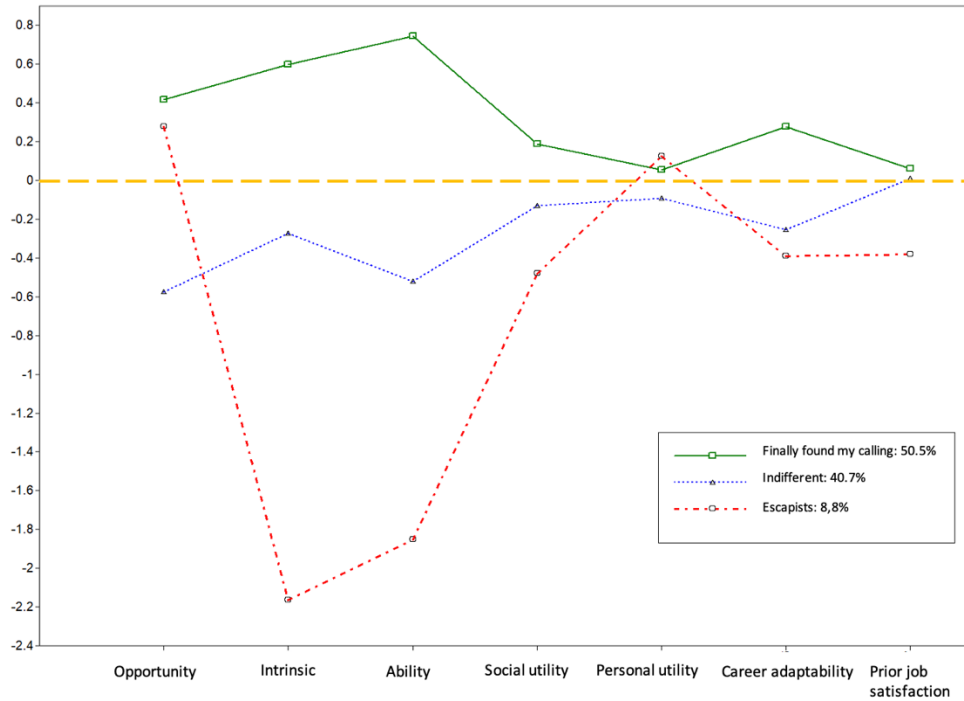
The fit indices and profile size can be found in Table 5. The LMR-LRT was significant for the model with three profiles ($p = 0.01$), which implies that the model with three profiles is better than the model with two profiles. Moreover, the LMR-LRT was non-significant for four profiles. AIC and BIC trended to leveling off in the model with three profiles. On the basis of these findings, the model with three profiles is to be preferred.

Despite these favorable statistical indices, Geiser, Okun, and Grano (2014) advised not only considering goodness-of-fit indices, especially if all indices do not imply a clear and univocal choice. In the same way, Marsh, Lüdtke, Trautwein, and Morin (2009) recommended starting with a meaningful interpretative model before verifying the fit indices. Following this recommendation, we also checked the qualitative richness of the three-profile model and concluded that this was the best choice. Figure 1 shows a graphic representation of the profiles based on the latent factor scores.

Table 5. Fit Indices and Class Sizes for One to Six Profiles

	1 profile	2 profiles	3 profiles	4 profiles	5 profiles	6 profiles
AIC	4426.42	4166.16	4007.58	3957.23	3922.55	3883.11
BIC	4476.37	4244.66	4114.63	4092.82	4086.70	4075.80
LMR-LRT (p)	/	0.44	0.01	0.27	0.22	0.20
BLRT (p)	/	0.00	0.00	0.00	0.00	0.00
Entropy	/	0.84	0.84	0.86	0.84	0.85
Smallest profile frequency	/	22.1	8.8	4.6	4.5	5.7

Figure 1. Model with three profiles – latent factor scores



Profile 1: The ‘finally found my calling’ profile (50.5%). SCTs in profile 1 are characterized by a high opportunity score for entering the teaching profession (.41), which implies that they had favorable circumstances that led them to teach. They had high intrinsic motivation to become teachers (.60) and especially, they had a high score on perceived ability to teach (.74), which means that they thought they would really like this profession and thought that they would be good teachers. They also reported the highest social utility motivation (.19) but did not report personal utility motivation (.05) which means that they were not motivated by extrinsic reasons such as salary or time for family. These SCTs have the best career adaptability scores (.28) and were not dissatisfied with their prior job (.06).

Profile 2: The ‘indifferent’ profile (40.7%). SCTs in profile 2 are characterized by the lowest opportunity score for entering the teaching profession (-.58). They had quite low intrinsic motivation (-.27) and low perceived ability to teach (-.52). Nevertheless, they reported moderate social utility motivation (-.13) and show the lowest personal utility motivation (-.10). These SCTs have moderate career adaptability scores and were not dissatisfied with their prior job (.01). For them, teaching did not seem to be a way to escape nor an intrinsic choice.

Profile 3: The 'escapist' profile (8.8%). SCTs in profile 3 are characterized by quite high opportunity scores for entering the teaching profession (.28). They have the lowest score for intrinsic motivation (-2.17) and for perceived ability to teach. They also have the lowest score for social utility motivation (-.48). In contrast, they have the highest score for personal utility motivation (.13). These SCTs reported the lowest scores on career adaptability (-.39) and prior job satisfaction (-.38).

4.2 Differences in terms of teachers' sense of efficacy

Looking at the relationship between the three profiles and teachers' sense of efficacy, significant differences were found (Wald $\chi^2(2) = 90.08$; $p < .001$) with a meaningful latent means classification: for profiles 1 to 3, respectively, $M_1 = 5.79$; $M_2 = 4.90$; $M_3 = 4.62$. With regard to the profile-to-profile differences (detailed in Table 6), we can conclude that the 'escapists' profile is significantly different than the 'finally found my calling' profile ($p < .001$) and that the 'indifferent' profile is also significantly different than the 'finally found my calling' profile ($p < .001$). However, the 'escapists' and 'indifferent' profiles are not significantly different ($p > .05$) in terms of sense of efficacy. These results make sense in relation to the identification of our profiles. Indeed, this supports the assumption that SCTs who joined teaching with vocation-related motivations as well as higher career adaptability seem to be more successful in their transition than those with other motivational profiles (Berger & d'Ascoli, 2012b) and less career adaptability.

Table 6. Means and differences in teachers' sense of efficacy (TSES) for the three profiles

		Profile 1	Profile 2	Profile 3	Wald Statistic		
		<i>Finally found my calling</i>	<i>Indifferent</i>	<i>Escapist</i>	1 vs 2	1 vs 3	2 vs 3
TSES	<i>M</i> (SD)	5.79 (0.07)	4.90 (0.08)	4.62 (0.21)	$p < .001$	$p < .001$	$p = .23$

4.3 In-depth profile descriptions

In this part, we present the deepening of the quantitative profiling based on our complementary qualitative analysis. For each profile, we start with a brief description of the participants representing the case, followed by an in-depth description of the profiles. We end this section with a summary table of the different profiles.

4.3.1 *The finally found my calling profile*

Fabian was a refrigeration technician for seven years and is still passionate about this field of expertise. He had been working for two years at a TVET school where he teaches microtechnology and electricity. Freya was a commercial sales representative for 30 years and really enjoyed this professional area. She had been teaching to future sales assistants at a TVET school for four years. Frank worked for 25 years as a computer expert, wrote books about computer training, and he said he is still up-to-date regarding the developments in this field. He had been teaching computer sciences for two years at a TVET school.

Based on the quantitative analyses, we labeled this profile '*finally found my calling*', because of a particular combination of the entry-related variables: 'good motivations' associated with a high career adaptability score and a high prior job satisfaction score. The interviews we conducted with Fabian, Freya, and Frank confirmed this result. Indeed, the analysis of the interviews revealed that the choice of the teaching profession corresponded particularly to their career aspirations, and they talked about it as the perfect job.

Despite their choice of this vocation, none of the three participants in this profile deliberately decided to become a teacher. They really enjoyed their prior job and reported good prior job satisfaction during the interviews, but a critical incident pushed them to leave. For instance, Fabian experienced a serious work accident that rendered him unable to continue his previous job. After months of trying to get back to work after his recovery, he was dismissed. Freya's last boss was harassing her, so she decided to quit after 30 years, disillusioned by the private sector and because of this experience. And, finally, Frank referred to differences in opinion with the new human resource manager, and the company invited him to stay at home, justifying that they no longer had a mission for him. As these examples show, they all experienced a strong push factor in their career transition.

They changed my department, I was referred to the "education" department and I seemed to be good at that. Then [there was a] new human resource manager and it did go very, very bad with her and then I was told "listen, stay home Frank, we have no more work for you".
(Frank)

Despite these strong push factors, it is at the same time clear that their aspirations had been linked to the teaching profession for years. In line with the quantitative results, they reported multiple motivations that led them to teaching. Freya said that she needed to feel useful and that it was important for her to be able to transmit her knowledge. She explained that it is as if all the stages of her life had led her to become a teacher. Frank had always been very invested in training. He trained employees at his former company, he wrote books on computers to transmit his passion, and he participated in educational summer camps. After his relational issues with the human resource manager, it became absolutely clear to him that he wanted to become a teacher. Fabian as well explained that he is really passionate about passing on his expertise. He also said that school was for him a pleasant and secure environment and that he wants his students to feel the same way. These different examples

show a combination of intrinsic and social utility motivations in this profile and that somehow, being a teacher had been already part of them for a long time.

Then I remembered my school trajectory and I remember always being reassured at school. [...]. Then I felt this side that made me want to go there [...]. I loved sharing and explaining things. Then school attracts me, these are good memories. Being able to explain the science of electricity, yeah, I liked it. (Fabian)

Even if they did not have doubt about the choice of becoming a teacher, two participants received support for their career transition, which was a facilitating opportunity. For Frank and Fabian, a personal contact helped them and gave them support in joining the teaching profession. For Fabian, this support was given by a friend who was a school principal. The friend did not recruit him, but motivated him to do the CAP¹⁵ and advised him to apply to TVET schools. For Frank, it was an ex-colleague who had already gone through the same career transition before; he gave Frank the opportunity to join him at the same TVET school. These factors do not seem to have played a major role in the decision to change, but made the transition easier.

I had a friend who was also in teaching and with whom I worked for a long time in the private sector, but who had taken the step 3-4 years before, and I joined him. I started teaching on my days off and then I was told that I could stay in teaching and that's it. (Frank)

After making the career switch, they all seemed to be incredibly confident of their ability to teach and their ability to adapt to this new career. Fabian explained that in his many job changes, the change to a new job always went smoothly, and that he was extremely excited to be able to start teaching. For Frank, becoming a teacher was just the next step from his previous involvement in training programs or in summer camps, and so he did not experience it as something frightening. Freya explained that her many job changes made her really flexible and showed her that she is highly adaptable. This highlighted for the three participants a combination between their perceived ability to teach and their career adaptability, which made them confident about this specific career transition.

[...] everything I've done, but that's what's interesting, everything in my curriculum vitae has allowed me to be flexible for any challenge [...]. Professional expertise and being able to adapt to many different situations are much more important than a paper attesting that you've taken courses and that you have a teaching title. [...] Oh yes, because that famous morning there [first morning as a teacher], at one point I was busy giving classes and I looked at the clock to see what time I had to take a break and I had been there for an hour and a half and I felt like I had done it all my life, it was great. I really loved it and it always remained that feeling. I always smile when I get out of school, I'm happy... really... (Freya)

¹⁵ “Certificat d’Aptitude Pédagogique”, which is the required diploma to have a fixed teacher position.

We labeled this profile the '*finally found my calling* profile'. Just as our quantitative analyses showed, our three participants had multiple motivations to become a teacher and were really confident about the transition. With Fabian and Frank, we see that an opportunity (school principal friend, ex-colleague) helped them to change careers and enter the teaching profession. Nevertheless, while we might have assumed that their choice was led only by the desire to join the teaching profession, we also learned that for these three participants, the transition originated in a strong push factor that caused them to leave their prior job.

4.3.2 From the indifferent profile to the newly convinced profile

Nora worked for 13 years as a financial analyst in a large company. She had been working for two years as a management and accounting teacher at a TVET school. Natalie worked for 28 years as an administrative secretary in various sectors, and she had been teaching about secretarial skills, office automation, and IT for two years. Nash had mostly worked as an intermediate manager in the automotive sector for ten years. He was working at a TVET school and taught business management, economics, and social training and social law.

We labeled this profile the '*indifferent profile*' because the quantitative analyses of our variables did not allow us to really perceive the reasons why these people chose the teaching profession. They did not report low prior job satisfaction, they did not seem to have strong motivation of any kind to become teachers, teaching was not perceived as an opportunity for them, and they did not report high confidence in their career adaptability, so this profile is rather difficult to grasp. Nevertheless, the interviews we conducted with three participants led us to decide on a new label for this profile: the '*newly convinced profile*'. More specifically, the analysis of these interviews revealed that the choice of the teaching profession was not made randomly, but was made after a recent reflection, in contrast to the previous profile, in which desire to become a teacher had been present for many years. This could explain the low reported motivation scores.

With regard to prior job satisfaction, this profile clearly differs from the first profile. In the same way, those in the second profile also experienced push factors, but not as a consequence of a strong triggering event or critical incident. Nora, Natalie, and Nash reported a gradual decrease in their prior job satisfaction. Nora experienced an increase in workload and a deterioration in her relationship with her colleagues. She ended up with burnout, followed by ten months of treatment by a therapist. When she re-entered the labor market, she refused to return to her former employer after that burnout experience. Nash could no longer manage the competitive context in which he worked. He experienced high work pressure and this gave him negative emotions. He was dismissed due to a company restructuring and then a second time in another company, and decided to travel for two years because he no longer wanted to work in this professional field. Natalie explained that the atmosphere within her work team had deteriorated considerably. She also explained that she could no longer bear the administrative burdens of her job. This situation ended up in an argument with her superiors and she decided to leave.

I worked as a secretary for an ensemble in ancient music and so the field was exciting, I really liked it, but I couldn't anymore. Then the nonsense of it all [...]. I didn't see myself developing professionally either in that place or in the [field of] administration. (Natalie)

In contrast to the previous profile, for these three participants, their reflection about making the transition to teaching came quite late and had no origin in their previous work experiences. It started with the need to leave their prior job. As a result, they had not been thinking about teaching for very long, and it was a reflection that began mainly by looking for an exit from their previous profession. This is certainly an element that gives meaning to the relative weakness of their reported motivations. The motivation most represented in the interviews was a social utility motivation, with a strong need to feel useful, as if their previous job was no longer a source of fulfillment. Mostly, the participants did not mention the benefits related to the work schedule and the perceived job stability of being a teacher, except for Nash, who thought it would be nice with his baby, but without reporting that as his main motivation. Natalie explained that she particularly wants to ensure the education and development of students and that she wants to participate in tomorrow's society in this way. After his two-year trip, Nash wanted a job that involves human contact. Nora explained that after her burnout, it was indispensable for her to do something meaningful. She wanted to be useful by sharing her knowledge with the students.

It was rather to help others and to be useful. I wanted to be useful. That's what I said when I left my organization, I said I wanted to be useful. And they said ah, but here you were useful, eh, and I said no... Here I was used. (Nora)

After making the decision to make the transition to the teaching profession, they all mentioned that they felt able to make the transition and adapt to this new career, although they felt somewhat insecure about the relationship with the students. They were not afraid of a change of functions, but they feared that they would not be able to connect with the students even though they wanted to. In this way, they reported high confidence in their career adaptability, but no such confidence in their perceived ability to be a teacher.

Yeah, the adaptation in my different jobs always went well [...] I had this experience of handling difficult cases and so I had this chance through my first part of my career, with the automobile business and the social economy to be prepared to manage a class afterwards, but I was also counting a little bit on my eloquence so that with the students it goes well what because... yeah, the vocation for teaching has to be there. (Nash)

Based on these different elements, this profile, which was called *indifferent* and for whom the transition seemed difficult to understand on the basis of their motivations and previous professional satisfaction, becomes more meaningful. Therefore, we decided to rename it *newly convinced*. Indeed, these participants did not think about the job of teaching until their decrease in job satisfaction pushed them to leave their previous employment and think about another job. For them, this decrease was related to a need to feel useful in terms of social utility, and this was their main motivation for choosing the teaching profession. As with the first profile, they are generally confident in their career adaptability, but with a hesitation

about their ability to teach. Without strongly contradicting the quantitative results, these interpretations do not corroborate them exactly. The hypothesis can be made that, as explained above, their reflection to join the teaching profession was recent and therefore they report average results quantitatively but more precise elements qualitatively.

4.3.3 From the *escapist* profile to the *maladaptive* profile

The results in this section are based on a single participant, Maeva, our only volunteer in this profile.

Maeva worked for ten years as a nurse in a hospital. She had worked for the last three years at a TVET school as a nursing teacher. This year, her fourth year in the teaching profession, she decided to become only a part-time teacher, combining it with a part-time position at her prior job.

Based on the quantitative analysis, we labeled this profile the *escapist* profile because of their low motivations to join the teaching profession, a high score for *opportunity*, and the lowest score for *prior job satisfaction*. As we reported in the two preceding profile descriptions, in a way, all participants needed to leave their prior occupation. Whether they liked their prior job or experienced a decrease in their job satisfaction, for our two preceding profiles there were push factors that made them leave. This is not specifically the case for Maeva, and so — inspired by Berger and d’Ascoli (2012b), who found similar results for the motivation part of this profile — we changed this label to the ‘*maladaptive* profile’. Qualitative analysis of the case of Maeva supports the modification of this label. Her most important reason for changing careers was having more time for her family, but she did not expect so much of a workload and was not able to manage it. Consequently, she decided to reduce her hours as a teacher.

She wanted to change careers because the routine was starting to take over and she found that as a nurse the work was too difficult. Nevertheless, she did not mention any critical incident or triggering event that pushed her to leave.

I didn't hide the fact that the last few months at intensive care I still wanted to change because the routine was getting in the way, and then it was difficult to appreciate my work.
(Maeva)

As the quantitative results show, the main and almost unique reason for choosing to become a teacher was personal utility motivation. She chose the teaching profession because she thought the workload was low and the work schedule would allow her to spend more time with her two children.

At one point I didn't hide it, I wanted to balance professional and family life. [...] the main reason was that. I thought that it would have been easy in terms of schedules, so I thought... I started from that perspective, but when you're in teaching, it's not that. I'm telling you, I underestimated the whole thing. (Maeva)

She reported that she was not confident in this career transition. In her mind, it was a tryout, and so be it if it did not work out. She explained that she thought it would be difficult for her to break down her practical professional gestures and make explicit what she was doing in front of the students. In sum she was confident of neither her career adaptability nor her ability to teach.

So even if I had to come back after that, I wanted to try something else. [...] But honestly, I felt like a loser [...] When I was in the field as a nurse, we go to the essential. We do not think about what we do anymore, we work in an automatic way. [...] So I knew I would have a hard time describing the procedures for the students because that's what they need. (Maeva)

Because of the Maeva's case and the interpretation of the other profiles, we chose to change the label from *escapist* to *maladaptive*. Indeed, the *escapist* label was mainly linked to the fact that this SCT profile showed the lowest prior job satisfaction. However, all our seven participants had experienced a need to leave their prior occupation, and what characterizes Maeva most are her personal motivations. Reality did not correspond to her expectations, which made her to decide to partially leave the teaching profession.

4.3.4 Summary of the qualitative results

Table 7. Summary of the in-depth qualitative analysis of each profile

	<i>Finally find my calling</i>	<i>Newly convinced</i>	<i>Maladaptive</i>
Push factors	Enjoyed prior job but critical incident pushed them to leave	Gradual decrease of prior job satisfaction led them to quit	Wanted to change for an easier job
Motivations to change career	Teaching is the perfect job Desire to become teacher for many years Good motivations	Need to leave their prior job so started to think about teaching Mainly good motivations	Bad motivations
Perception of the transition	Confident in the transition and in their ability to become a teacher	Confident in the career change but insecurity about their ability to become a good teacher	Not confident at all in the transition to become a teacher: it is a tryout

5. Conclusion

In this section, we first summarize the most significant results of our study. Second, we discuss the theoretical and practical implications of our contribution. Finally, we present the limitations of our study.

5.1 Discussion of the results

Considering the growing teacher shortage in TVET schools and the lack of knowledge about SCTs, the aim of this study was to describe the heterogeneity of the SCT population through different profiles based on entry-related variables. An in-depth comprehension of who they are is a starting point for investigating their specific needs and exploring effective HR practices to facilitate their induction in TVET schools (Berger & d'Ascoli, 2012a; Müller et al., 2009). A mixed methods approach was used, with quantitative analysis ($n = 262$) based on latent class analysis and a Wald chi-square test, and qualitative analysis ($n = 7$) through a multiple case study design.

Latent class analysis revealed that there are three different profiles, based on the entry-related variables we took into account. Considering the patterns in their scores for

opportunity, intrinsic motivation, perceived ability to teach, social utility motivation, personal utility motivation, career adaptability, and prior job satisfaction, and the qualitative interviews, we labelled them the *finally found my calling* profile, the *newly convinced* profile, and the *maladaptive* profile. We found significant and meaningful differences between the profiles in terms of *teachers' sense of efficacy*, and a relevant means classification regarding how our profiles are related to a successful transition.

The quantitative and qualitative results show us the complexity of the transition experiences. SCTs from the *finally found my calling* profile did not deliberately decide to become a teacher, but experienced a triggering event that pushed them into another profession. Their intrinsic and social utility motivations show that they moved quite naturally towards teaching as a new profession. In addition to these motivations, for two of our participants in this profile, existing relations with people already in the teaching profession helped them in making the transition. This professional transition was not a very stressful event to them, because they were confident in their ability to adapt and in their ability to be teachers. Those in the *newly convinced* profile decided to become teachers because they needed to leave a professional environment that no longer suited them. Starting from these turnover intentions, they realized that teaching could suit them, and so, this choice did not originate in deeply rooted motivations. Mostly, it was the growing need to feel useful that pushed them into this new profession, because they no longer saw any meaning in the profession they were doing. Their transition is characterized by a general belief in their ability to adapt, but a concern about their capacity for the teaching profession in particular. Those in the *maladaptive profile*, in the same way as those in the *newly convinced profile*, decided to become teachers because their previous profession no longer suited them. However, in this profile the main reason was related to personal utility. Despite their choice to go into teaching, they do not seem to be very confident about this transition in terms of their adaptive potential and their ability to be a teacher.

5.2 Implications

5.2.1 Theoretical implications:

This contribution supports and echoes existing work by other researchers. We have confirmed the affirmation by Berger and d'Ascoli (2012b) and Tigchelaar et al. (2010) that it is necessary to take into account the heterogeneity of SCTs' profiles. They found five motivational profiles; while our contribution proposes three-related entry profiles (partly based on motivations). For their two extreme profiles, which are the *multiple motivations* profile and *maladaptive motivations* profile, we found similar results and similar sample distributions as with our *finally found my calling* profile and *maladaptive* profile. The fact that our profiles differ in terms of teachers' sense of efficacy suggests that, as other studies have found (Berger & d'Ascoli, 2012b; Bullough & Knowles, 1990), the reasons for the professional transition to teaching and their ability to make this change can have an impact on the success of their professional transition and induction. This is confirmed by the

experience of Maeva, our maladaptive participant, who, after three years as a teacher, reduced her workload.

Tigchelaar et al. (2010) highlighted the fact that mostly, SCTs have a kind of “sense of mission” (p. 168) about passing on their knowledge and working with youths. Their findings represent well two of the profiles identified in this study: the *finally found my calling* profile and the *newly convinced* profile, which both have social utility motivations, with additional intrinsic motivations for the first profile. These profiles represent 90% of our sample, which corroborates the results of these authors. Nevertheless, Tigchelaar et al. (2010) also pointed out that SCTs are mostly confident about their capability to teach. Based on our results, we found that this was only the case for one subgroup (50% of the sample).

Following Anthony and Ord (2008), we argued that both push and pull factors need to be taken into account, and therefore we included *prior job satisfaction* as a push factor contributing to the profiling. Our results show that, for our sample, push factors were really important for making the professional transition. In every interview we conducted, they reported strong push factors, such as a triggering event or a decrease in their job satisfaction, which explained their need to leave. Even if their motivations to join the teaching profession were really strong, as with the *finally found my calling* profile, push factors had a major role in the career transition. This finding supports the recommendation by Anthony and Ord (2008) about the need to take account both pull and push factors.

5.2.2 Practical implications:

This contribution has implications for the recruitment and retention of SCTs. Our results show that people with multiple motivations and a high career adaptability potential without personal utility motivation seem to be more likely to succeed in their professional transition, whereas a personal utility orientation combined with low career adaptability represents a vulnerable profile. Considering the presence of multiple motivations together with a low level of personal utility motivation can be a good basis for reflection about recruitment campaigns to attract candidates with suitable profiles. Depending on their entry-related profiles, SCTs show different perceptions of their ability to teach and different senses of teacher efficacy. This finding reinforces the need to consider the heterogeneity of this particular population when we explore the specific needs of SCTs. It is also advisable to assess the push and pull factors, and the personal resources of the candidates in the recruitment process.

5.3 Limitations and future research

The study has several limitations. First, as Berger and d’Ascoli (2012b) explained, even if the *FIT-Choice* scale is an exhaustive framework, it is possible that individuals had other reasons to join the teaching profession; in that case, our framework cannot represent their motivations to change. Second, because of the limited number of novice SCTs in French-speaking Belgium, we also addressed experienced SCTs, even though our profiling variables referred to the moment of entry. We cannot completely assume that the reporting of motivations for entering the teaching profession does not change over time. Third, we also

regret that we could only have one participant in the *maladaptive* profile, after many reminders, even if it is understandable considering the nature of the profile. Indeed, it could be explained in relation to their *teachers' sense of efficacy*. The fear of speaking about something difficult can be a reason for the lack of participation (Newington & Metcalfe, 2014). Fourth, the definition and perception of the teaching profession varies across countries (Voisin & Dumay, 2020). The concepts used in this study, particularly the FIT-Choice model, refers to the participants' perception of the profession (Watt & Richardson, 2007). We therefore cannot completely assume that the realities of the profiles created on the basis of this scale would be exactly the same in contexts different from French-speaking part of Belgium. However, there is some evidence that the Fit-Choice model holds tests of measurement invariance between different countries (Australia, U.S, Germany, Norway), showing that the construct is understood in the same way by different samples (Watt, Richardson, Klusmann, et al., 2012). Future research could also compare the similarity of SCT profiles across different countries. Fifth, readers should be aware that profiling methods based on large-scale studies are useful for uncovering sub-populations in a sample and the patterns that characterize them (Nylund, Asparouhov, & Muthén, 2007). However, these approaches cannot capture the full complexity of people's experiences. This is why we have chosen to complement our study with interviews. Now that we have developed a picture of these profiles, future research should refine these findings to take us one step further into unraveling the complexity of SCTs' career transition.

Finally, it would also be interesting to examine in more detail how these profiles differ beyond the success of the transition, and therefore also in terms of retention, professional integration, and specific needs to facilitate this induction process.

APPENDIX A

Overview of the interview topics:

Interview topics	Examples of questions
Introduction	What did you study? What is your career path? What courses are you currently teaching?
About the transition	If there was one, what triggered your career change? Why did you choose to become a teacher? Did you have the impression that teaching was a job in your line of work?
About the prior occupation	What are the major differences between your precedent profession and the teaching? How did you feel in your precedent job? What were the positive and negative aspects of this profession?
About the entry in the teaching profession	What image do you have of yourself after this experience of transition? To what extent can you say that you are thriving (or not) in this new profession? How do you see your future as a teacher?

Categories and codes used for this study with description

Categories	
Codes	Description
Motivations	
Need to leave	Related to the need to leave previous profession
Need to feel useful	Related to the need to feel useful in daily work life
Triggering event	Triggering events that explain the transition
Personal utility motivation	Refers to motivations related to salary, job security or time for family
Motivation for educating youth	Refers to the desires to educate the youth of tomorrow
Motivation for transmission	Refers to the desire to pass on a profession, knowledge, skills, etc.

Experience of the professional transition	
Confident in the transition	Elements describing the extent to which they were confident or not confident in their choice of transition.
Teacher identity	Their perception of themselves as teachers
Feeling about the transition	To what extent it is a successful or not professional transition for them
Obstacles to the transition	The elements that impeded the transition (money, family situation, etc.)
Facilitators to the transition	The elements that facilitated the transition (family support, etc.)
Ability to be a teacher	
Didactic skills	Skills for teaching content
Skills transferable to teaching	Skills acquired in their previous careers that can help them in the teaching profession
Participate in the functioning of the school	Skills they feel would be useful for the functioning of the school in general

Chapter 3

Measuring teacher induction through the multiple aspects of work socialization

Development and validation of the *ISaTE* scale

This study presents the development and validation of an instrument to measure early career teachers' work socialization. 1,487 teachers from different stages of compulsory education participated in this study. The theoretical foundations as well as the exploratory and confirmatory factor analyses highlighted four dimensions of work socialization: workgroup socialization, micro-political climate socialization, teaching tasks socialization, and organization socialization. The ISaTE scale demonstrated high validity criteria. This contribution provides support for the adoption of a holistic approach of teacher induction that goes beyond classroom work tasks.

This chapter is the English translation of the following published paper:

Coppe, T., Raemdonck, I., März, V., Parmentier, M., Brouhier, Q., & Colognesi, S. (2020). L'insertion professionnelle des enseignants au travers des multiples aspects de la socialisation au travail : l'ISaTE, un instrument de mesure pour les appréhender. *Mesure et évaluation en éducation*, 43(3), 67-102.

Measuring teacher induction through the multiple aspects of work socialization

Development and validation of the *ISaTE* scale

1. Introduction: Why we need to develop a model and scale of work socialization adapted to the teaching profession

Novice teacher induction has been the focus of numerous studies to date and is still at the heart of educational researchers' considerations (e.g., Colognesi et al., 2020; De Stercke, 2010; Mukamurera et al., 2013). To study this complex period within teachers' careers, researchers have examined how novice teachers feel about their first steps into the teaching profession as well as measured novice teachers' self-efficacy toward teaching tasks (Lamaurelle et al., 2016; Tschannen-Moran & Woolfolk Hoy, 2001). Other researchers have focused on the so-called "reality shock" — a well-known metaphor in education to describe teachers' first encounter with daily life in the classroom (Dicke et al., 2015). In some other studies, teacher induction has been assessed through students' outcomes (Goldhaber et al., 2011). All these different approaches have in common that they reduce teachers' work to what is happening at the classroom-level. However, teacher's work also includes other features, such as the understanding of how the school works, relationships with colleagues, and other aspects that take place "outside of the classroom" and yet are an integral part of the job (Richards et al., 2013; Tang et al., 2016).

In this respect, the last few years and inspired by the increasing complexity of the teaching job, educational research has drawn attention to teachers' work at the level of the school as an organization (März & Kelchtermans, 2020; Carpentier, 2019; Maroy & Cattonar, 2002). These studies characterize teachers' first steps in the teaching career as not only taking place within the classroom, but also within a school organization (Kelchtermans, 2019). This idea that teachers' work is rooted in an organization has been increasingly recognized, making the organizational level necessary to take into account when studying teachers' professional realities (Kearney, 2014).

Nonetheless, not many studies on teacher induction consider this reality and organizational issues related to teacher induction (Kearney, 2015; Tang et al., 2016). Therefore, many researchers have called for the use of a holistic approach when examining teacher induction to take into account the different aspects they need to face during their induction process (Kelchtermans, 2017; Rots et al., 2012; Saka et al., 2009).

In addition, for the last twenty years, critical reports and systematic literature reviews on teacher induction have highlighted a diversity of views about what makes a successful induction (Bickmore & Bickmore, 2010; Kearney, 2014). While some studies have operationalized the induction in terms of retention, some others have focused on teaching

effectiveness or early career teachers' professional satisfaction (Ingersoll & Strong, 2011). This plurality of perspectives makes the assessment of induction programs challenging (Kearney, 2014) and invites us to reflect on tools enabling researchers to measure teacher induction as a process instead of using its consequences as a proxy (Bickmore & Bickmore, 2010).

To address these two issues — namely, the need for a holistic approach to study teacher induction and the need for a specific measurement tool to operationalize the induction process instead of its consequences —, drawing inspiration from organizational socialization literature turns out to be particularly insightful. This body of research mainly pertains to the research fields of work sociology, organizational psychology, and management sciences (Batistič & Kaše, 2015).

The concept of *organizational socialization* developed by Van Maanen and Schein (1979) — also referred to as *professional socialization* or *work socialization* (Martineau et al., 2009) when used in a broad sense, as is the case in the present contribution — can be considered as essential in the literature on induction, regardless of the work context (Haueter et al., 2003). This concept refers to the integration of novice workers into their organization and profession, and everything implied by it (Cooper-Thomas & Anderson, 2006). A set of studies such as those of Chao (2012) or Van Maanen and Schein (1979) aimed to understand how newcomers become full members of their organization, what is the required knowledge to do so, and which strategies are likely to support this integration — all these aspects pertaining to the question of a successful socialization.

Despite this growing interest, there is no consensus about an exact definition of socialization (Chao, 2012; Martineau et al., 2009). Previous attempts to operationalize this concept have provided different scales of socialization (Chao, 2012). However, these scales are work context-specific and need to be adapted to any given work environment to enable researchers to accurately grasp the process (Bourhis, 2004). Some studies in education — mainly qualitative — made advances in applying a holistic approach of induction to the teaching profession (Duchesne & Kane, 2010; Niyubahwe et al., 2018) — notably the seminal work of Feiman-Nemser (2003), which highlighted novice teachers' acculturation process (i.e., the assimilation of the organization culture by the novice teachers). However, this contextualization effort has never been done to develop a valid measurement tool of induction in the context of the teaching profession (Richards et al., 2014). In this respect, the field of organizational socialization provides valuable theoretical foundations to reflect upon teacher induction from a holistic perspective and progress in the related measurement issue (Kearney, 2015).

To address both the need for studying teacher induction from a holistic perspective and the lack of an adapted measurement tool, the study presented in this article aimed to develop and validate a tailored scale of work socialization for the teaching profession.

2. Theoretical foundations

This section aims to provide a sound theoretical rationale for the choices made in developing our measurement tool and is structured as follows: First, we review the literature on organizational socialization in general to propose a definition of teachers' work socialization specifically. Second, we present the different dimensions of work socialization relevant to the teaching profession and propose a theoretical model that articulates them.

2.1 Toward a definition of teachers' work socialization

Whereas the multiple evolutions of the definition of socialization agree on the nature of the phenomenon (Klein & Heuser, 2008), they hold different views on what it encompasses. Originally, Schein (1968) presented organizational socialization as a learning process of the required norms, behaviors, and values of the organization to become a member — in other words, an acculturation process. This initial content of socialization then expanded to include the workgroup socialization, referring to the integration of novices into their group of colleagues (Anakwe & Greenhaus, 1999; Chao et al., 1994). To this content of socialization was added the learning process of the tasks related to the specific function, referring to the mastery of the professional know-how (Chao et al. 1994; Taormina, 2004). Also moving toward a more and more comprehensive vision of the socialization content, Haueter and colleagues (2003), and, subsequently, Perrot and Campoy (2009), suggested an integrative view of socialization. They highlighted three domains of socialization: the *tasks/job*, *workgroup*, and *organization*; and specified that “[...] each component [of socialization] consists of acquiring knowledge about the dimension [...]” (p. 23).

As a result of this evolution, socialization is no longer seen from an acculturation perspective only, but rather as capturing all of the aspects that enable new members to take on their professional role, with the learning process that it implies. Chao (2012) describes this comprehensive approach explicitly by stating that the process is no longer seen as a socialization *to* the organization, but instead as a socialization *within* the organization — which supports the idea that socialization goes beyond the learning of norms, values, and expected behaviors in the organization.

In the context of the teaching profession, these three domains (i.e., the tasks, workgroup, and organization) are not unlike some features of the teaching job that have been highlighted by some researchers. For instance, these domains can be found in the work of De Stercke and colleagues (2010), Girinshuti (2019), and Mukamurera and colleagues (2019), who have insisted on the didactic/pedagogical, relational, and organizational aspects in their analysis of the teaching profession. In line with their work, we conceptualize teachers' work socialization as encompassing these three domains, which are detailed below.

2.2 The three domains of teachers' work socialization

In this section, we expand on the three domains of socialization and discuss them in light of the teacher induction literature.

As **tasks socialization** is inherent in practicing a profession, it is presented as an important domain in the literature (Chao et al., 1994). Tasks socialization is defined as “acquiring information about the job and understanding the tasks for which one had been hired” (Haueter et al., 2003, p.23) and refers to the mastery of the *technical* aspects of the job (Lacaze, 2007). In the context of teaching, it relates to the acquisition and reinforcement of the pedagogical and didactic skills (Mukamurera et al., 2013) and includes aspects such as lesson preparation, learning activities management, assessing the students, class group management, and administrative duties (Fernet et al., 2008).

Work group socialization refers to the relationships between professionals and their colleagues (Haueter et al., 2003; Kearney, 2015; Perrot & Campoy, 2009). During the induction period, these interactions enable newcomers to settle in with the group, which has its own dynamic. This is particularly true for teachers because building collaboration is a major issue in their profession. Collaboration enables teachers to move from an individualist to a social and interactive approach of their profession (Tardif & Lessard, 1999). Participation in collective activities, reflection within their professional community, and peer support contribute to teachers' professional development (Lecat et al., 2019) and help to bring change in teachers' perception of their work (Grangeat & Gray, 2008). Collaboration is crucial for novice teachers as their professional practices are not stabilized yet. Social interactions between novices and more experienced colleagues influence how they adjust their practice in an ongoing adaptation to both meet the field requirements and maintain internal cohesion within the group. This adaptation process is likely to give them some legitimacy within their professional community (Dupriez & Cattonar, 2018).

Beyond this collaborative aspect, Kelchtermans and Vanassche (2017) have highlighted the importance of learning how to navigate through the school micro-political climate. Although schools are structured organizations with specific orientations and goals, the teaching profession entails choices, debates, decisions — therefore a specific micro-political climate that teachers have to master (Kelchtermans & Vanassche, 2017). Even though the boundary between organizational culture, which we describe in the next paragraph, and micro-political climate is thin, the latter mainly refers to relational matters and interactions with colleagues.

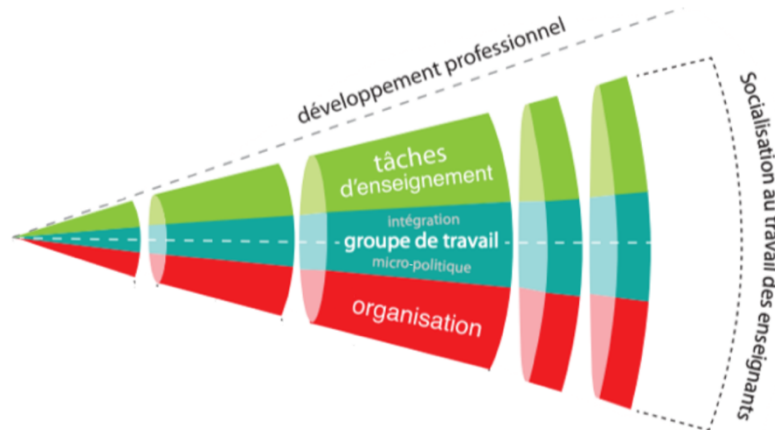
Following Ball (1994)'s statement saying that “micro-politics [in schools] is about relationships rather than structures” (p. 3822), we assumed that in the teaching profession context, aspects that are related to the micro-political climate are inherent in the workgroup dimension. Or, as stated by Kelchtermans and Vanassche (2017), “Understanding the dynamics of power in schools [...] demands going beyond their structural characteristics as organizations and explicitly focusing on processes of sense-making and negotiation as the basis for action” (p.443). It should be noted, however, that the micro-political climate and

workgroup are seen as separate dimensions in some other work contexts (see Chao et al., 1994), in which structures and power relationships are generally more formal.

The **organization socialization** is the understanding of the goals, values, and culture of the organization by the newcomers — the acculturation process (Chao et al., 1994). These elements are mostly implicit, yet they are important to understand the work environment of employees (Feldman, 1981). Perrot and Campoy (2009) consider that beyond the process of understanding, the extent to which newcomers agree with these elements also matters. If an individual disagrees with the organizational goals, values, and culture in general, it is likely to negatively impact their socialization process. This organizational dimension is thus particularly relevant for the school organization. Schools are indeed characterized by specific cultures, goals, and traditions, which newcomers have to find out about and master before they can fully belong (März et al., 2019; Feiman-Nemser, 2003).

The following model (see Figure 1) summarizes our theoretical reflection. We used a sliced cone shape to put the three dimensions together and highlight a dynamic perspective throughout the career stages. Although work socialization is known to be especially challenging during the induction period, it is an ongoing and dynamic process throughout the whole career — unfolding (non-necessarily linearly) from the entry in the profession until the end of the career (Lacaze, 2007).

Figure 1. Attempt of modeling teachers' work socialization



Note. “Tâches d’enseignement”: teaching tasks / “groupe de travail”: work group / “micro-politique”: micro-political climate / “organisation”: organization.

3. Methods

3.1 Variables

Five variables were considered in the analyses of this study. The main variable was teachers' work socialization, which was the focus of our newly developed scale. Three variables were used to test the predictive validity of the scale. *Collegial leadership* was used as a predictive variable (antecedent) of socialization, and *occupational self-efficacy* and *organizational affective commitment* were used as variables that can be predicted (consequences of) by socialization. These four variables were measured by five-point Likert-type scales. The fifth variable, namely the status of *first* versus *second career teacher*¹⁶ was used to test the construct validity (intergroup comparison). These five variables enabled us to assess the quality of our measurement tool through different validity criteria (Boateng et al., 2018).

3.1.1 Measurement tool

Teachers' work socialization [ISaTE]¹⁷. Based on the previous literature review and three dimensions of the proposed model (tasks socialization, workgroup socialization, organization socialization), we formulated 43 items within a first version of our work socialization scale adapted to the teaching profession (see Appendix A). The response categories ranged from 1 = *totally disagree* to 5 = *totally agree*. We drew inspiration from three different scales. Two of them were work socialization scales in other contexts than the teaching profession (Chao et al., 1994; Haueter et al., 2003). We reformulated the selected items to fit the teaching context. The third scale assessed novice teachers' need of support (Mukamurera et al., 2013). Although this scale was not a work socialization scale per se, it tapped into dimensions similar to some of the work socialization dimensions (but not all of them).

3.1.2 Predictive validity

To test the validity of *ISaTE*, we selected a variable that predicts (antecedent) teachers' work socialization: collegial leadership (Hoy & Sabo, 1998); and two variables that are predicted by (consequences of) work socialization: occupational self-efficacy (Schyns & Collani, 2002) and organizational affective commitment (Perreira et al., 2018).

Predictive variable: collegial leadership (Hoy & Sabo, 1998). Many studies have highlighted that the principal's stance impacts novice teachers' induction and teachers'

¹⁶ A second career teacher is a professional who had practiced another profession before joining the teaching profession (Berger & D'Ascoli, 2012).

¹⁷ The acronym ISaTE stands for "Instrument de mesure de la Socialisation au Travail des Enseignants", which translates as "measurement Instrument of Teachers' Work Socialization" in English.

professional development in general (Colognesi et al., 2020; Bickmore & Bickmore, 2010). The concept of collegial leadership refers to a supporting, open, and fair stance from the principal, who lets teachers know what is expected from them in a caring atmosphere (Hoy & Sabo, 1998). Therefore, we assumed that collegial leadership would predict teachers' work socialization. This scale comprised nine items (e.g., "The principal treats all school staff members equitably", from 1 = *never* to 5 = *very often*) and had a good internal consistency (Cronbach alpha $\alpha = .93$).

Variables that are predicted by socialization: occupational self-efficacy (Schyns & Collani, 2002). Occupational self-efficacy refers to professionals' perception of their ability to do their job. The numerous studies that have examined this concept for teachers have demonstrated, among others, that teachers' professional development contributes to the reinforcement of their self-efficacy (Yoo, 2016). This led us to assume that teachers' work socialization would predict their occupational self-efficacy. We used the shortened version of the scale adapted by Rigotti and colleagues (2008) and originally developed by Schyns and Collani (2002). This scale contained six items (e.g., "I feel prepared for most of the demands in my job", from 1 = *totally disagree* to 5 = *totally agree*) and had a good internal consistency (Cronbach alpha $\alpha = .83$).

Variables that are predicted by socialization: organizational affective commitment (Perreira et al., 2018). An empirical study found that the greater the work socialization, the greater the commitment toward the organization. In addition, among the different dimensions of this commitment, affective commitment best represented this relation (Cohen & Veled-Hecht, 2010). In line with these findings, we expected teachers' work socialization to predict their affective commitment toward the organization. We used a French scale comprising three items (e.g., "Je suis fier-ère de dire que je travaille pour mon organisation [I am proud to say that I work for my organization]", from 1 = *totally disagree* to 5 = *totally agree*), which showed a good internal consistency (Cronbach alpha $\alpha = .84$).

3.1.3 Construct validity (intergroup comparison)

First versus second career teacher. Several authors have highlighted the socialization difficulties encountered by second career teachers (Coppe et al., 2021; Tigchelaar et al., 2010). A recent empirical study indicated that second career teachers had more difficulties to deal with the job requirements in many aspects (Troesch & Bauer, 2020). Novice teachers have to take on a new professional role, and the specific characteristics of second career teachers make this socialization process complex (Trent, 2018). This is in part because of the culture schemes and organizational understanding that they had built in their former job and which do not fit the school organization (Haggard et al., 2006). We thus assumed that second career teachers would report a lesser work socialization score than first career teachers.

3.2 Data collection and participants

To test and validate the teachers' work socialization scale, we diffused an online questionnaire among primary and secondary schools. To do so, we asked teachers enrolled in Masters' program of Educational Sciences at our university to share the questionnaire with their colleagues and their networks. The data collection took place between November and December 2019. Participants gave their informed consent to the use of their answers by the researchers at the beginning of the questionnaire. There were no criteria of selection regarding teachers' age or number of years of career because socialization unfolds throughout the whole career, as aforementioned (Lacaze, 2007). Besides, our analyses included testing of measurement invariance to ensure the validity of the scale at different career stages.

The first part of the questionnaire collected demographic data and information about teachers' status and work conditions (working hours, years of teaching, first versus second career teacher, grade(s) in which they teach, etc.). The rest of the questionnaire contained the different variables of interest, which were presented in a randomly generated order to each participant. A total of 1,427 teachers filled in the questionnaire: 9% were pre-school teachers, 38.5% were primary school teachers, 34.1% were middle school teachers, and 18.4% were high school teachers. There were 83.5% of women versus 16.5% of men. This is consistent with the reality of education in French-speaking Belgium, whether in terms of education level or gender (Wallonia-Brussels Federation, 2018). The mean age was 36.73 years old ($SD=10.29$). The number of years of career in teaching ranged from 1 to 45 years with a mean of 12.72 years ($SD=9.90$). There were 85.3% of first career teachers versus 14.7% of second career teachers.

3.3 Data analysis

The structure and validity of the teachers' work socialization scale were tested in several steps, which are widely accepted in the literature on the development of measurement tools (Boateng et al., 2018). First, we randomly divided our sample into two sub-samples of 629 and 662 teachers. For scale validation, it is recommended that the sample size has to be larger than two hundred participants and has to follow a participant-item ratio of 1:10 (Shanmugam & Marsh, 2015). We conducted preliminary *t*-tests on demographic data to ensure that these two sub-samples of teachers were not significantly different in terms of age ($t_{(1484)} = 1.08$; $p = .282$), teaching experience ($t_{(1487)} = 1.02$; $p = .31$), and level of education they teach in ($t_{(1240)} = -.27$; $p = .79$). A chi-square test on teachers' first versus second career teacher status showed that one status was not more represented than the other in the two sub-samples ($\chi^2_{(1)} = .11$; $p = .74$).

This scale validation was organized in three sub-studies. First, we conducted exploratory factor analyses on one of the two sub-samples to extract the factorial structure of the scale and select the items. In the second sub-study, we ran confirmatory factor analysis on the other sub-sample and checked the internal consistency of each dimension to validate the psychometric properties of the scale. The third sub-study was conducted on the whole sample

and aimed to test the predictive and construct validity of the scale. All analyses were performed using Mplus 8.4. The specific statistical criteria relevant to each step are presented at the beginning of each three sub-studies.

4. Results

4.1 Study 1: Exploratory factor analysis

The goal of this first sub-study was twofold. First, it aimed to identify the different dimensions included in the *ISaTE* scale. Second, it enabled us to select a set of items that is parsimonious yet as much accurate as possible from the original pool of 43 items to measure teachers' work socialization.

4.1.1 Statistical criteria

There are many different methods to choose the number of factors to extract in the context of an exploratory factor analysis. Nowadays it is generally recommended to use parallel analysis. However, some researchers have advocated for the use of the *screeplot* to decide on the number of factors when its interpretation is straightforward (Hayton et al., 2004; Wood et al., 2015). In addition, because the parallel analysis method was developed in the context of principal component analysis, it is not always suitable for exploratory factor analysis as it tends to overestimate the number of factors in this context (DeVellis, 2016). This is why we decided to favor the *screeplot* over parallel analysis.

The first item selection followed the following rules: (1) a minimum loading coefficient of .50 on the relevant factor (Yong & Pearce, 2013); and (2) no cross loadings above .30 on other factors. For purposes of parsimony, we then eliminated some additional items to avoid redundancy while at the same time retaining a minimum of three items per dimension (Brown, 2014). All exploratory factor analyses were performed using the Maximum Likelihood Robust (MLR) method of estimation and the oblique rotation method to extract the factors (Muthén & Muthén, 2004).

4.1.2 Results

The “elbow” of the screeplot indicated that a four-factor solution best represented the data. The first three factors corresponded to the workgroup socialization, organization socialization, and tasks socialization dimensions. The fourth factor corresponded to the micro-political climate socialization dimension. We had assumed that this dimension would belong to the work group socialization dimension in the context of the teaching profession. Our hypothesis was thus refuted as this dimension corresponded to a distinct factor.

The analysis of the factor loading matrix after the oblique rotation enabled us to select 27 out of the original 43 items, based on the aforementioned criteria. We ran a second exploratory factor analysis to check that these 27 items still had a factor loading bigger than .50. Then we eliminated a few redundant items for parsimony purposes (Brown, 2014),

leading to a final set of 20 items (see Appendix B). Table 1 presents the initial and final loading matrices along with the item selection.

ISaTE thus has a four-factor structure, corresponding to the organization socialization (six items), workgroup socialization (three items), tasks socialization (eight items), and micro-political climate socialization (three items) dimensions.

Table 1. Factor loadings after oblique rotation (N= 629)

Initial factor loading matrix					Final factor loading matrix				
	1	2	3	4		1	2	3	4
<i>SG12</i>					SG1	.512*			
<i>SG10M</i>					SG2	.826*			
<i>SG11M</i>					SG3	.812*			
SG13M				.554*	<i>SG13M</i>			.535*	
SG1	.688*				<i>SG8M</i>			.716*	
SG2	.690*				<i>SG9M</i>			.857*	
SG3	.696*				<i>SO2</i>		.842*		
<i>SG4</i>					<i>SO3</i>		.664*		
SG5	.599*				<i>SO5</i>		.840*		
<i>SG6</i>					<i>SO6</i>		.729*		
<i>SG7M</i>					<i>SO7</i>		.582*		
SG8M				.723*	<i>SO8</i>		.597*		
SG9M				.829*	<i>ST1</i>				.690*
<i>SO11</i>					<i>ST2</i>				.595*
<i>SO10</i>					<i>ST4</i>				.644*
<i>SO12</i>					<i>ST7</i>				.590*
SO1		.503*			<i>ST8</i>				.573*
SO2		.844*			<i>ST9</i>				.713*
SO3		.630*			<i>ST11</i>				.647*
SO4		.630*			<i>ST14</i>				.505*
SO5		.837*							
SO6		.727*							
SO7		.573*							
SO8		.584*							
<i>SO9</i>									
ST1			.671*						
ST2			.611*						
ST3			.536*						
ST4			.639*						
<i>ST5</i>									
ST6			.543*						
ST7			.594*						
ST8			.619*						
ST9			.732*						
ST10			.684*						
ST11			.657*						
<i>ST12</i>									
<i>ST13</i>									
ST14			.539*						
<i>ST15</i>									
<i>ST16</i>									
<i>ST17</i>									
ST18			.517*						

Note. SG = workgroup socialization; SGM = micro-political climate socialization; ST = teaching tasks socialization; SO = organization socialization. **Items in bold** were selected following the factor analysis. *Items in italics* were deleted after the factor analysis. Factor loadings below .50 are not showed for the sake of clarity.

* $p = .05$

4.2 Sub-study 2: Confirmatory factor analysis and reliability

The goal of this second study was twofold. First, we aimed to assess the psychometric properties of *ISaTE* and to test its factorial structure in a sub-sample independent from the one we used to conduct the previous exploratory factor analyses. To do so, we conducted confirmatory factor analysis et examined the internal consistency of each dimension. While testing the factorial structure, we aimed also to verify that the different socialization dimensions indeed contribute to an overarching dimension of teachers' work socialization. That is, we aimed to test a factorial structure where the four socialization dimensions load on a second-order factor, corresponding to the global construct of teachers' work socialization. To do so, we compared five different models on the basis of statistical indices described below. The second goal of this sub-study was to test the measurement invariance of the scale across different groups. In other words, we aimed to check that the scale had a stable factorial structure for both novice (0 to 5 years of teaching) and experienced (> 6 years of teaching) teachers.

4.2.1 Statistical criteria

We used different descriptive goodness-of-fit indices to assess the quality of the models tested. The TLI (*Tucker-Lewis Index*) and CFI (*Comparative Fit Index*), show acceptable to good fit from .90 to .95 and excellent fit from .99. The SRMR (*Standardized Root Mean Square Residual*) and RMSEA (*Root Mean Square Residual*) show acceptable to good fit from .08 to .05 and excellent fit by being less than .01 (Little, 2013). To test the existence of a second-order factor (i.e., the overarching dimension of teachers' work socialization), a chi-square difference test for the Satorra-Bentler scaled chi-square (2010) was performed to compare models with and without this second-order factor.

We then measured the reliability of the different dimensions of the scale. We used the McDonald Omega rather than Cronbach alpha because the former takes account of the item loadings to estimate the reliability of the latent construct. Conventionally, the required threshold value is .70 (Dunn et al., 2014).

To test measurement invariance, we used a sequence of comparisons between pairs of models with gradually increasing parameters constraints, namely configural, metric (1st and 2nd order), and scalar (1st and 2nd order) invariance models. Each of the steps is reached when the model corresponding to the step, compared to the model in the previous step, does not show a decrease in CFI greater than .01, an increase in RMSEA greater than .015, or an increase in SRMR greater than .03 (Putnik & Bornstein, 2016).

4.2.2 Results

We compared the fit of five different models to test the factorial structure of *ISaTE*. **Model 1:** First, we tested a single factor solution including the 20 items. **Model 2:** Next, we tested a three-factor model with micro-political climate socialization and workgroup socialization merged into a common factor. **Model 3:** Then, we tested a second-order factor model by adding a higher order factor to the three-factor model (i.e., Model 2). **Model 4:** We tested a four-factor model on the basis of the previous EFA results. **Model 5:** Finally, we tested a second-order factor model by adding a higher order factor to the four-factor model (i.e., Model 4). Table 2 displays goodness-of-fit indices of the five tested models. The first three models indicated a poor fit of the observed data. Both Model 4 (the four-factor model) and Model 5 (adding a higher order factor to Model 4) indicated an acceptable to good fit of the observed data. This invited us to choose the higher order factor structure (i.e., Model 5) as it estimates fewer parameters and is thus more parsimonious. The Satorra-Bentler chi-squared difference test (2010) supported this choice ($\chi^2(2) = 3.41, p < .18$), as adding a higher order factor did not significantly worsen the fit of the model. These results confirmed the existence of an overarching construct of teachers' work socialization. Also, all the estimated factor loadings were significant at $p < .001$ and greater than .40. Figure 2 presents the full model and standardized factor loadings.

McDonald Omegas for the dimensions were $\omega = .74$ (workgroup socialization), $\omega = .72$ (micro-political climate socialization), $\omega = .85$ (organization socialization), and $\omega = .80$ (teaching tasks socialization).

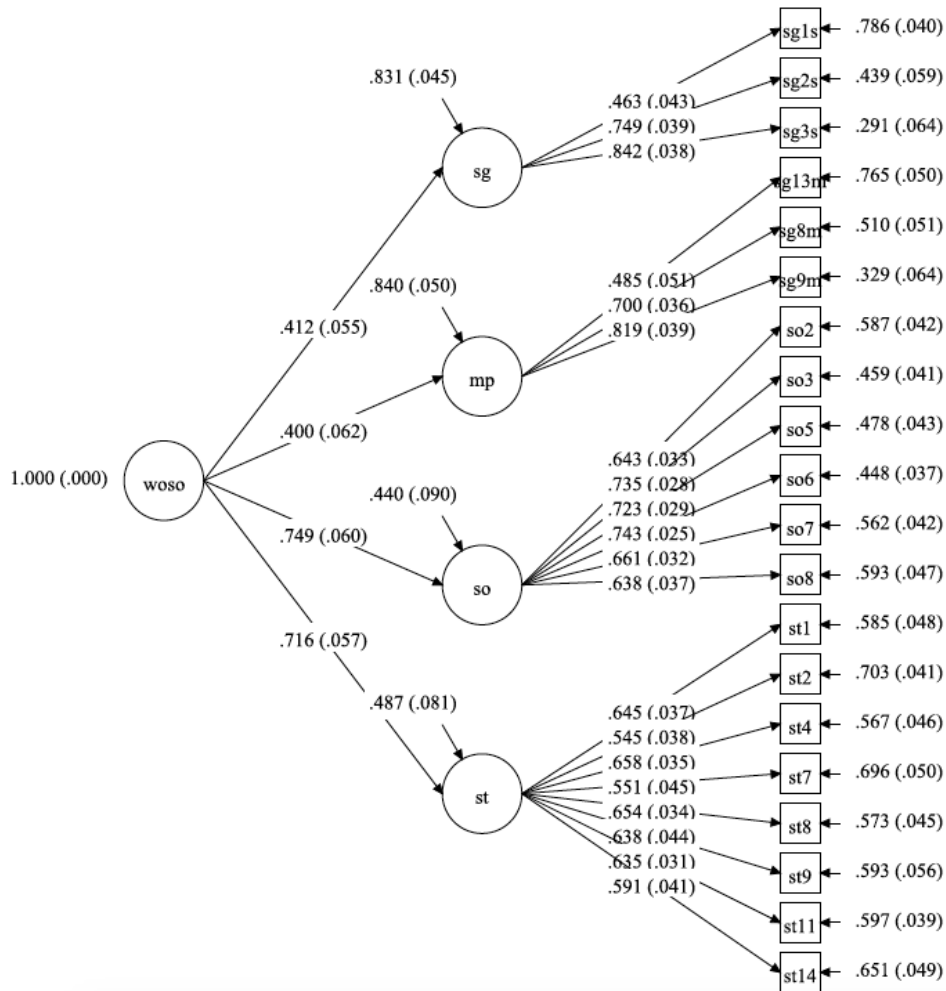
Table 2. Goodness-of-Fit Indices of Confirmatory Analyses of the Five Models

Models	TLI	CFI	SRMR	RMSEA	χ^2 (df)	Correction factor (MLR)
Model 1 (F1)	.554	.601	.095	.107	1466.256 (170)	1.2112
Model 2 (F3)	.806	.829	.075	.071	722.726 (167)	1.1826
Model 3 (F3+1)	.806	.829	.075	.071	722.730 (167)	1.1826
Model 4 (F4)	.907	.920	.057	.049	424.572 (164)	1.1829
Model 5 (F4+1)	.908	.919	.058	.049	427.969 (166)	1.1830

Note. $N = 662$. F1 = single factor model; F3 = three first-order factor model; F3+1 = second-order factor model with three first-order factors; F4 = four first-order factor model; F4+1 = second-order factor model with four first-order factors.

* $p < .05$

Figure 2. Model with a second-order factor and four first-order factors (N = 662)



We then tested measurement invariance between novice (0-5 years of experience) and experienced teachers (> 6 years of experience) with the selected model (Model 5). As socialization is thought to occur throughout the whole teaching career, we need to ensure that our measurement tool has a stable factorial structure across different stages of career. This verification of measurement invariance demonstrates that it was relevant to choose a sample of teachers of any seniority. Table 3 presents the different models with gradually increasing parameters constraints and shows that we reached a strong (scalar) measurement invariance, that is invariance of the number of factors and patterns of factor loadings, loadings of the factors, and intercepts across groups (Putnik & Bornstein, 2016).

Table 3. Testing for factorial invariance between novice (0-5 years) and experimented (>6 years) teachers

Models	χ^2	dl	$\Delta\chi^2$	Δdl	RMSEA	90% CI RMSEA	CFI	TLI	SRMR	ΔCFI	$\Delta RMSEA$	$\Delta SRMR$
Configural model	813.34	332	–	–	.053	.048-.057	.916	.904	.062	–	–	–
1 st order-metric inv.	828.17	348	19.32	16	.052	.047-.056	.916	.908	.067	.000	-.001	.005
2 nd order-metric inv.	831.41	351	3.56	3	.051	.047-.056	.916	.909	.068	.000	-.001	.001
1 st order- scalar inv.	895.46	367	68.81	16	.053	.048-.057	.908	.904	.071	-.008	.002	.003
2 nd order- scalar inv.	914.35	370	20.73	3	.053	.049-.058	.905	.902	.073	-.003	.000	.002

4.3 Sub-study 3: Validity of ISaTE

This third sub-study aimed to test the predictive and construct validity of the scale. First, we tested the links between our measure of teachers' work socialization and both theoretically predictive and predicted variables (predictive validity). Second, this sub-study aims to analyze the differences between first and second career teachers' work. We examined whether the expected difference was found using our scale (construct validity).

4.3.1 Statistical criteria

We examined the links between the different variables of interest using structural equation modeling (SEM). Our model comprised the principal's collegial leadership as predictor of teachers' work socialization, which, in turn, predicted occupational both self-efficacy and organizational affective commitment. This model presented an acceptable to good fit ($\chi^2_{(553)} = 1937.92$, CFI = .922, TLI = .916, RMSEA = .042, SRMR = .065). A *t*-test was performed to compare the first and second career teachers' socialization mean scores. Prior to this, we tested the measurement invariance between the groups as scalar invariance is required to meaningfully compare groups (Dimitrov, 2010).

4.3.2 Results

The principal's collegial leadership significantly predicted teachers' work socialization. About 25% of teachers' work socialization variance was explained by the principal's collegial leadership ($\beta = .501$, $R^2 = .25$, $p < .001$). Our measure of teachers' work socialization significantly predicted both occupational self-efficacy ($\beta = .566$, $p < .001$, $R^2 = .321$, $p < .001$) and organizational affective commitment ($\beta = .771$, $p < .001$, $R^2 = .595$, $p < .001$). The variance explained by teachers' work socialization were substantial for both variables (32% and 60%, respectively).

Scalar invariance was reached, allowing for a meaningful comparison of first and second career teachers' mean scores of teachers' work socialization. Table 4 presents the measurement invariance steps for these two groups. Results of the comparison supported our hypothesis. On average, first career teachers reported a greater score of work socialization ($M = 4.04$, $SD = .49$) than second career teachers ($M = 3.87$, $SD = .53$). This difference was

significant ($t_{(1284)} = 4.36, p < .001$). When examining dimensions separately, we found a significant difference in the expected direction for workgroup socialization of .244, ($p < .001$), micro-political climate socialization of .133, ($p < .01$), teaching tasks socialization of .122, ($p < .01$), and a non-significant difference for organization socialization of .083, ($p = .20$). For each of these dimensions, second career teachers have the lowest scores.

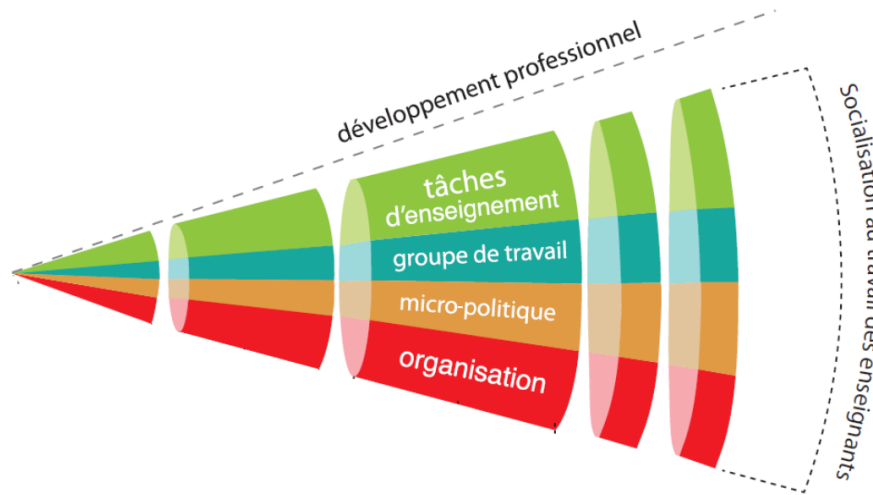
Table 4. Testing for factorial invariance between first and second career teachers

Models	χ^2	df	$\Delta\chi^2$	Δdf	RMSEA	90% CI RMSEA	CFI	TLI	SRMR	ΔCFI	$\Delta RMSEA$	$\Delta SRMR$
Configural model	887.07	332	—	—	.051	.046-.055	.921	.909	.056	—	—	—
1 st order- metric invariance	900.23	348	19.97	16	.050	.046-.054	.921	.914	.062	.000	-.001	.006
2 nd order- metric invariance	905.87	351	5.60	3	.049	.046-.053	.921	.914	.063	.000	-.001	.001
1 st order- scalar invariance	926.06	367	17.07	16	.049	.045-.052	.92	.918	.064	-.001	.000	.001
2 nd order- scalar invariance	937.04	370	11.83	3	.049	.045-.053	.919	.917	.065	-.001	.000	.001

5. Discussion and conclusion

As stated from the beginning of this contribution and repeatedly showed by the literature, the teaching profession is complex. This invites scholars to study teacher induction in depth to gain knowledge and tools to support teachers during this challenging period. Nevertheless, most studies have focused on a single feature of the job: teaching (classroom-related experiences). However, the teaching profession is not restricted to didactic and pedagogical aspects. It is also embedded within a school organization, with everything that it implies (März et al., 2019 ; Kelchtermans, 2019 ; Tang et al., 2016). This is why, to be able to fully endorse their professional role, teachers have to adjust to the organization, settle in socially and professionally speaking, as well as grasp how to navigate the micro-political climate (Rots et al., 2012). Although studies on work socialization have highlighted these different dimensions (Chao, 1994), they haven't been explicitly contextualized to the reality of the teaching profession (Richards et al., 2014). Yet contextualizing the concept of work socialization is crucial to grasp induction and professional development in general for a given profession (Bourrhis, 2004). This was the goal of the present study, in which we provided both a theoretical model of teachers' work socialization and a measurement tool — *ISaTE* — that assesses the different dimensions of the teaching profession. Our results indicate that teachers' work socialization encompasses four dimensions: teaching tasks socialization, workgroup socialization, micro-political climate socialization, and organization socialization. We found that micro-political climate socialization was not a distinct dimension from workgroup socialization, contrary to our assumption. We therefore adapted our model of teachers' work socialization, as can be seen in Figure 3.

Figure 3. Model of teachers' work socialization



Note. “Tâches d’enseignement”: teaching tasks / “groupe de travail”: work group / “micro-politique”: micro-political climate / “organisation”: organization.

Our findings contribute to the recent debate about the features of the teaching profession and teachers' professional development (Tang et al., 2016). They support the idea that the teaching job entails adaptations and learning processes that go beyond the aspect of teaching to students. This is in line with recent studies examining teacher induction from the perspective of novices' need for support (Auclair Tourigny, 2017; Carpentier, 2019; Mukamurera et al., 2019).

In addition, we developed a scale (*ISaTE*) that operationalizes and highlights these four dimensions. We validated a factorial structure including 20 items with high and significant loadings divided into four dimensions presenting adequate to high internal consistency. Besides, our analyses confirmed the existence of an overarching construct of teachers' work socialization encompassing the four dimensions. We tested the predictive validity and validity of construct (intergroup comparison). The principal's collegial leadership significantly predicted teachers' work socialization. In addition, teachers' work socialization significantly predicted both occupational self-efficacy and organizational affective commitment. Second career teachers reported significantly lower mean scores of socialization than first career teachers. We also tested measurement invariance between novice and experienced teachers to verify the stability of the factorial structure of the scale throughout different career stages.

This study also has some limitations. We operationalized teachers' work socialization as an individual state. However, following Feldman (2012), we claim that socialization not only involves a learning process from the newcomers, but they also need to be acknowledged by their colleagues and the organization. To capture this two-way dynamic, we likely need to combine the use of *ISaTE* with other research method such as qualitative or relational approaches focusing on the process and the context in which it takes place.

We can see several perspectives for future research. First, the four socialization dimensions should be further examined, notably to determine what can support each of them for teachers. Second, the clear difference between first and second career teachers invites us to further explore their respective socialization processes to understand the underlying causes and suggest potential courses of action. Third, this first validation of *ISaTE* should be replicated in other specific groups of teachers as well as in other cultural contexts and languages.

Finally, in terms of practical implications, our conceptualization of socialization is likely to be useful to teachers' initial training and novice teachers' support systems. Integrating these four dimensions into student teachers' training curricula could help to prepare them better to their future job. They could also be helpful in supporting novice teachers during their first steps in the teaching profession.

APPENDIX A: Initial pool and selected items

Items	References
*SG1 : I do not see any of my colleagues as a friend (R) [Je ne considère aucun de mes collègues comme des amis]	Chao et al. (1994)
*SG2 : I usually do not take part in informal social events organized by colleagues (R) [Je ne participe habituellement pas aux événements sociaux informels organisés par des collègues]	Chao et al. (1994) (adapted)
*SG3 : I am usually not present in informal gatherings of colleagues (R) [Je ne suis généralement pas présent dans des rassemblements informels de collègues]	Chao et al. (1994) (adapted)
SG4 : Within the school, I would easily be identified as a “team member” [Au sein de mon école, on m’identifierait facilement comme « un membre de l’équipe »]	Chao et al. (1994) (adapted)
SG5 : I am quite popular among my colleagues [Je suis plutôt populaire parmi mes collègues]	Chao et al. (1994) (adapted)
SG6 : I think most of my colleagues like me [Je pense que la plupart de mes collègues m’apprécient]	Chao et al. (1994)
SG7_micropol : I learned how things « really works » between colleagues in my school [J’ai appris comment les choses « fonctionnent vraiment » entre collègues dans mon école]	Chao et al. (1994) (adapted)
*SG8_micropol : I know who the most influential people are among my colleagues [Je sais quelles sont les personnes les plus influentes parmi mes collègues]	Chao et al. (1994) (adapted)
*SG9_micropol : I can identify the most important people among my colleagues [Je peux identifier les personnes qui sont les plus importantes parmi mes collègues]	Chao et al. (1994) (adapted)
SG10_micropol : I do not quite understand who has a formal role among my colleagues (CPPT, CE, union representative, etc.) [Je ne comprends pas bien qui a un rôle formel parmi mes collègues CPPT, CE, représentant syndical, etc.)] (R)	N.A.
SG11_micropol : I have a good understanding of the reasons behind my colleagues' actions. [J’ai une bonne compréhension des motifs qui justifient les actions de mes collègues].	Chao et al. (1994)
SG12 : I understand the expertise that each colleague brings to the school	Haueter et al. (2003)

Workgroup socialization (SG) [with items related to micro-politics]

	[Je comprends l'expertise que chaque collègue apporte au sein de l'école]	
	*SG13_micropol : I understand the internal politics between colleagues (e.g., who has influence, what needs to be done to improve or maintain a good team climate) [Je comprends la politique interne entre les collègues (par ex. qui a de l'influence, ce qu'il faut faire pour améliorer ou maintenir un bon climat dans l'équipe)]	Haueter et al. (2003)
Organization socialization (SO)	SO1 : I would be a good representative of my school Je serais un bon représentant de mon école	Chao et al. (1994) (adapted)
	*SO2 : The goals of my school are also mine [Les buts de mon école sont aussi les miens]	Chao et al. (1994) (adapted)
	*SO3 : I think I fit in well with my school [Je pense que je corresponds bien à mon école]	Chao et al. (1994) (adapted)
	SO4 : I do not always believe in the values my school stands for (R) [Je ne crois pas toujours dans les valeurs défendues par mon école]	Chao et al. (1994) (adapted)
	*SO5 : The values of my school are also mine [Les valeurs de mon école sont aussi les miennes]	Perrot & Campoy (2009) (adapted)
	*SO6 : I support the objectives set by my school [Je soutiens les objectifs fixés par mon école]	Chao et al. (1994) (adapted)
	*SO7 : I know how to adapt to my school's values [Je sais comment agir pour m'adapter aux valeurs de mon école]	Haueter et al. (2003) (adapted)
	*SO8 : I understand how my work contributes to my school's goals [Je comprends comment mon travail contribue aux objectifs de mon école]	Haueter et al. (2003) (adapted)
	SO9 : I know the rules, routines and procedures of my school [Je connais les règles les routines et les procédures de mon école]	Haueter et al. (2003) (adapted)
	SO10 : I understand the management style of the principal (top-down, participative, democratic, etc.) [Je comprends le style de gestion de ma direction (Top-down, participatif, démocratique, etc.)]	Haueter et al. (2003)
	SO11 : I feel familiar with my school as a working environment [Je me sens familiarisé avec mon école comme environnement de travail]	Mukamurera et al. (2019) (adapted)
	SO12: I do not know who really makes the important decisions in my school (R) [Je ne sais pas qui prend réellement les décisions importantes dans mon école]	Friedman & Kass (2002)

Teaching tasks socialization (STE)	*STE1: I know how to maintain a positive learning environment in the classroom [Je sais comment maintenir un climat propice à l'apprentissage en classe]	Mukamurera et al. (2019) (adapted)
	*STE2 : I know how to deal with students who exhibit inappropriate behaviors [Je sais comment régler des problèmes avec les élèves présentant des comportements inappropriés]	Mukamurera et al. (2019) (adapted)
	STE3 : I know how to motivate students who show little interest in the subject and school work [Je sais comment motiver les élèves qui montrent peu d'intérêt pour la matière et le travail scolaire]	Mukamurera et al. (2019)
	*STE4 : I know how to interact with my students in a way that promotes learning [Je sais comment avoir un contact relationnel avec mes élèves propice à l'apprentissage]	N.A.
	STE5 : I know how to adapt to students with special needs in terms of educational differentiation [Je sais comment m'adapter aux élèves à besoins spécifiques en termes de différenciation pédagogique]	Mukamurera et al. (2019) (adapted)
	STE6 : I know how to plan my teaching for the year [Je sais comment planifier mon enseignement sur l'année]	Mukamurera et al. (2019) (adapted)
	*STE7 : I master my teaching curriculum content [Je maîtrise mes contenus matières]	N.A.
	*STE8 : I know how to evaluate my students based on curriculum content and planning [Je sais comment évaluer mes élèves en fonction du contenu matière et de la planification]	Mukamurera et al. (2019) (adapted)
	*STE9 : I know how to explain my teaching content to students so that they understand it [Je sais comment expliquer ma matière aux élèves de sorte qu'ils la comprennent]	
	STE10 : I know how to transmit curriculum content in order to teach it [Je sais comment transmettre les contenus matières de manière à les enseigner]	N.A.
	*STE11 : I know how to bring out the best in my students even when the topic is difficult [Je sais comment amener mes élèves à donner le meilleur d'eux-mêmes même lorsque la matière est difficile]	N.A.
	STE12 : I know how to use the curriculum programs available to me and adapt when they change [Je sais comment utiliser les programmes mis à ma disposition et m'adapter lorsque ceux-ci changent]	N.A.

ST13 : I know how to perform the administrative tasks involved in my teaching duties [Je sais comment réaliser les tâches administratives qui incombent à la gestion de ma/mes classe(s)]	Fernet et al. (2008) (adapted)
*STE14: I know how to prepare lessons so that my preparation serves my teaching. [Je sais comment préparer les leçons pour que ma préparation soit au service de mon enseignement]	N.A.
STE15: I know how to get involved in the decision-making processes that affect my school [Je sais comment m'impliquer dans les processus de prises de décisions qui concernent mon école]	Friedman & Kass (2002) (adapted)
STE16: I know how to get involved in the functioning of my school beyond the work I do in class. [Je sais comment impliquer dans le fonctionnement de mon école au-delà du travail que je réalise en classe]	N.A.
STE17: I know how to interact with the other actors of the school when the situation requires it (PMS, educators, etc.) [Je sais comment agir avec les autres acteurs de l'école quand la situation le demande (PMS, éducateurs, etc.)]	N.A.
STE18: I know how to interact with parents when the situation demands it [Je sais comment agir avec les parents lorsque la situation le demande]	Skaalvik & Skaalvik (2007)

Note. **Bold** = selected items. N.A. = items developed by the authors

ANNEXE B: Final scale (*ISaTE*)

Dimensions	Modalités de réponses				
- Items					
Socialisation aux tâches d'enseignement					
- Je sais comment maintenir un climat propice à l'apprentissage en classe	1	2	3	4	5
- Je sais comment régler des problèmes avec les élèves présentant des comportements inappropriés	1	2	3	4	5
- Je sais comment avoir un contact relationnel avec mes élèves propice à l'apprentissage	1	2	3	4	5
- Je maîtrise mes contenus matière	1	2	3	4	5
- Je sais comment évaluer mes élèves en fonction du contenu matière et de la planification	1	2	3	4	5
- Je sais comment expliquer ma matière aux élèves de sorte qu'ils la comprennent	1	2	3	4	5
- Je sais comment amener mes élèves à donner le meilleur d'eux-mêmes, même lorsque la matière est difficile	1	2	3	4	5
- Je sais comment préparer les leçons pour que ma préparation soit au service de mon enseignement.	1	2	3	4	5
Socialisation au groupe de travail					
- Je ne considère aucun de mes collègues comme des amis (R)	1	2	3	4	5
- Je ne participe habituellement pas aux événements sociaux informels organisés par des collègues (R)	1	2	3	4	5
- Je ne suis généralement pas présent dans des rassemblements informels de collègues (R)	1	2	3	4	5
Socialisation au climat micro-politique					
- Je sais quelles sont les personnes les plus influentes parmi mes collègues	1	2	3	4	5
- Je peux identifier les personnes qui sont les plus importantes parmi mes collègues	1	2	3	4	5
- Je comprends la politique interne entre les collègues (par ex. qui a de l'influence, ce qu'il faut faire pour améliorer ou maintenir un bon climat dans l'équipe)	1	2	3	4	5
Socialisation à l'organisation					
- Les buts de mon école sont aussi les miens	1	2	3	4	5
- Je pense que je corresponds bien à mon école	1	2	3	4	5
- Les valeurs de mon école sont aussi les miennes	1	2	3	4	5
- Je soutiens les objectifs fixés par mon école	1	2	3	4	5
- Je sais comment agir pour m'adapter aux valeurs de mon école	1	2	3	4	5
- Je comprends comment mon travail contribue aux objectifs de mon école	1	2	3	4	5

1 : Tout à fait en désaccord / 2 : partiellement en désaccord / 3 : neutre / 4 : partiellement d'accord / 5 : Tout à fait d'accord

Chapter 4

The use of social capital in teacher research

A trendy but blurry concept

In this contribution, we present a critical reflection on the concept of social capital. We argue that there is no such idea of an umbrella concept of social capital. Instead, two overarching conceptualizations of social capital exist, namely individual social capital and collective social capital. As these conceptualizations of social capital are completely different, we emphasize that studies using social capital as a theoretical lens should clarify the concept as well as be consistent in the interpretation of the concept, from its definition to its methodological operationalization. In this article, we first map the two different conceptualizations of social capital. Next, these conceptualizations are illustrated with well-known teacher research studies, followed by examples of studies in which individual and collective social capital are mixed. Finally, we discuss the consequences of the use and the mix of these different conceptualizations in terms of measurement methods. Additionally, implications for teacher education are presented.

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The use of social capital in teacher research

A trendy but blurry concept

1. Introduction

Throughout the past two decades, there has been a growing body of literature that recognizes the importance of teachers' interactions for their professional development (Baker-Doyle and Yoon, 2020; Kyndt et al., 2016; Moolenaar, 2012). Teachers' professional development has increasingly been considered as a 'socially embedded' phenomenon. This, in turn, has brought the concept of social capital to the forefront of the domain of teacher research. A multitude of studies have highlighted social capital as a resource for teachers' learning (Daly et al., 2020), self-efficacy (Neugebauer et al., 2019), well-being and job satisfaction (Edinger and Edinger, 2018), support (Bristol and Shirrell, 2019), induction (März and Kelchtermans, 2020; Thomas et al., 2019), and turnover (Hopkins et al., 2019).

But even though this increasing body of teacher research seems to build on the same fundamental concept of social capital, the concept is operationalized and interpreted in various ways. Scholars do not always explicate which conceptualization of social capital they are using and often mix different conceptualizations of social capital under the same 'umbrella construct'.

In this contribution, we argue that there is no such idea of an umbrella concept of 'social capital'. Instead, two overarching conceptualizations of social capital exist, namely individual social capital and collective social capital. Individual social capital (also called network-based social capital; Bourdieu, 1980; Lin, 2001) represents a potential benefit for individuals that is embedded in social interactions (such as professional resources available through relations with colleagues). Collective social capital (also called civic capital; Paccagnella & Sestito, 2014; Putnam, 1994) represents a collective good shaped by the sum of individual behaviors and is rooted in the shared culture of a collectivity (such as schools' trust climate or schools' shared positive norms). As these conceptualizations of social capital are completely different, we emphasize that studies using social capital as a theoretical lens should clarify the concept (i.e., whether an individual or collective perspective on social capital is chosen) as well as be consistent in the interpretation of the concept, from its definition to its methodological operationalization. In the teacher research domain, many papers build on a definition of individual social capital while operationalizing the social capital construct with theories and variables related also to the collective interpretations of social capital. The most common example of this mix is to present teachers' social capital as a combination of the trust climate of their school and the resources that teachers can access through professional interactions with peers (see below for details). Such practices can be problematic as they may result in conceptual ambiguity (Son, 2020). Theoretically speaking, it makes the concept blurry, and methodologically speaking, it is problematic to measure one

construct (e.g., individual social capital) with measurement methods related to another construct (e.g., collective social capital).

In this contribution, we first map the two overarching different conceptualizations of social capital, namely individual social capital and collective social capital. Next, these conceptualizations are illustrated with well-known teacher research studies, followed by examples of studies in which individual and collective social capital are somehow mixed in such a way that although these studies build on individual social capital in their theoretical framework, the operationalization is a mix of both individual and collective social capital. Finally, we discuss the consequences of the use and the mix of these different conceptualizations in terms of measurement methods. As the teacher research domain is mainly rooted in the individual social capital conceptualization instead of the collective variant, attention is especially devoted to measurement methods for the former. The main contribution this paper seeks to make to the special issue is:

- to clarify the different definitions of social capital in their scientific historical context and to provide examples of them coming from the teacher research domain,
- to highlight that individual social capital is a concept often used in teacher research,
- to discuss the consequences of mixing different conceptualizations of social capital, and
- to explore the operationalization of individual social capital.

Our aim is not to write a review on the concept of social capital (for reviews see Demir, 2021; Portes, 1998; Son, 2020; Tzanakis, 2013), but rather to critically discuss the concept, especially its use in the domain of teacher research.

2. Mapping the different conceptualizations of social capital

2.1 Understanding the concepts of social capital

While some sources attribute the first use of the term “social capital” to Hanifan or Weber (Claridge, 2004), others point to Durkheim and Marx as setting out its conceptual foundations (Portes, 1998). Through the years, social capital has been used in many disciplines (i.e., economy, sociology, psychology, education, etc. Dika & Singh, 2002), and with several different meanings (i.e., capital from a social point of view; resource of the community; social commonwealth; people’s social condition, etc. Farr, 2004). Current uses of social capital build particularly on the works of Putnam (1994), Bourdieu (1980), Coleman (1988),

Nahapiet and Ghoshal (1998), and Lin (2001)¹. In this section, we will not focus on the origin of the term (see Farr, 2005 for more information) but will discuss its meanings on the basis of these five more recent conceptualizations. In particular, we will briefly highlight the different conceptualizations of social capital carried out by the works of Putnam, Bourdieu, Coleman, Nahapiet and Ghoshal, and Lin (see Table 1) as it will help us to show that there are mainly two overarching conceptualizations of social capital, namely individual and collective social capital (Son, 2020).

Table 1. Different conceptualizations of social capital (table inspired by Claridge, 2018).

	Collective social capital (also called civic social capital)	Individual social capital (also called network-based social capital)
Putnam (1994)	Social capital is a public good mostly referring to state-level social capital. It is built by citizen engagement in public affairs.	
Coleman (1988)	Social capital is resources available to actors in their network and shared norms that facilitate reciprocity.	
Nahapiet and Ghoshal (1998)	Social capital is resources available to actors in the network and shared norms and shared language that facilitate interactions.	
Bourdieu (1980)		Social capital is resources related to the possession of a durable network.
Lin (2001)		Social capital is resources embedded in one's social networks.

Putnam (1994) proposed a definition of social capital strongly rooted in the collective idea of social capital: "Unlike conventional capital, social capital is a public good, that is, it

¹ Burt could also have been mentioned here but his work was mainly parallel with Lin's work and, in the course of time, Burt's conceptualization of social capital has joined Lin's perspective (Burt et al., 2019). Therefore we consider him included in Lin's perspective.

is not the private property of those who benefit from it" (Putnam, 1994, p.10). For Putnam, social capital refers to community-level goods such as trust climate or civic engagement (mainly at macro-levels such as the state level). This conceptualization of social capital has also been called 'civic capital' (Guiso et al., 2011). As an example, in his work, Putnam showed the relation between state-level social capital and the educational performance of schools (Putnam, 2001). His concept of state-level social capital was the sum of individual "civic behaviors" such as engagement in social organizations, engagement in public affairs, engagement in volunteering communities, perception of social trust, and engagement in sociability.

Coleman (1988) defined social capital both as a public good and an individual benefit. Starting from the individual perspective, he defines social capital as resources available to actors. Illustrating individual social capital, he explains that if A has a social relation with B, he can ask B to do something for him or to give him advice. Therefore, B is a resource possessed by A because of a social bond between them. Adding a collective perspective on social capital, Coleman explains that this exchange between A and B only works if they trust each other to have reciprocal exchanges. For Coleman, in a larger social environment than this dyad, individual social capital only exists when there is a form of collective social capital, such as trust and norms of reciprocity. As such, he conceptualizes collective social capital as a condition for individual social capital. In other words, "norms and sanctions [i.e., a form of collective social capital] are a necessary condition for initiating and promoting social exchanges among actors [i.e., a form of individual social capital] in a community" (Son, 2020, p. 10). Coleman differentiates individual and collective social capital, suggesting that collective social capital can represent a favorable environment to individual social capital. The work of Coleman on social capital, however, has been highly criticized (Ponthieux, 2006; Tlili & Obsiye, 2014; Tzanakis, 2013): while the distinction between individual and collective social capital is visible in his work, he has never made this distinction clear, using the same social capital term to refer to individual and collective social capital (Son, 2020). In other words "Coleman obscures the notion of social capital by including under this term mechanisms that generate social capital (such as mutual expectation and group reinforcement of norms), the consequences of possessing it (such as privileged access to information), and the 'appropriable' social organisation that provides the context for the former two (sources and effects)" (Marrero, 2006, p. 5).

Close to the work of Coleman, **Nahapiet and Ghoshal (1998)** defined social capital as "the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit" (p. 243). While this definition seems to refer mainly to individual social capital, Nahapiet and Ghoshal present social capital as shaped by three dimensions that refer both to individual and collective perspectives of social capital: structural, relational, and cognitive. The structural dimension refers to the presence or absence of ties between individuals (equivalent to individual social capital). The relational dimension refers to trust between individuals and norms and sanctions as group guidelines (similar to collective social capital). Finally, Nahapiet and Ghoshal (1998) present the cognitive dimension as an addition to previous

conceptualizations of social capital, referring to shared perceptions that facilitate interactions such as shared language and codes (also similar to collective social capital). These dimensions refer to the relationships and the structural features of social capital (Froehlich, Van Waës, & Schäfer, 2020). Parallel to Coleman, Nahapiet and Ghoshal have been criticized for mixing different concepts into the same notion. Fine (2010) wrote: “Nahapiet and Ghoshal ‘throw everything from their field into social capital’, including a good dose of Bourdieu” (p. 219).

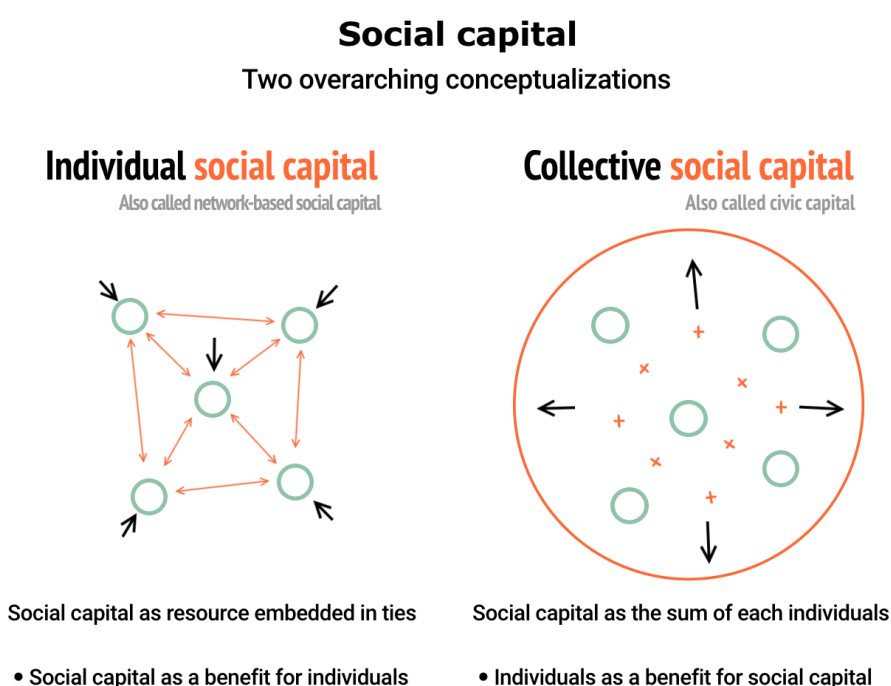
In contrast to Putnam’s collective view of social capital, for **Bourdieu (1980)**, social capital is mainly an individual good that exists because of membership within a group. He defined social capital as the resources (existing or potential) that are related to the possession of a durable relational network (Bourdieu, 1980, p. 2). He used social capital to conceptualize social exchange dynamics within the ruling classes. For Bourdieu, society is clustered in communities and actors are positioned within these communities. According to their positions, they have access to different resources. As such, there are social inequalities regarding the clusters of actors and the positions of the actors within their clusters. Having more economic and cultural capital predisposes individuals to being members of different clusters and to having good structural positions within these clusters. It enables “advantageous locations in social space in the competition for the appropriation of available scarce resources” (Tzanakis, 2013).

Following Bourdieu’s perspective, **Lin (2001)** also theorizes social capital from an individual perspective. He defines social capital as “resources embedded in one’s social networks, resources that can be accessed or mobilized through ties in the networks” (Lin, 2008, p. 54). This conceptualization is also called network-based social capital (Lin, 2008). In Lin’s conceptualization of social capital, trust or collective norms are explicitly not conceptualized as a form of social capital and social capital *is* individual social capital (Son, 2020).

Through the work of these authors, which represents the foundations of the two current overarching conceptualizations of social capital, we can conclude that individual social capital is the benefit that a person obtains as a function of their social position in a social network while collective social capital is the collective good that is shaped by a community (Godechot & Mariot, 2004). Individual social capital and collective social capital are sometimes linked, such as in Coleman’s conceptualization, or completely distinct, such as in Lin’s and Putnam’s conceptualizations. Regardless of their possible link or opposition, these authors agree that an individual form and a collective form of social capital are not the same ideas (see Figure 1 for an illustration of these two conceptualizations). As we highlighted in this section, the work of Coleman and Nahapiet and Ghoshal has been criticized because their conceptualization of social capital tries to bring together two notions that are very different (Fine, 2010; Marrero, 2006). This duality represents a “considerable disagreement about whether social capital is a collective attribute of communities or societies, or whether its beneficial properties are associated with individuals and their social relationships” (Poortinga, 2006, p. 293). Though the disagreement in itself is not problematic, it can become

a problem when “social capital” is used as an umbrella term without taking into account the debate regarding both conceptualizations. The risk here is that arguments drawing on collective and individual social capital are mixed, without (sufficient) knowledge about these two conceptualizations. In such cases, “conceptual chaos” can lead to the fall of the concept of social capital (Fine, 2010). Moreover, mixing individual and collective social capital can also pose problems with respect to research designs and operationalizations of social capital in empirical studies, which in turn may lead to incorrect conclusions.

Figure 1. Two overarching conceptualizations of social capital



Note: In the individual social capital perspective, social capital are the resources that individual's access through their networks. In the collective social capital perspective, social capital is the common benefit (culture, norm, ...) that is shaped by the sum of the individuals' behaviors.

2.2 Social capital in teacher research

Like other disciplines before it, the educational sciences have also embraced the concept of social capital for its theoretical value in understanding learning and development. This is especially visible in the teacher research domain. The increasing use of the social capital concept in teacher research follows the growing consensus among educational researchers that relationships matter (Moolenaar, 2012). The underlying assumption of this trend is that

social interactions are important sources of teachers' knowledge and professional development (Baker-Doyle & Yoon, 2011; Coburn & Russel, 2008). In teacher research, teachers' interactions and collegiality dynamics are increasingly described as resources for e.g., teacher retention, professional development, engagement, support, and learning (Daly, 2010; Thomas et al., 2019). The resources embedded in these social interactions have been naturally called teachers' social capital (Baker-Doyle & Yoon, 2011; Coburn & Russel, 2008). Until now, most of these studies have focused on teachers interacting with colleagues within their schools but some studies are going beyond and also look at the influence of teacher interactions between different schools (Cheah et al., 2011; Spillane et al., 2015)

Based on the idea that teachers' interactions are beneficial for teacher development, the social capital theoretical lens used in teacher research is strongly rooted in the conceptualization of individual social capital. This is also visible in the increasing use of the social network approach to study teacher development (Baker-Doyle & Yoon, 2020, Froehlich, Rehm, & Rienties, 2020). As individual social capital refers to network-based social capital (Lin, 2008), the social network approach is particularly relevant for its operationalization.

Nevertheless, and this is where the concept becomes fuzzy, some studies in teacher research build their rationale on individual social capital, rooted in the idea that "relationships matter", but theoretically and methodologically use a mixture of individual and collective social capital. Regarding this matter, we argue that even if teacher research becomes increasingly interested in the concept of social capital, its theoretical meaning has sometimes been overlooked. Suffering from its popularity, there is a risk that the concept becomes too general to be meaningful (Li, 2015).

To illustrate this problem, we now present examples of studies in the teacher research domain using strictly either individual social capital or collective social capital. The examples of studies using collective social capital are only illustrative. They do not represent the current trend in teacher research (which is mainly using an individual social capital approach) but illustrate how collective social capital can also be used in teacher research. We then present studies that mix both individual and collective social capital under the umbrella term of social capital, while being strongly rooted in the individual perspective of social capital. Following the criticisms made against Coleman and Nahapiet and Ghoshal in the past, we argue that the mix of these concepts can be conceptually and methodologically problematic. Table 2 presents the social capital conceptualizations of the examples presented in the next sections.

Table 2. Examples of studies using individual, collective, or a mixed form of social capital

	Conceptualizations	Operationalizations
Spillane et al. (2012)	Individual	Social network approach
Struyve et al. (2016)	Individual	Social network approach
Bristol and Shirrel (2019)	Individual	Social network approach
Belfi et al. (2015)	Collective	Psychometric instrument
Van Maele & Van Houtte (2011)	Collective	Psychometric instrument
Moolenaar et al., (2014)	Mixed form with rationale related to individual social capital	Social network approach and psychometric instrument
Hopkins et al. (2019)	Mixed form with rationale related to individual social capital	Social network approach and psychometric instrument
Liou et al. (2017)	Mixed form with rationale related to individual social capital	Social network approach and psychometric instrument

2.2.1 Individual and collective social capital in teacher research

As highlighted in the previous section, the individual social capital conceptualization in the context of teacher research could be synthesized as follows: *Teachers' relationships matter because they represent resources, as a form of capital, for teachers' development.*

An example of a well-known study in the teacher research domain using social capital from an individual perspective is the article of Spillane et al. (2012). In their study, social capital is defined as the advice and information available through relationships with colleagues. Their rationale for using the notion of social capital is that teachers can develop their knowledge "through on-the-job interactions with colleagues" (Spillane et al., 2012, p. 1118). Their study aimed to identify the factors that facilitate the development of teacher social capital. They used a quantitative social network approach (P*2 models, Van Duijn et al., 2004; Veenstra et al., 2007) to highlight factors associated with the occurrence of ties between staff members. Information about ties was obtained through the question "To whom

do you turn in this school for advice or information about mathematics/reading/language arts/English instruction”. As such, the more a predictor was associated with the existence of ties between staff members, the more it contributed to teacher social capital.

Struyve et al. (2016) is another example of a study in the teacher research domain in which an individual social capital perspective is used. These authors analyzed how teacher social capital can reduce early career teacher attrition. They defined social capital as “the set of resources embedded in social relations” (Struyve et al., 2016, p. 200). They measured social capital as the number of colleagues with whom a teacher has interactions (instrumental interactions: “to whom do you go to for class-related information?”; or expressive interactions: “whom do you go to discuss more personal matters?”).

A lot of other studies could have been used as examples: Bristol & Shirrel (2019); Coppe et al. (2021); März & Kelchtermans (2020); Thomas et al. (2019); Wilhelm et al. (2020).

The use of collective social capital is way more uncommon in teacher research. An example of a study in the teacher research domain using social capital from a collective perspective is the article of Belfi et al. (2015). These authors use the concept of “school-based social capital” firstly developed by Goddard (2003). They measured collective social capital, at the school level, with scale items related mainly to the school’s trust climate, commitment climate, and support climate. As another example of a study using collective social capital, Van Maele and Van Houtte (2011) analyzed to what extent homogeneity in teachers’ beliefs about students’ ability enhances school collective social capital. Their school collective social capital was measured through the trust in colleagues scale (Hoy & Tschannen-Moran, 2003).

2.2.2 Social capital as a mix of individual and collective social capital

While individual and collective social capital are two different concepts, a lot of studies in the teachers’ research mix the two conceptualizations while in the meantime being rooted in the individual social capital perspective.

An example of a study in the teacher research domain mixing individual social capital and collective social capital under the umbrella term social capital is the study of Moolenaar et al. (2014). The article starts by stating that “Social capital theory explains how social relationships enable individuals to have access to and make use of, the resources that reside in their social networks” (Moolenaar et al., 2014, p. 208), referring to an individual perspective of social capital. Social capital, however, is later on in the article operationalized as having two components, namely relationships with colleagues and norms and values shared by group members. The first component is measured through a social network approach with the question “Whom do you turn to in order to discuss your work?” and for the second component a scale measuring trust in colleagues is used (Hoy & Tschannen-Moran, 2003). Moolenaar et al., (2014) hypothesize that social interactions create a trust climate in schools. Here, they describe trust climate as a factor of cooperation. One of their

conclusions is that social interactions and trust climate may be in a circular relationship, one influencing the other. In other words, given the umbrella concept 'social capital' used in this study, social capital predicts social capital, which is a tautological statement (Woolcock, 2010).

Another study mixing individual and collective social capital is reported in the article of Hopkins et al. (2019). Their study presents the importance of collaborations with colleagues for the retention of beginning teachers. In the article, adopting an individual approach, social capital is defined as "the resources embedded in social networks that can be accessed and used by actors for action" using the definition of Lin (2001, 2008). Then, social capital is seen as consisting of two dimensions, namely social network structure and relational trust (Hopkins et al., 2019). The social network dimension is measured with the question "to whom do you turn for advice or information related to curriculum, teaching, and/or student learning?". Trust is measured using the teacher-teacher trust scale (Tschannen-Moran & Hoy, 1998).

A third study mixing the conceptualization of social capital is the study of Liou et al. (2017). Here, social capital is defined as "the resources embedded in social networks that are formed by social relations" (Liou et al., 2017, p. 636) referring notably to the work of Lin about individual social capital. In the meantime, social capital is described as shaped by two dimensions: social network structure and relational trust, referring to the work of Nahapiet and Ghoshal (1998). In addition, relational trust is defined as the "adhesive that connects individual actors" (Liou et al., 2017, p. 638) implying that one of the two dimensions of their social capital construct is an antecedent of the other.

We acknowledge that the studies listed in this section participated significantly to bring and to show the value of the social capital concept in the teacher research and they represent important contributions to the field. However, the approaches of each of these three studies seem to be rooted in Coleman's or Nahapiet and Ghoshal's view of social capital as they talk about social capital from an individual perspective and a collective perspective but in the meantime, anchor their definitions of social capital from an individual perspective. Beyond the idea that individual and collective social capital are sometimes considered as antagonist notions (Rostila, 2011) — inviting researchers to choose their playground well — we believe that mixing different conceptualizations of social capital, without making it clear, is problematic as it makes the concept blurry. Especially, when studies root their rationale in individual social capital (mainly developed in Lin's work), it can be problematic to operationalize part of the concept with variables related to collective social capital. From the individual social capital defender's point of view, as Lin wrote:

(...) trust has also been employed as a component or an indicator of social capital. However, its "social" nature is uncertain, and conceptually it might be more appropriate to consider it as an antecedent or effect rather than a component of social capital. (...) These discussions do not take away the conceptual significance of trust in its various forms (...). Rather, they remind us that it behooves us to refrain from equating trust with social capital". (Lin, 2008, p. 17).

Also, according to Son:

Trust is exogenous to (individual) social capital. Trust is an attitude toward people. (Individual) Social capital indicates the volume of instrumental and expressive resources within a network. In extreme cases, social capital can exist regardless of the degree or even the presence or absence of trust as long as there are operational ties. (...) If one understands social capital in a figurative and symbolic way, detached from the concrete resources commonly held by a network of people, one may call trust social capital. (...) Of course, a network-based theory of social capital refutes this idea because trust and norms are not resources in themselves. (Son, 2020, p. 149, 150)

And at the opposite, from the defenders of collective social capital, as Lochner et al. wrote:

Social capital is a feature of the social structure, not of the individual actors within the social structure: it is an ecologic characteristic. In this way social capital can be distinguished from the concepts of social networks and social support, which are attributes of individuals. (1999, p. 260)

Exchanges between teachers represent (individual) social capital as it represents a resource of advice, information, support, and learning. Some could also consider, in a symbolic way, that positive school climates (such as positive norms and trust) represent (collective) social capital as it shapes a positive environment to work and evolve. It is not so easy to believe that resources embedded in interactions and a positive school climate *are* the same notion that is called social capital. We do not argue here that one of the two notions is better than the other, but we believe it is necessary to choose one of the two research traditions to avoid a loss of conceptual meaning: “When social capital shifts from an individual-level relationship to a feature of a community, it becomes conceptually fuzzy” (Tzanakis, 2013). As a matter of fact, the teacher research domain has been more rooted in the individual perspective of social capital (Baker-Doyle, 2012), as this perspective represents precisely the idea that teachers’ relationships matter for teachers’ development. It does not mean that collective social capital is not something that could be interesting to study in schools. It does mean that scholars should be aware that building a rationale based on the idea that teachers’ interactions represent resources for teachers’ development is a rationale coming from the individual social capital conceptualization. Consequently, if scholars want to add the concept of collective social capital in their study, it should be carefully argued and these two social capitals should be distinguished as two different concepts.

3. Measurement in teacher research

As individual and collective social capital are two different concepts, it is not surprising to see that they are methodologically operationalized in very different ways (see Table 2, which illustrates this idea). In this section, we briefly present the most common measures of collective and individual social capital used in research on teachers. Then, we discuss how their mix can be problematic. Finally, we briefly discuss some current and future perspectives

to measure individual social capital as teacher research is particularly rooted in this conception.

3.1 Implications of conceptualizations on measurement

Collective social capital, originally theorized as a climate of civic engagement (Putnam, 2000), is mainly operationalized through a measure of school climate. This climate is sometimes considered as a trust climate among colleagues (Van Maele & Van Houtte, 2011), or a combination between different types of engagement: trust, commitment, and support between actors within the school (Goddard, 2003). Studies strictly using the concept of collective social capital in teacher research are mainly based on a quantitative design with psychometric surveys to measure collective social capital. We mainly noted the use of the teacher trust climate scale (Tschannen-Moran & Hoy, 1998; Hoy & Tschannen-Moran, 2003) or the school-based social capital scale (Goddard, 2003).

Individual social capital, conceptualized as the resources available through ties in one's network (Lin, 2001) is mainly operationalized with the social network approach. Numerous different social network methods have been used. We will come back later in this section to discuss these different methods. Rarely, individual social capital is measured with non-network scales with items related to support available from colleagues (e.g., Talis, 2018).

Unsurprisingly, studies mixing individual and collective social capital use both the social network approach and a psychometric instrument to measure their umbrella social capital. Mostly, the collective part of their social capital construct is measured with the trust in colleagues or derived scales (Hoy & Tschannen-Moran, 2003) and the individual part of their social capital construct is measured with *centrality measures*, which are social network data operationalizing to what extent an individual has access to others in their social network.

In the same way that collective and individual social capital do not have the same theoretical meaning, trust climate and number of ties with colleagues (which is a commonly used centrality measure: degree centrality) do not represent the same measurement object. Moreover, one can exist with or without the other. Some studies mixing collective and individual social capital analyzed the predictive link between trust and interactions with colleagues and concluded that one predicts the other (Moolenaar et al., 2014). This represents confusion between what *is* social capital and what are the antecedents or consequences of social capital (Tzanakis, 2013). As mentioned previously, it leads to the tautological statement: social capital predicts social capital (Woolcock, 2010). Following Lin and Son, we argue that for studies rooted in individual social capital but mixing individual and collective social capital, trust "is an antecedent or effect rather than a component of social capital" (Lin, 2008, p. 17) and as such, "trust is exogenous to social capital" (Son, 2020, p. 149). Subsequently, trust and interactions with peers cannot represent two parts of the same construct. Although they could represent two different constructs that are similarly named, namely individual and collective social capital (for the sake of clarity, it could be suggested to use the terms network-based social capital and civic capital) and in this way, they could be both present in the same empirical study, for example, by analyzing to what extent school

trust climate (as school civic capital) predicts interactions between teachers (as network-based social capital). In such an effort, there is no mix or risk of confusion between individual and collective social capital.

3.2 Current and future prospects about individual social capital measurement methods in teacher research

Teacher individual social capital is mainly analyzed through the social network approach. It theorizes, represents, and analyzes nodes (actors) and ties (links) between actors within a social structure (the network). The social network approach is “a powerful analytic tool” to understand “the structure and content of teachers’ professional relations” (Coburn & Russel, 2008, p. 226) and as such, it represents “an ideal framework for managing the complexity inherent in studying teachers’ interactions” (Thomas et al., 2019, p. 134).

Through the social network approach, teacher individual social capital has been mainly measured with centrality measures, which are extracted from the network. Several centrality measures exist but mainly degree centrality (indegree centrality and outdegree centrality) and closeness centrality have been used as proxies for teacher individual social capital. Degree centrality is “the number of alters [other people in the network] that an ego [the focused person in the network] is directly connected to, possibly weighted by strength of tie” (Borgatti et al., 1998, p. 30). Closeness centrality is “the total graph theoretic distance from ego to all others in the network” (often inverted to keep a positive interpretation)” (Borgatti et al., 1998, p. 31). Consequently, studies on teachers’ individual social capital mainly follow a quantitative design based on analysis about antecedents, consequences, or comparisons in centrality measures (e.g. Bristol & Shirrell, 2019; Coppe et al., 2021; Struyve et al., 2016).

This prevalence of quantitative designs highlights an issue that is present more broadly in the literature on individual social capital. That is, most theories on social capital “exclusively accentuate the positive features of social capital while ignoring its possible downsides (...). Henceforth, theories on social capital should increasingly consider its possible dark side” (Rostila, 2011, p. 2). Indeed, using centrality measures to grasp social capital postulates that the more a teacher has interactions with colleagues, the more they possess social capital (Boratti et al., 1998). However, some interactions could be an obstacle for teachers’ development. Consequently, beyond the use of centrality measures and quantitative designs to analyze teachers’ social capital, its antecedent and consequences, it is important to go deeper into the meaning of these interactions. Combining qualitative data such as interviews to have more details about teachers’ interactions seems a promising practice to this end (Penuel et al., 2009). This combination is in line with the emerging research tradition calling for mixed methods social network analysis (Froehlich, et al., 2020). Until now, only a few studies about teachers’ social capital have used a mixed-method social network analysis approach (e.g. Coppe et al., 2021; Thomas et al., 2019).

4. Conclusion

Considering the growing attention to the concept of “social capital” in studying teacher’s professional development, the aim of this contribution was to describe and illustrate the use of this concept in research on teachers. Different definitions and operationalizations are used and this makes “social capital” a blurry concept. Our study revealed that “social capital” is not an umbrella concept and that two main conceptualizations exist in the literature: individual and collective social capital. Up until now, the concept of individual social capital is mostly used in the teacher development literature. However, we found mismatches between definitions and operationalizations of the concept of social capital. A common practice is to use individual social capital as a definition while operationalizing the concept by using a mix of individual and collective social capital measures. This is problematic as it can lead to tautological statements, and as collective and individual social capital can exist both with and without each other. Using a mix of individual and collective social capital under the same umbrella concept of ‘social capital’ has been criticised for a long time (Lin, 2008; Son, 2020; Tzanakis, 2013; Woolcock, 2010). Even those who look favourably upon the conceptual fuzziness of ‘social capital’ – arguing that it has usefully “draw[n] attention to salient features of the social and political world” – argue that this “does not in any way absolve individual users [of the concept] of the requirement to be as precise as possible in articulating their particular definitions, theoretical moorings, and empirical referents” (Woolcock, 2010, p.470-1). We, therefore, recommend that authors consistently explicate if they use individual and/or collective definitions of social capital, and align their definition with the way they operationalise the concept. In studies that measure both individual and collective social capital, we suggest that authors make the position of each of the main concepts in their theoretical model crystal clear. To avoid any confusion between individual and collective social capital, we would also suggest to use the terms network-based social capital (Lin, 2001) and civic-capital (Paccagnella & Sestito, 2014). As suggested by Moolenaar et al. (2014), collective social capital might precede as well as follow from individual social capital, meaning that the two concepts are different. Moreover, it might also be interesting to examine possible interactions between individual and collective social capital, as individuals embedded in a collaborative climate may be more likely to recognize opportunities for reaching out and interacting with colleagues than individuals who are not embedded in such a climate.

Concerning the measurement of individual social capital, we encourage researchers to measure not only the quantity of teachers’ social interactions. Some interactions could have negative consequences, referring to the dark side of social capital (Rostila, 2011). We need to go beyond the quantity and grasp the quality and the meaning of interactions. A promising avenue to this end is to combine quantitative (quantitative social network approach) and qualitative (qualitative social network approach, interviews, and observation) research methods (i.e. mixed methods social network analysis). In this perspective, MMSNA is a promising area (Penuel et al., 2009).

Distinguishing individual and collective social capital and recognizing that individual social capital is at the forefront of teacher research also has implications for teacher education. As individual social capital can exist without collective social capital, it is important that teacher educators raise student teachers' awareness about the importance of building their networks in their future workplace, and teach them about how to navigate the social structure of their school. Teacher induction research mainly emphasizes the importance of supportive school cultures for facilitating teacher induction and well-being. Nevertheless, novice teachers are agents, who can also actively build up their network and, as such, develop their individual social capital. "The early career teacher as a networker", as written by Kelchtermans (2019), highlights the idea that teachers are not only passive receivers of the school structure (characterized by a positive or negative climate), but that they are also active developers of their individual social capital, through their agency. To conclude, we would like to cite März & Kelchtermans (2020): "(...) it is important to help early-career teachers to become more self-initiated and intentional in their networking (...). In order to be able to network, they need to understand how to navigate within the different networks, and they must be able to read the cultural and political scripts of their school's organization" (p. 9).

Finally, while this contribution mainly emphasized individual or network-based social capital in teacher research, we are also convinced that more research analyzing the conditions to foster schools' civic capital would be valuable. Since collective development and organizational learning are becoming increasingly important for school development, studies on schools' civic capital could nourish this field of research by emphasizing the organizational conditions that facilitate these collective dynamics.

Chapter 5

Second career teachers' work socialization process

How and why?

Part 1 — Becoming a second career teachers in TVET: A mixed-method social network perspective

Bringing together insights from the domains of teacher induction and organizational studies, this aims to analyze second career teachers' (SCTs) work socialization into TVET by emphasizing the social dimension of this process, through a mixed-method social network approach. Results of whole school network visualizations, quantitative social network analysis, and interviews show that SCTs have much fewer interactions with colleagues than first career teachers and struggle to find their place within the school. This study advocates the strengthening of professional networks in TVET schools and more opportunities for novice SCTs to become part of the social fabric of the school.

This first part of the chapter has been submitted as:

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Becoming a second career teacher in TVET

A mixed-method social network perspective

1. Introduction

The shortage of teachers is a concerning and recurrent topic for researchers and policy-makers (Troesch & Bauer, 2017). One suggested avenue to address this issue relies upon the recruitment of second career teachers (SCTs). SCTs are professionals who leave a prior occupation to become teachers (Brindley & Parker, 2010). As their recruitment is seen as a promising strategy to address the growing teacher shortage, in the past decade governments have considered recruitment policies to attract SCTs and have implemented alternative certification programs and alternative entry routes to becoming a teacher (Kee, 2012; Paniagua & Sánchez-Martí, 2018; Troesch & Bauer, 2017). Research has therefore investigated these particular teachers' motivations to join the teaching profession (Anthony & Ord, 2008; Coppe et al., 2021). In doing so, the research has been mainly devoted to the attraction and recruitment of SCTs, leaving aside the issue of their retention (Haim & Amdur, 2016).

Regarding the latter, research evidence has shown that the attrition rate is particularly high among SCTs (Laming & Horne, 2013; Redding & Smith, 2016). They are twice as likely to leave the profession compared to first career teachers (FCTs) (Chambers Mack et al., 2019), which highlights the need to address the problem of SCT retention (Troesch & Bauer, 2017). Reasons identified to explain the complicated entry of SCTs into the profession are multiple (Coppe et al., in press a). For instance, because in many countries, SCTs often do not attend a regular teacher training program (Tigchelaar et al., 2010), they experience a lot of difficulties in familiarizing themselves with the multiple dimensions of the teaching job¹ (Redding & Smith, 2016; Tigchelaar et al., 2010). Moreover, studies have shown that SCTs often struggle with becoming integrating into the workgroup, which results in a lack of contact with colleagues (Haim & Amdur, 2016). This social isolation creates an obstacle for SCTs' familiarization with their new profession and their new workplace (Brindley & Parker, 2010).

Over the past two decades, the literature on teacher induction and professional development has strongly advocated for the importance of professional networks in supporting novice teachers' induction process (Baker-Doyle, 2015; März & Kelchtermans, 2020; Moolenaar, 2012; Thomas et al., 2020). While formal induction practices such as seminars or mentoring have been described as effective, it has become clear that a collegial dynamic in the daily work practice around the novice is essential (Hopkins & Spillane, 2014; Pogodzinski, 2012; Thomas et al., 2020). This highlights the social dimension of teacher induction (Kelchtermans, 2017).

The lack of interaction with colleagues experienced by SCTs in combination with the consensus in the literature on the importance of collegial interactions paints a picture of a critical situation for SCTs that needs further investigation. Up to now, little is known about SCTs' induction process (Ruitenburg & Tigchelaar, 2021), and more research is needed on what is needed to support it (Haim & Amdur, 2016; Tigchelaar et al., 2010; Troesch & Bauer, 2017). In this study, we aim to better understand the process of SCTs' socialization. Because novice SCTs come from another context and enter the school as a new workplace, which makes them a particular type of novice teachers, we bring together insights from the domains of teacher induction and organizational studies. Taking this interdisciplinary approach, we draw on the concept of work socialization (Martineau et al., 2009), because this concept is particularly relevant regarding the specific reality of SCTs (i.e., experienced workers encountering their new job when entering the school as a workplace). Because of the social dimension of this entry process, this study additionally builds on a social network methodological approach and uses the theoretical lens of social capital (Bourdieu, 1980; Coleman, 1988), which theoretically operationalizes the importance of collegiality (Daly et al., 2020).

2. Conceptual framework

For this study, we developed an interdisciplinary framework combining teacher induction and organizational studies literature on employees' organizational socialization to examine SCTs' socialization into the teaching profession. We start by presenting the concept of teachers' work socialization, conceptualizing it as both a bidirectional and a social process. Second, we will define the particular workplace reality into which SCTs enter, focusing on the organizational structure of technical and vocational education and training schools (TVET schools). Third, we articulate these different concepts in an integrated theoretical model. We end our theoretical conceptualization with presentation of the research questions that guided this study.

2.1 Work socialization process

SCTs' career trajectories are characterized by work experience in other professions; mainly, they pass through fast-track alternative certification programs or no teacher training programs at all before becoming a teacher (Tigchelaar et al., 2010). Because of this situation, their entry process cannot be considered the same as for FCTs (Ruitenburg & Tigchelaar, 2021). As teacher induction literature is limited because it focuses mainly on FCTs, we combined insights from organizational studies with teacher induction research to arrive at an adapted framework for understanding the particularities of SCTs' work socialization process. Teacher induction and work socialization are closely related (Kearney, 2015; Martineau et al., 2009); they can both be defined as "the primary phase in a continuum of professional development towards their progression into the learning community and continuing professional development throughout their career" (Kearney, 2014, p. 5). More specifically, at least two important elements have long been identified and have strong theoretical

foundations in the organizational studies literature (Wanberg, 2012), but they only recently appeared in the teacher induction literature (Kelchtermans, 2019).

The first element is the idea that new workers have their specific expertise and competencies that matter for their entry process, making work socialization related to not only a learning process, but also a recognition process (Feldman, 2012). This insight has appeared recently in the teacher induction literature (referring to a non-deficit approach; Smith & Ulvik, 2017). The second is the idea that entering a new job is entering a workplace, a specific organization, and is often illustrated as an “onboarding” process (Wanberg, 2012), which is described as a process specifically supported by interactions with peers (Korte & Lin, 2013). This second insight has also been emphasized recently in actual trends regarding teacher induction (Baker-Doyle & Yoon, 2020; Kelchtermans, 2017; Tang et al., 2016). Based on these combined insights from teacher induction and organizational studies, in the next sections we define teachers’ work socialization as a bidirectional and a social process.

2.1.1 Work socialization as a bidirectional process

Work socialization refers to the process that begins upon entry into a workplace — whether it is a first work experience or a career change — and continues throughout one’s career (Wanberg, 2012). The work socialization process consists of a bidirectional dynamic (Feldman, 2012; Jokisaari & Nurmi, 2012; Pogodzinski, 2012). On the one hand, socialization can be characterized as an “ingoing” process. It refers to the process of learning about the professional role to be assumed and learning about the environment in which this role takes place (Klein & Heuser, 2008). The growing body of literature on newcomers’ socialization has identified various aspects of the profession that novice teachers must learn (März et al., 2019; Tang et al., 2016). For the teaching profession, this involves teaching tasks, becoming integrated and collaborating with their colleagues, becoming familiar with the school’s culture and functioning, and learning to navigate through the micro-political climate that determines interactions in their work environment (Coppe et al., in press b; Kelchtermans, 2017). In sum, considering this first direction, socialization is the process of “learning the ropes” of the profession (Hatmaker et al., 2011). Empirical studies have presented this work socialization process as even more challenging for SCTs than for FCTs (Laming & Horne, 2013). Indeed, coming from other professional contexts, SCTs often struggle with familiarization with and integration in their new work environment and collaboration with colleagues (Haim & Amdur, 2016).

On the other hand, socialization is an “outgoing” process, with reference to the recognition process for specific knowledge and expertise (Feldman, 2012). Recent studies have emphasized the importance of considering novice teachers as potential resources and giving them opportunities to share knowledge and expertise with their colleagues (Kelchtermans, 2017, 2019). In line with recent studies’ claims regarding a “non-deficit approach” to teacher induction (März & Kelchtermans, 2020; Kelchtermans, 2019), this necessary recognition is an important factor in both novice teachers’ self-efficacy development and their socialization process (März & Kelchtermans, 2020; Smith & Ulvik,

2017). This is particularly true for experienced novices, who join the profession having previous professional experience, such as SCTs (Feldman, 2012; Nielsen, 2016). Varadharajan et al. (2019, p. 10), for instance, emphasized the importance for SCTs to have “opportunities to share their prior skills and experiences; recognition of their prior learning (...) provision of opportunities to hear their suggestions”. Moreover, “acknowledgment and recognition of prior career and life experiences” are very important for them (Varadharajan et al., 2019, p. 6). Yet, SCTs often experience a lack of this necessary recognition (Ruitenburg & Tigchelaar, 2021; Tigchelaar et al., 2010).

Given these difficulties in “learning the ropes” of the profession and this lack of recognition of their skills and experience, it seems that SCTs struggle with both directions of the socialization process. In a recent systematic literature review, Ruitenburg and Tigchelaar (2021) concluded that “second career teachers long for recognition of what they need [i.e., ingoing] and have to offer [i.e., outgoing]” (Ruitenburg & Tigchelaar, 2021, p. 13).

2.1.2 Work socialization through socialization agents

Several approaches have been described in the organizational studies literature that help to understand how the work socialization process of novice teachers can be facilitated, (Saks & Gruman, 2012). These approaches can mainly be identified as either managerial approaches (i.e., questioning what the organization puts in place to support the socialization of novices) or individual approaches (focusing on the individual characteristics that facilitate the socialization process). This second approach is often operationalized using the concept of proactivity (Saks & Gruman, 2012). Beyond these two approaches, there is growing recognition of the importance of social relations in the workplace as the implicit mechanism by which socialization occurs (Korte & Lin, 2013; Pogodzinski, 2012). Across many disciplines, several authors have argued that professional relations are the most important vector for both learning the ropes of the job and sharing knowledge, as well as feeling recognized as a resource for and by peers (Fang et al., 2011; Jokisaari & Nurmi, 2012; Korte & Lin, 2013). It appears that relationships with colleagues as socialization agents are the dominant factor in a successful socialization process (Klein & Heuser, 2008; Korte & Lin, 2013):

(...) employees learn about their job and organizations through social relations and interactions in the workplace. Through their positions in the social networks, individuals are able to attain information (...) and resources that enable them to progress in their job and integration into the workplace (Jokisaari & Nurmi, 2012, p. 78).

Turning to the teacher induction literature, over the last 20 years, we can see a similar growing trend to consider teachers' professional development no longer as an individual construct, but as a construct embedded in a collaborative and fundamentally social dynamic (Baker-Doyle, 2015; Vangrieken et al., 2017). Thirty years ago, Little claimed that: “Weak and strong versions of collegial relations plausibly produce or sustain quite different conditions of teacher performance and commitment” (1990, p. 531). In line with this, teachers' professional development is more and more being considered through the

professional network in which it occurs (Moolenaar, 2012). These findings have been reinforced by a large body of empirical research on teacher learning, which emphasizes that teachers prefer to learn socially and with their direct colleagues (Colognesi et al., 2020; Lecat et al., 2019, 2020). In a recent empirical study, SCTs reported “discussions with colleagues” as the most used and the most useful source of professional development (Csikos et al., 2018). In a systematic literature review on SCT induction, colleagues were described as “powerful informal sources of support” (Ruitenburg & Tigchelaar 2021, pp. 11-12). The review concluded that supporting collegiality around SCTs could be a key factor to promote retention.

These different elements have led the fields of both teacher induction and organizational studies to operationalize the importance of peers theoretically through the concept of social capital (Bourdieu, 1980; Coleman, 1988; Fang et al., 2011; Penuel et al., 2009). In sum, because it is through their professional network that novices learn how to do their job and this network represents an opportunity to share their own knowledge and be considered as resources, we argue that social capital is “a fine-grained theoretical lens” (Fang et al., 2011, p. 143) for exploring the work socialization process of SCTs as a bidirectional and social process. Social capital can be conceptualized as collective social capital and individual social capital (Son, 2020; see Figure 1 in appendix for an illustration). Collective social capital is a common or public good that is the sum of each individual’s attribute or behavior. In this sense, individuals are a benefit to the social capital (i.e., democracy, trust). Individual social capital, also called network-based social capital (Son, 2020), is defined as “the resources and expertise that individuals can access through their ties with others that facilitate certain actions” (Penuel et al., 2009, p. 129) or “the resource available to actors as a function of their location in the structure of social relations” (Adler and Kwon, 2002, p. 18). In this sense, social capital is a benefit for individuals. In this contribution we use the second conceptualization, in which social capital is a concept intrinsically linked to social relations as well as to the context where they occur (Fang et al., 2011). Thus, questioning the work socialization process of teachers through the prism of social capital cannot be done without taking into account the particular context in which this process takes place (Baker-Doyle, 2015; De Lima, 2007), here, the TVET schools.

2.2 Organizational structure of TVET schools

Secondary schools are neither homogeneous nor uniform organizations (Bidwell & Yasumoto, 1999; De Lima, 2007; März & Kelchtermans, 2013; Moolenaar, 2012). They are organized in subunits that may be based on the school’s formal structure, such as curriculum department, level of education, or vocational track (Meredith et al., 2017), but also by informal subgroups that go beyond the limits of formal structures (Meredith et al., 2017). This is particularly true for SCTs’ workplace, as they mainly work in TVET schools (Tardif et al., 2013). Because these schools combine academic courses and technical and vocational courses, their departments can be very distinct (Hodkinson & Hodkinson, 2010; Stevens, 2007). These schools present “the image of internal fragmentation” (Paulsen, 2008, p. 208),

which refers to a lack of interaction between the different school departments that can result in a loosely coupled organizational system (Lee et al., 1991; Paulsen, 2008; Weick, 1976).

Paulsen (2008) described the organizational structure of TVET schools as a web of loose couplings. In his doctoral dissertation, he concluded that "Within the vocational training part of the system, the distributed curriculum represents in itself a close to an extreme case of loose couplings" (Paulsen, 2008, p. 256). In this way, he pointed out that the structuring of vocational and academic programs side-by-side leads to the formation of a fragmented internal landscape dividing the school into different sub-structures (Paulsen, 2008).

This departmentalized structure can have many consequences for the functioning of the school. Weick (1976) mentioned positive and negative counterparts, but within the scope of our research, we argue that these consequences could be negative because such departmentalization creates and shapes fragmented professional networks, and may result in a reduction of the social capital dynamic (De Lima, 2007). Therefore, since work socialization is intrinsically linked with social interactions, to understand novice SCTs' socialization, it is necessary to study how the subgroups in their TVET school are structured and what ties these groups maintain between them to form the complete social network of the school organization (Penuel et al., 2009). This implies considering the SCTs' position in the school on two different levels. First is the position of their subgroup in the whole network of the school. Second is their position in this particular subgroup network.

2.3 A model articulating work socialization and social capital in school organizations

The above reflections make it possible to propose an integrated model of SCTs' work socialization process through the perspective of social capital theory (see Figure 2).

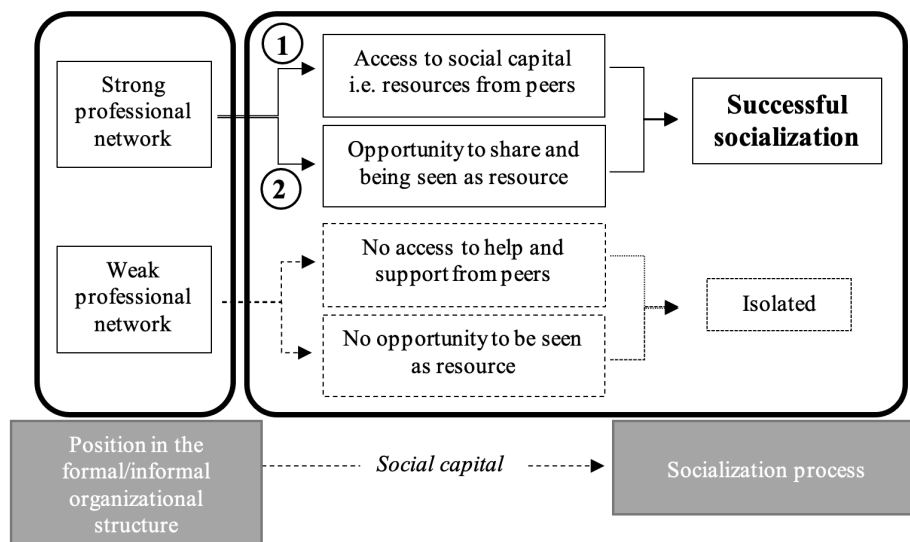
As mentioned earlier, subgroups² of teachers shape the social structure of school organizations and may have an impact on the social capital dynamics between teachers (De Lima, 2007). This can lead to different configurations that might have consequences for the work socialization process of novice SCTs. The first consequence is related to the social capital available to the novices. For example, when the novices SCTs' professional network is strong (in and/or outside their subgroup), they will have access to many (ingoing) resources among their peers and are therefore in a situation of strong social capital (Fang et al., 2011; Ortega et al., 2020). In that case, the novices SCTs will benefit from favorable conditions for a successful socialization process (Jokisaari & Nurmi, 2012; Korte & Lin, 2013; Moolenaar, 2012). In contrast, if the novices' professional network is weak (in the subgroup and with no chance to go outside the subgroup), they are in a position of relative isolation that will give them little access to the resources available among their peers, and will, therefore, have a negative impact on their work socialization process (De Lima, 2007).

The second consequence is related to the novices SCTs' opportunity to be considered as resources and in this sense to be a part of the social capital of their network. When novice SCTs are at the center of a strong professional network, they have the opportunity to share

with colleagues and to be recognized for their expertise which contributes to their socialization process (Jokisaari & Nurmi, 2012; März & Kelchtermans, 2020).

In sum, two key ideas that reflect the bidirectionality of the work socialization process, are developed following a social capital approach in Figure 1: (1) Novice SCTs need access to the school's social capital, within and/or outside their subgroup to support a successful work socialization process; (2) novice SCTs, as experienced novices, need to be recognized as resources by their colleagues and thus be part of the social capital themselves to support a successful work socialization process.

Figure 1. Model of teachers' work socialization in TVET-schools through the lens of social capital



2.4 Research questions

Following our theoretical framework, we propose one general research question subdivided into four specific research questions. These questions aim to understand the situation of novice SCTs in the particular context of TVET schools and the influence this may have on their work socialization process.

RQ. How does the position of second career teachers in their school network explain their work socialization?

- **RQ1.** What is the position of SCTs in the network structure of the TVET schools?
- **RQ2.** What does this position imply in terms of social capital for SCTs, both as to the availability of resources and as part of the social capital themselves?
- **RQ3.** How do novice SCTs describe their access to a professional network and how does this access contribute to their work socialization?
- **RQ4.** How do novice SCTs feel they are seen as a resource and how does this feeling contribute to their work socialization?

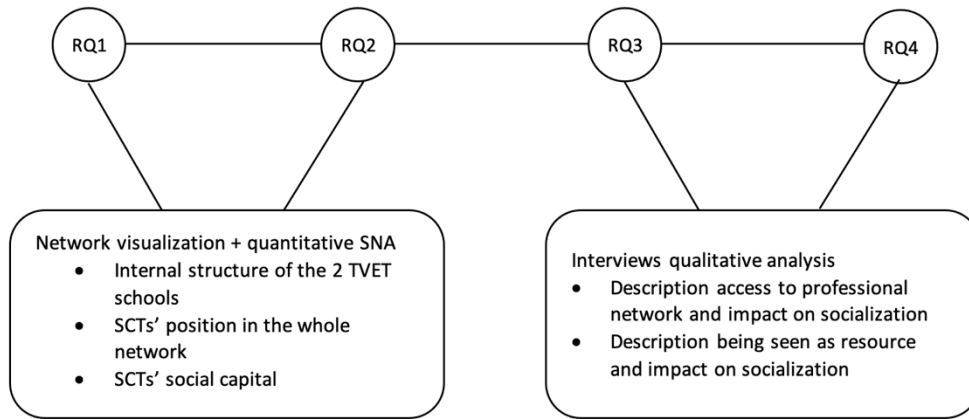
3. Method

In this study, we used a multiple case study design (Yin, 2014), applying a mixed method social network analysis approach (Froehlich et al., 2020). A multiple case study aims to highlight trends, similarities, and differences between the cases (Yin, 2014). Two TVET schools differing in terms of school size were investigated to answer our research questions, Alpha (bigger) and Beta (smaller). As school size seems to impact teacher collegial dynamic (Lee & Loeb, 2000), we considered that each school could represent different realities regarding their professional networks (Ortega et al., 2020), and so different realities regarding the work socialization process of novice SCTs. The two TVET schools investigated were located in French-speaking Belgium. In this part of the country, TVET schools mainly offer side-by-side academic and technical/vocational programs which was the case in the schools selected for this study. In French-speaking Belgium, as in other national contexts (Grollmann, 2008; Tardif et al., 2013), the teachers of technical and vocational courses (TVET course teachers) are mostly SCTs (Cotton, 2001).

3.1 A mixed-method social network approach

Data collection and analyses followed a mixed-method social network approach. The links between research questions, data collection, and analysis are clarified in Figure 2.

Figure 2. Links between research questions and data analysis



In order to take into account the particular context of TVET schools in terms of social interactions and the fact that teachers' communities are often organized into informal subgroups (Penuel et al., 2009), we needed to go beyond the formal departmental or teaching-level structure. Therefore, we used social network analysis to make the internal social structure of the schools visible. According to Coburn and Russell (2008, p. 226), "social network analysis presents a powerful analytic tool that allows the researcher to gain a much more precise understanding of the structure and content of teachers' professional relations".

More specifically, we used an embedded mixed-method design with qualitative interpretation of social network visualizations, quantitative social network analysis, and qualitative analysis of interviews (e.g., Thomas et al., 2020). Mixed methods social network analysis (MMSNA) regroups social network studies using qualitative and quantitative analysis (Froehlich et al., 2020). MMSNA is especially relevant for understanding interactional structure and how people experience their social position within a network (Sarazin, 2019). Quantitative network analyses were specifically done to address the position of SCTs within the school's internal structure and the impact of this position on their social capital (RQ1 and RQ2). We operationalized this by analyzing whether SCTs were less central in the professional network than FCTs. Social network visualization enabled us to understand the particular structure of the schools included in the study (RQ1 and RQ2). Qualitative interview analysis aimed to obtain an in-depth understanding of how novice SCTs experience their socialization process in terms of having access to resources and being seen as resources (RQ3 and RQ4).

3.2 Data collection and participants

The first stage of data collection (February 2020) was aimed at building the complete social network of the participating schools (the "whole school" network). Paper and online surveys were distributed to teachers to maximize the participation rate. The survey included

biographical information as well as a name generator (Borgatti et al., 2013). This name generator allowed us to obtain work-related contacts of teachers, which allowed us to consider the professional social network of the whole school (Tuytens et al., 2019). The question asked was: "Since September, which colleagues do you turn to for discussions about work³ and how often?" (Moolenaar & Slegers, 2010). Each name was associated with a frequency ranging from 0 (never) to 5 (every day).

The response rate for Alpha was 77% ($n = 67$) and for Beta was 79% ($n = 104$), which meets the required minimum of 75% (Kossinets, 2006). We ran permutations *t*-tests on UCINET to check for potential non-random missing data (Meredith et al., 2017). Indegree comparisons between respondents and non-respondents showed no significant differences for Alpha and Beta. This means that we can consider our data missing at random.

For the second data collection (March-April 2020), we contacted by mail all novice SCTs (5 years or fewer of teaching experience) in the participating schools (3 teachers at Alpha and 6 at Beta) and asked them to participate in an interview. The 3 novice SCTs at Alpha accepted (100% positive response rate) and 2 novice SCTs at Beta answered positively (33% positive response rate). An interview protocol was developed to ensure the quality of the data collection. Our questions focused on SCTs' relationships with colleagues and the way that their professional network contributed to their work socialization process. The interview protocol is presented in the appendix. Table 1 presents the participant characteristics.

Table 1. Description of the interview participants

Nickname	Prior occupation	Years of teaching	Courses	Network ID
Alpha				
Ana	Neuropsychologist	3	Educational psychology	13
Amelia	Secretary	3	Secretarial Computer	64
Annika	Independent sales sector	2	Sales	41
Beta				
Barbara	Tourism agency	1	Secretarial Computer	141
Brooke	Restaurant owner	1	Catering service	7

3.3 Data analysis

3.3.1 Network visualizations – RQ1-RQ2

Sociograms were generated using GEPHI 0.9.2. Based on our name generator, these were directed networks without an assumption of reciprocity, which means that reported turning to a colleague to discuss work does not imply the same in the reciprocal direction. We defined network boundaries to include all teachers, the principal, and the leadership team. Node sizes depend on the degree of centrality, which means that the larger a node is, the more professional interactions the teacher has. We used the ForceAtlas2 spatialization method to generate the network. ForceAtlas2 is a force-directed layout (Jacomy et al., 2014). Without going into details, the fundamental idea is that nodes repulse and ties attract; this algorithm provides a transparent way to visualize the structure of the network (Jacomy et al., 2014).

To identify the subgroups of teachers, we ran a modularity test (Blondel et al., 2008). It divides the whole network into subgroups according to a particular density of ties between some individuals having few ties with the rest of the network (Blondel et al., 2008).

3.3.2 Quantitative social network analyses – RQ1-RQ2

Social network data, by nature, are interdependency observations. This implies using specific statistical analysis as permutations tests (Borgatti et al., 2013). Therefore, we used UCINET's *t*-test based on permutations of the dependent vector to compare centrality measures between SCTs and FCTs (Hopkins et al., 2013), using outdegree centrality and indegree centrality measures. Outdegree represents the number of peers sought out for professional discussions: "The more central an educator is in a school's network, the more opportunities he or she has to access resources, information, or support from the social network" (Moolenaar, 2012, p. 19). It can be understood as the social capital available to a teacher (Daly et al., 2020). Indegree represents the number of peers who come to discuss work with a teacher. It can be understood as being seen as a referent for other teachers (Bjorklund et al., 2020). We did not include principals and head departments in these *t*-tests, because they do not occupy a teaching position.

3.3.3 Qualitative interviews analysis RQ3 – RQ4

The interview transcripts were divided into text fragments by the first author. We assigned meaningful codes to these fragments using NVIVO11, using both "in vivo" (emergent) codes and "theoretically inspired" codes. We regrouped these codes into categories and themes following the axial coding strategy (Strauss & Corbin, 1990). Examples of codes are *available colleagues*, *available information*, *proactivity*, and *external resource* in the category *access to social capital*. The complete coding scheme is available in the appendix.

4. Results

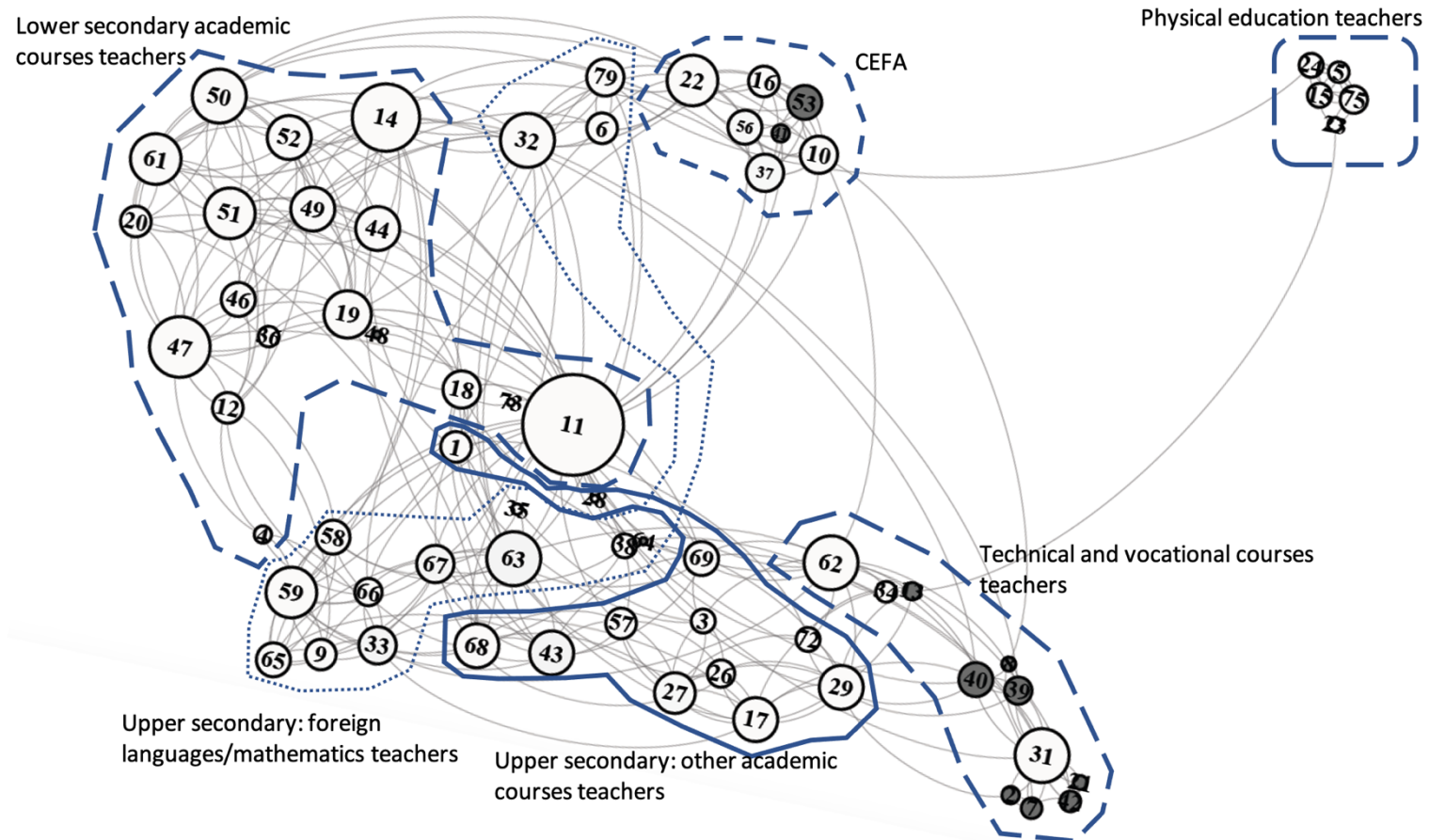
This section is structured following the four research questions. For the first and second questions, we present the two whole network visualizations to highlight the specific structure of those schools in terms of informal subgroups, and we compare the position of FCTs and SCTs, both based on the visualization and in terms of centrality measures. For the third and fourth research questions, we present the results based on the interviews with novice SCTs.

4.1 Alpha: Manifest professional isolation

Figure 3 shows the whole professional network at Alpha. SCTs are represented in dark grey. Based on the modularity test, which is a method to extract the community structure of a whole network (Blondel et al. 2008), we highlighted 6 subgroups of teachers. We labeled them with the most significant common traits among teachers within the subgroup. We found that these subgroups were shaped by a logic of curriculum department combined with a logic of teaching level department. Surprisingly, the only subgroup that did not obey these two logics was the “technical and vocational courses teachers” subgroup. As this label highlights, this groups teachers of vocational or technical courses without separation between different curriculums or teaching levels. Teachers in this subgroup are mostly SCTs. The “CEFA” subgroup refers to a specific educational program in which students combine internships and courses at the same time. This school structure implied that 10 of the 12 SCTs were in the periphery of the network, with few connections as shown by the size of their node. Only teachers 64 and 48 seemed to be part of the “core” of the school, but without real contact with their colleagues as shown by the size of their node. In this sense, they were quite invisible in the whole network. Subgroups and teachers' details are presented in Table 1 in the appendix.

This disconnection and isolation were confirmed by the weighted degree means, which refer to professional interactions coming from (outdegree) and coming to (indegree) the individuals, weighted by the frequencies of these interactions. The weighted outdegree mean was significantly lower for SCTs than for FCTs ($\Delta M = 8.23$, $p = .001$, Cohen's $d = 1.03$, $M_{\text{second}} = 6.17$, $M_{\text{first}} = 14.39$). The weighted indegree mean was also significantly lower for SCTs than for FCTs ($\Delta M = 7.28$, $p = .004$, Cohen's $d = .99$, $M_{\text{second}} = 6.94$, $M_{\text{first}} = 14.22$). These results show that SCTs at Alpha had fewer opportunities to ask for advice or to learn from other teachers, and that they were not seen as resources for the rest of the school.

Figure 3. Whole Network of Alpha



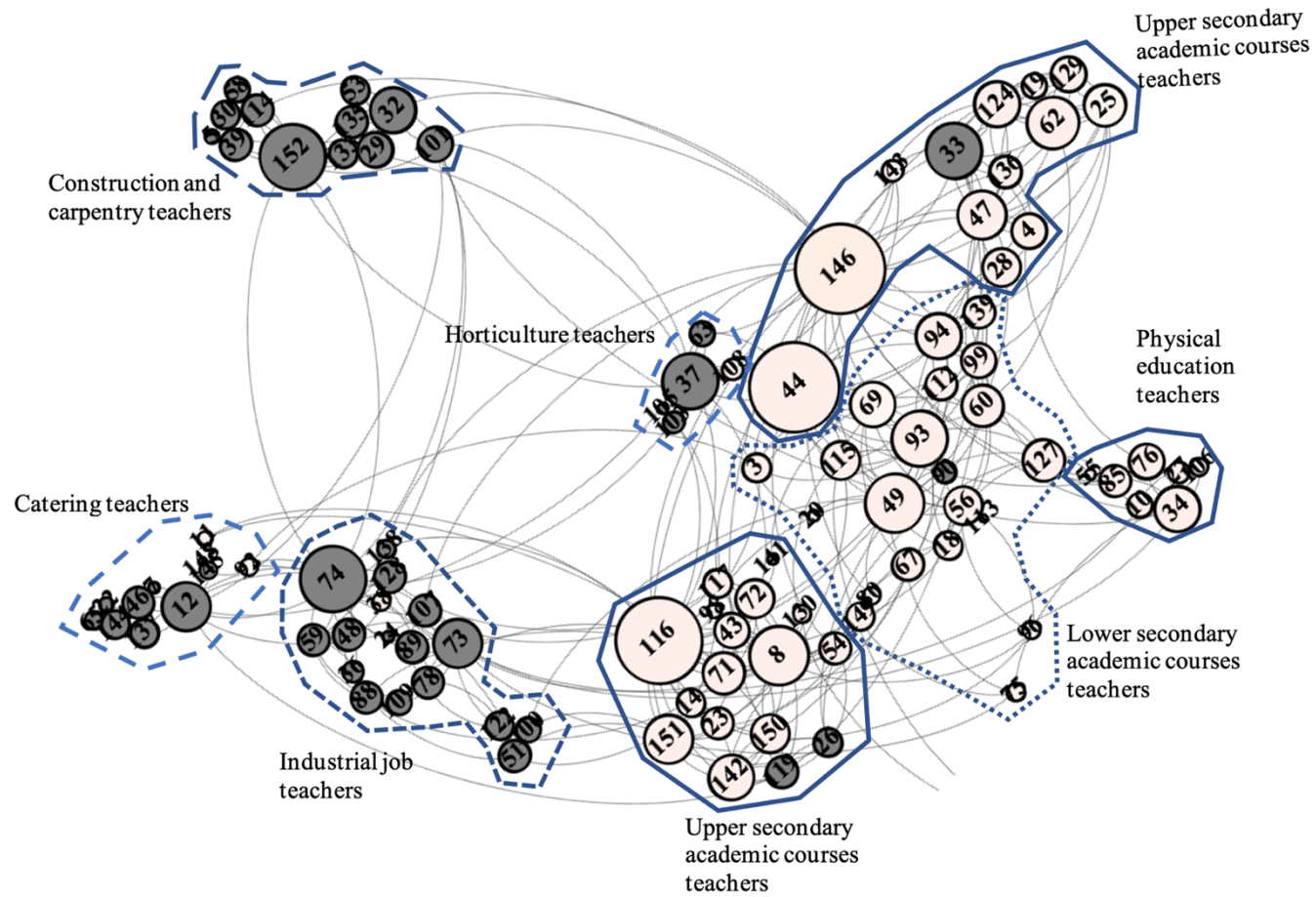
4.2 Beta: Archipelagos far from the capital

Figure 4 shows the whole professional network for Beta. SCTs are represented in dark grey. Based on the modularity test, we highlighted 8 subgroups of teachers. Again, we labeled them on the basis of the most common trait among teachers in the subgroup.

For the academic courses, we found a logic of teaching level shaping the subgroups, and for the technical and vocational courses, we found a logic of curriculum shaping the subgroups. These groups of technical and vocational courses were almost exclusively made up of SCTs and were mostly in the periphery of the school, except for the horticulture teacher subgroup. The SCTs subgroups had little connection with each other and little connection with the core of the school. The majority of these external links passed through the department heads (IDs: 142; 12; 74; 37) and principal (ID: 146), so that when these links were not considered, two subgroups were completely isolated from the rest of the school: the construction/carpentry teacher subgroup and the catering teacher subgroup. In contrast, the academic course subgroups had a lot of connections with each other, and they shaped the core of the school. Subgroups and teachers' details are presented in Table 2 in the appendix.

It means that SCTs had the opportunity to interact inside of their subgroup, but much less outside of it. Quantitative results showed that, without being completely isolated, they had fewer opportunities for interactions than their first career counterparts. The weighted outdegree mean was lower for SCTs ($M=9.15$) than for FCTs ($M=11.35$), and the difference was marginally significant ($\Delta M=2.20$, $p=.050$, Cohen's $d=.34$). The weighted indegree mean was lower for SCTs ($M=8.04$) than for FCTs ($M=11.23$), and the difference was statistically significant ($\Delta M=3.2$, $p=.03$, Cohen's $d=.39$). These results show that at Beta, SCTs had fewer opportunities to ask for advice or to learn from colleagues, and that they were not seen as resources or referents for the rest of the school.

Figure 4. Whole Network of Beta

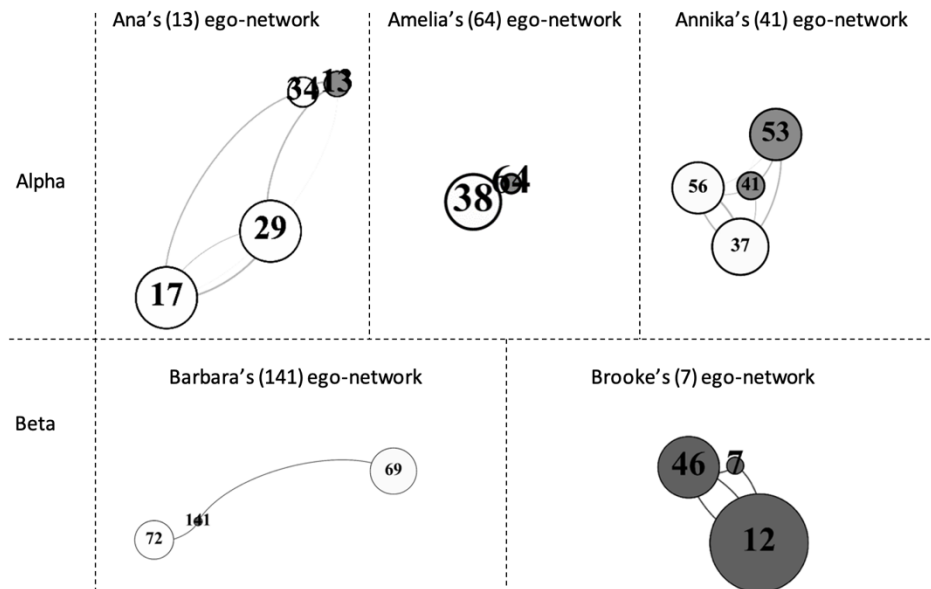


4.3 An in-depth look at SCTs' work socialization process

In this section, we answer our third and fourth research questions. First, we describe the overall feeling of our novice SCT participants regarding their work socialization process. Second, we present how they described their access to social capital within the school. Third, we explain whether they felt like part of the social capital and whether they felt recognized as resources by colleagues for their specific expertise, skills, and competencies. Fourth, we present elements explaining the first three points. Because the qualitative data from Alpha and Beta describe similar trends, we present these results without distinguishing between the schools.

As a preamble, to have a picture of the SCTs' reality, we present the SCTs' ego networks (Figure 5), which were extracted from the whole school network. These ego networks show that our novice SCTs had one to three colleagues in their professional network; for the rest of the teachers at Alpha, the mean number of colleagues in teachers' professional networks was 5.6 (also 5.6 for novice FCTs) and at Beta, the mean number was 4.6 (5.3 for novice FCTs). This means that our novice SCTs had fewer colleagues in their network, which is additional evidence of their isolation.

Figure 5. Participants' Ego-network



Overall, the novice SCTs whom we interviewed suffered from their everyday realities and their struggle with their socialization process. They did not perceive themselves as part of the school because they did not feel integrated. They explained that they avoided the teachers' room because they did not feel welcome. They did not expect "such an individual job" (Ana) and they even had some difficulty defining themselves as teachers, preferring the term "trainer" (Ana). Barbara even said that the school did not consider her as a real teacher, but just someone who takes care of the students. She felt like the school only perceived her as a means of keeping the students busy rather than 'doing nothing' in the schoolyard. In this sense, she was just a way to fill teacher gaps.

4.3.1 SCTs as proactive actors

The isolation identified in the quantitative network analysis was strongly mentioned by our participants. In the novice SCTs' discourse, it became clear that they struggled to obtain information of any kind about their job. They explained that no one came to them to share tips or courses or to inform them about the school's routines. Therefore, they reported that to obtain information, they were the ones who had to be proactive in making contact.

One difficulty was to understand the functioning of the school. Nothing was clear to me. When you arrive in a new structure, it is not so easy to know that kind of stuff. (...) I listen, and I watch to understand. (...) The information does not come to me, I have to go to the information. I don't see how I could do otherwise than go fishing for information. (Annika-Alpha)

Always being proactive requires a lot of energy and this proactivity was not always positively perceived by colleagues. Ana explained that there was holding back of information because of strategic positioning issues in the school. Some colleagues supported other teachers and not always the new ones. Brooke echoed Ana's discourse. She explained that she was not well received by the colleagues when she asked for advice, because she was replacing another teacher who was on long-term sick leave, and indirectly it was made clear that she was an intruder.

It's a lot of energy to go and get the information, and to go and find the right person. There's withholding of information for certain things... They don't inform me about the things I'm entitled to know. (Ana-Alpha)

I'm filling in for one of their colleagues, so it feels like I'm impinging. Indirectly it was a bit of a "Don't expect to take her place, she'll come back" and so I didn't really get any help from colleagues I would normally collaborate with. (Brooke-Beta)

As a consequence, our participants had to extend their network beyond their school colleagues, and so toward their students, or even beyond the school frontiers, toward an external pedagogical counselor. Barbara and Brooke explained that because they did not receive enough information from their colleagues, they had to ask their students how things work at the school. Amelia said that her colleagues were so reluctant to talk to her that she had to ask for help from a pedagogical counselor, from outside the school.

I had to trust the students to explain to me how things work and not trick me but yeah... I had to trust the students to explain to me a little bit about how things work and the habits of the school. (Brooke-Beta)

I was on my own. The only person who helped me was the pedagogical counselor [...] if it wasn't for him, I think I would have definitely cracked that first year. I think I would have quit. (Amelia-Alpha)

4.3.2 Irrelevance of previous work experiences

Not surprisingly because of the lack of contact that SCTs experienced, our participants did not report being valued for their expertise or having the opportunity to share their competencies with colleagues. Ana explained that her colleagues were not interested in her prior experiences. It surprised her because, as an independent neuropsychologist, there was a high demand for her services. Annika explained also her frustration for not being valued. For her, being an SCT was like starting all over again.

Many colleagues say that everything linked to "dys[dyslexia]" is an invention and whatever I say, there is no questioning by other teachers. [...] When I was in my office [as a neuropsychologist] there were people crying to get an appointment, I was highly valued and for me, to arrive in a profession where I am not valued at all [by colleagues] is very destabilizing and frustrating. (Ana-Alpha)

It's very complicated in the teaching profession when you're in your second career. It's as if you never existed before. It's like they were nothing before. I mean ... it's sometimes a little frustrating that colleagues don't consider the prior professional experience. (Annika-Alpha)

One of our participants, Brooke, seemed to be an exception regarding her feeling of being valued. Despite not receiving support from colleagues, the department head gave her a lot of positive comments. He said that, she was really an added value for the cooking section, because she brought with her new processes and excellent ideas to make the section more "up-to-date".

4.3.3 Division between academic and vocational/technical education

In the interviews, our participants highlighted different elements to explain the challenging situation. Among the elements mainly reported, it seemed that the negative image of technical and vocational teachers increased the effect of the departmentalized organizational structure of TVET schools.

The general education teachers consider themselves the elite and then according to the TVET section where you are, horticulture, catering, bricklaying and all that, there's a kind of social scale according to the importance of the "job". And from these different considerations the school is structured according to the hierarchies of the jobs in society and therefore the relations between teachers are structured like that too. (Barbara-Beta)

Ana also struggled with this fragmented situation across types of teachers. She explained that some days, she felt alone at school and did not talk to anyone because no one talked to her. She said that teachers of academic courses were perceived as “better” than teachers of vocational and technical courses: “At the very bottom of the pyramid, there are people like me who are SCTs and novice teachers ... Here we are not at all resources” (Ana). Brooke also thought that her department was excluded from the core of the school because it was a technical and vocational department: “It is a section that is very put to one side of the school, we are put on the technical and vocational side. Yes, we are not part of the sections of the academic courses” (Brooke).

5. Discussion and conclusion

SCT recruitment is seen as a promising strategy to tackle the growing teacher shortage (Troesch & Bauer, 2017). Yet, their attrition rate is high, up to twice the attrition rate of FCTs (Chambers Mack et al., 2019; Redding & Smith, 2016). The issue of SCT retention is therefore an important topic that should be raised to the forefront of the scientific scene.

Existing research on SCTs has observed a lack of professional interactions, which complicates their work socialization (Coppe et al., in press a; Brindley & Parker, 2010; Haim & Amdur, 2016). However, according to recent trends in teacher induction research, being part of a professional network is essential for novice teachers’ induction into the school as a workplace and to receive support during this process (Baker-Doyle & Yoon, 2020). On that basis, this study addressed the lack of knowledge about SCTs’ work socialization using an interdisciplinary approach and a mixed-method social network design, through the general research question: “How does the position of SCTs in their school explain their work socialization?”

5.1 Theoretical implications

First, even though actual trends in the educational literature have emphasized the collegiality dynamic as a key factor in teachers’ professional development, our results show that the so-called “egg-crate structure of schools” (Lortie, 1975) remains a metaphor that still suits the work environment of SCTs 45 years later. Indeed, whole network visualization analysis showed that SCTs, as TVET course teachers, were mainly relegated to the periphery of the school network with little possible interaction with the rest of the school. As a consequence, the SCTs’ departments were not part of the “core” of the school and SCTs did not occupy a central position at all. These configurations inhibit the potential of relationships between teacher subgroups (De Lima, 2007). This is in line with previous work presenting TVET schools as departmentalized organizations or even loosely-coupled organizations (Paulsen, 2008), which implies, consequently, a fragmentation of the internal professional network (De Lima, 2007). In line with results related to fragmented schools’ professional networks (Hodkinson & Hodkinson, 2010; De Lima, 2007), this leads us to believe that the specific context explored in this study does not support the SCTs’ work socialization process.

Second, our results show that because of this situation, SCTs struggled with the two directionalities of their work socialization process. SCTs had fewer opportunities to ask for advice from their colleagues and fewer opportunities to share their expertise with their peers. With regard to social capital theory (Bourdieu, 1980; Coleman, 1988; Fang et al., 2011), it means that they did not have access to the social capital of their school and they did not have the opportunity to be part of the social capital of their school. These results are in line with research that has highlighted SCTs' feeling of isolation (Brindley & Parker, 2010) and research highlighting their frustration with not being valued for their specific expertise, competencies, and skills (Wilkins & Comber, 2015). Yet, regarding the latter, the example of Brooke, who was congratulated for the new ideas she brought to her department, shows us how being valued is positive both for them and for the school. The example of Brooke echoes current trends in the literature advocating a non-deficit approach in discussing beginning teacher realities (März & Kelchtermans, 2020) and invites further study of how SCTs can be resources for their school's development.

Third, because of this lack of support, SCTs needed to take side roads to obtain information. According to work socialization theories, since they could not rely on their colleagues as socialization agents, they had to turn to their students, who acted as replacement socialization agents, or to go beyond the boundary of the organization, such as contacting a pedagogical counselor. They also had to rely on another antecedent of socialization, which is their individual proactivity (Klein & Heuser, 2008); this can cause threats to colleagues when they consciously withhold information. Nevertheless, this proactivity attitude is also a strength of SCTs strength that previous studies have highlighted as a resilience factor (Wilkins & Comber, 2015).

Fourth, because novice SCTs struggled with their work socialization process, they did not feel part of the school, or they even did not feel considered as "real teachers". They had the feeling of being at the very bottom of the pyramid, at the opposite end from the academic course teachers. This is a phenomenon well described by Grollmann (2008), who presented TVET course teachers being perceived as "semi-professionals", which creates low professional status. However, in this study, we showed that this perception exists not only on the societal level, but also inside the school. For SCTs, this implied a double difficulty. The first one was the difficulty of integrating within their workplace. The second was the difficulty of becoming integrated into the teaching profession in a broader perspective, as they did not consider themselves to be "real teachers" because of the perception that other teachers had of them.

Finally, by applying an interdisciplinary approach, our contribution also brings further theoretical insights into second career teachers' work socialization process. We argue that social capital theory is a fine-grained theoretical lens for viewing the bidirectionality of the work socialization process and that a social network methodological approach is promising for understanding teachers' work socialization. Additionally, to our knowledge, while teachers' social networks have been abundantly explored in the context of the Netherlands and the United States (Ortega et al., 2020), this has never been done in French-speaking

Belgium. Hence, beyond addressing the practical issue of SCTs' work socialization, this study adds insights to the international teacher network literature from a context unexplored so far.

5.2 Practical implications

Our results raise several practical implications. First, we strongly argue for the strengthening of SCTs' professional network and for the provision of more opportunities for novice SCTs to become part of the social fabric of the school (Moolenaar, 2012). Encouraging and creating informal meeting environments that bring together the different subgroups of teachers could recouple the internal organizational structure of schools.

Second, as theoretically developed and as illustrated by Brooke's example, SCTs need to feel recognized for their prior professional experience. Beyond influencing their socialization process, this recognition could allow them to participate in school improvement, as shown by Brooke, who brought up-to-date processes into the catering department. As Ruitenburg and Tigchelaar highlighted, the "lack of recognition [of SCTs] has a boomerang effect on general school development. However, fortunately, the reverse is also true: Recognizing what SCTs need and have to offer may foster teacher quantity, teacher quality, and school development more generally" (2021, p. 12).

Third, we believe it is necessary to make principals and teachers aware of the importance of SCTs, so that they do not feel relegated to the bottom rung of the social pyramid at school.

Fourth, we showed that TVET schools tend to function following a loosely coupled organizational structure. As a consequence, teachers or entire subgroups may be isolated from the core of the school, and SCTs experience a dual stigma due to their TVET course teacher status combined with their SCT status. To resolve that situation, principals of TVET schools have human resource management responsibilities to bring teacher subgroups together (Brouhier et al., 2021) and to cultivate a culture of openness in which SCTs are recognized as real teachers. The alternative entry routes for TVET course teachers are common in many countries (Grollmann; 2008) and SCTs have a more than legitimate claim to teacher status.

5.3 Limitations

Certain limitations should also be considered when reading this contribution. First, we measured social capital in terms of indegree and outdegree centrality, following other researchers (Daly et al., 2020). Social network centrality measures are a relevant proxy for measuring social capital, but cannot capture entirely the complex reality of teachers' social capital. For example, in doing so, we considered the quantity of social ties but not the quality, which could also be an interesting way to measure social capital (Siciliano, 2016).

Second, this study presents an in-depth analysis of two contexts to gather new insights into SCTs' realities. Focusing on these two contexts contributes both theoretically and

empirically to better understanding the work socialization of SCTs in TVET, but the reader should be aware that these findings are not generalizable to the entire population of SCTs.

Notes

1. Being a teacher goes beyond teaching in a classroom, it implies working with colleagues in a particular organization (Kelchtermans, 2017; Tang et al., 2016).
2. We prefer the term subgroup instead of department, as the latter refers only to a formal structure.
3. We specified work discussion as related to pedagogical/didactic practices, school functioning, habits and routines of colleagues, duties and responsibilities of colleagues.

Appendix A:

Table 1. Alpha: whole network subgroups – teachers' characteristics

Subgroup label	n	ID	Course	Teaching level	Years of teaching
Lower secondary academic courses teachers	18	18	Science	Lower	10
		4	English	Lower	3
		48	Art	Lower	18
		11*	N.A (principal)	N.A (principal)	1
		49	History/geography	Lower	25
		14	History/geography	Lower/upper	14
		20	French	Lower	28
		50	French	Lower	1
		51	French	Lower	19
		61	French	Lower	20
		47	English/Dutch	Lower	14
		12	English/Dutch	Lower	7
		36	English/Dutch	Lower	8
		46	English/Dutch	Lower	12
		19	Sciences	Lower	37
		44	Sciences	Lower	23
		52	Sciences	Lower	11
		73	Economy	Lower/upper	2
Upper secondary foreign language/mathematics teachers	14	32	Mathematics	Lower	8
		33	English/Dutch	Upper	13
		35	Mathematics	Upper	15
		38	Economy/IT/accounting	Upper	1
		58	Social sciences	Upper	4
		59	English/Dutch	Upper	25
		6	Mathematics	Lower	3
		63	Mathematics	Upper	11
		64	Secretarial	Upper	3
		Amelia			
		65	English/Dutch	Upper	21
		66	English/Dutch	Upper	1
		67	Mathematics	Upper	26
		79	Mathematics	Lower	15
Upper secondary other courses teachers	12	9	English/Dutch	Upper	20
		1	Sciences/geography	Lower	12
		17	French	Upper	16
		26	Old languages	Lower/upper	27
		27	History/religion	Upper	18
		28	French	Upper	1

		29	French/economy	Upper	36
		3	Sciences	Upper	12
		43	Sciences	Upper	10
		57	French	Upper	33
		68	Geography	Upper	36
		69	Sciences	Upper	Missing
		72	Religion/history/geogr aphy	Lower/upper	8
Technical and vocational courses teachers	11	13 Ana	Psychology	Upper	3
		2	Car body	Upper	Missing
		21	Electricity	Lower/upper	15
		31*	N.A(head tech. department)	Lower/upper	26
		34	Food and maintenance	Upper	17
		39	Bricklaying	Upper	7
		40	Building process	Upper	16
		42	Electricity	Upper	15
		62	French/history/geogra phy	Lower/upper	20
		7	Car body	Upper	16
		8	Bricklaying	Upper	10
CEFA	7	10	Social sciences/French	Upper	35
		16	History/geography	Lower/upper	1
		22	Mathematics	Lower	4
		37	CEFA	Upper	15
		41	CEFA	Upper	2
		Annika			
		53	Sales techniques	Upper	6
		56	CEFA accompanying	Upper	15
Physical education teachers	5	15	Physical education	Lower	10
		23	Physical education	Upper	15
		24	Physical education	Lower	20
		5	Physical education	Lower	15
		75	Physical education	Upper	40

Bold: second career teachers; *: leadership team

Table 2. Beta whole network subgroups – teachers' characteristics

Subgroup label	n	ID	Course	Teaching level	Years of teaching
Lower secondary academic courses teachers	22	3	Geography	Lower	25
		18	Mathematics	Lower	10
		20	Geography	Lower	4
		49	French	Lower	23
		56	Sciences	Upper	1
		60	Sciences	Lower/upper	37
		67	Geography	Lower	33
		69	English/Dutch	Lower	12
		75	English/Dutch	Upper	4
		80	French	Lower	6
		90	Cooking	Lower/upper	6
		93	Dutch	Lower	12
		94	French	Lower	35
		96	Sciences	Lower/upper	2
		99	Mathematics	Lower	35
		112	Mathematics	Lower	31
		113	Physical education	Lower	1
		115	IT	Lower/upper	17
		125	Religion	Lower	38
		127	Missing	Lower/upper	5
		139	English/economics	Lower/upper	33
		149	French	Lower	21
Upper secondary academic courses teachers	17	14	Mathematics	Lower/upper	3
		141	IT/bureaucratic	Lower/upper	1
		Barbara			
		142	Social-familial education	Lower/upper	36
		23	Mathematics	Lower/upper	15
		54	Plastic arts	Lower/upper	18
		151	French	Lower/upper	27
		26	ICT/Life hygiene	Upper	10
		98	French	Upper	15
		130	Sciences	Upper	41
		8	Sciences	Upper	27
		43	Religion	Upper	12
		71	French/geography/history	Upper	13
		72	French	Upper	13
		116	Mathematics	Upper	30
		117	French	Upper	25
		119	Healthcare	Upper	missing

Industrial job teachers	17	150	Psychology	Upper	18
		24	Technical drawing	Upper	23
		36	Electricity	Upper	13
		38	Technology	Lower/upper	33
		59	Electricity/mechanics	Lower/upper	5
		74*	N.A. (tech. department head)	N.A.	25
		51	Electricity/mechanics	Lower/upper	28
		100	Electricity	Lower/upper	25
		73	Machining	Lower/upper	37
		107	Electricity/mechanics	Lower/upper	25
		122	Technology/machining	Lower/upper	1
		78	Electronics	Lower/upper	16
		89	Soudure	Lower/upper	16
		138	Auto body	Lower/upper	16
		48	Auto body	Upper	34
		88	Industrial electricity	Upper	31
		109	Electromechanics	Upper	27
		128	Auto body	Upper	12
Upper secondary academic courses teachers	13	146*	N.A. (Principal)	N.A.	37
		28	French	Lower	33
		44	Economics	Lower	24
		4	French/religion	Upper	10
		19	Dutch	Upper	21
		25	History/Dutch	Upper	10
		62	Chemistry	Upper	9
		124	History	Upper	19
		129	Mathematics	Upper	23
		33	Psychology	Upper	21
		47	French/history/geography	Upper	10
		136	Mathematics	Upper	35
Construction and carpentry teachers	12	143	Economics	Upper	1
		152*	N.A. (Carpentry head department)	N.A.	19
		29	Construction	Lower	13
		32	Bricklaying	Upper	15
		58	Carpentry	Upper	10
		101*	N.A. (head department)	N.A.	10
		114	Carpentry	Upper	7
		135	Construction	Lower/upper	13
		5	Carpentry	Upper	11
		30	Carpentry	Upper	27
		39	Carpentry	Upper	27

Untangling second career teachers' entry process in TVET schools

		53	Construction	Upper	12
		133	Construction	Upper	20
Hotels and catering teachers	11	12*	N.A. (Hotel section head department)	N.A.	27
		46	Hôtellerie	Lower/upper	11
		92	Mathematics/technology	Lower/upper	3
		7	Restaurant service	Lower/upper	1
		Brooke			
		65	Restaurant service	Lower/upper	30
		144	Cooking	Upper	34
		145	Missing	Upper	23
		11	Psychology	Upper	1
		22	Cooking	Upper	25
		137	Hotel-restaurant service	Upper	9
		148	Security guard	Upper	3
Physical education teachers	7	85	Physical education	Lower	3
		10	Physical education	Lower/upper	26
		27	Physical education	Lower/upper	26
		76	Physical education	Lower/upper	17
		106	Physical education	Lower	13
		55	Physical education	Lower/upper	20
		34	Physical education	Upper	29
Horticulture teachers	5	105	Horticulture	Lower	1
		37*	N.A. (Head nature department)	N.A.	6
		103	Horticulture	Lower/upper	13
		63	IT	Upper	19
		108	Economics	Upper	7

Bold: second career teachers; *: leadership team

Table 3. Overview of the interview topics

Interview topics	Examples of translated questions
Introduction	How long have you been a teacher? What courses are you currently teaching? What is your career path?
Entering the teaching job	When you entered this school, what were your first impressions during the first days, weeks, months? Did you encounter any specific difficulties during this period?
Work socialization process	How would you describe your discovery of the teaching profession (in terms of your learning process)? How did you discover/learn what you just described? Do you think you have specific competencies that could be useful for your colleagues?
Professional network	Do you have colleagues with whom you can have work related discussions? Do you think that you have enough possibilities of interacting with colleagues? Is there any difference between first and second career teachers as far as the professional network in your school?

Table 4. Coding scheme

Themes	Categories	Codes
Social capital	Having access to the social capital	Information Resources Collaboration Integration with colleagues
	Being part of the social capital	Recognition Frustration How SCTs are perceived
(Informal) structure		Subgroups Isolation TVET/SCT stigma
Work socialization		Perception of themselves as teachers Drop-out intention Being part of the school

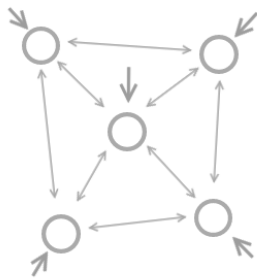
Figure 1. Individual and collective social capital (Inspired by Son 2020).

Social capital

Two different conceptualizations

Individual social capital

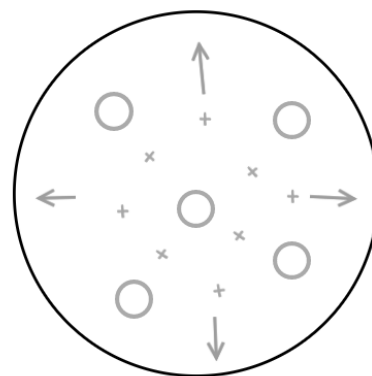
Also called network-based social capital



Social capital as social resource

- Social capital as a benefit for individuals

Collective social capital



Social capital as the sum of each individual

- Individuals as a benefit for social capital

Part 2 — (Second career) teachers' work socialization as a networked process: New empirical and methodological insights

This study uses a quantitative social network perspective to provide insights on the importance of professional interactions for (second career) teachers' work socialization. Given the lack of statistical models addressing the relation between network data and individual variables, we drew on a multiple-membership social network model (MMSNM) to address our research questions. Our results show the importance of social capital in the process of teachers' work socialization, even more so in the case of second career teachers. Moreover, as shown through a comparison between estimates in our MMSNM model and in a single-level regression model, the proposed model performed better.

This second part of the chapter has been submitted as:

Coppe, T., Sarazin, M., März, V., Dupriez, V., & Raemdonck, I. (2021). (Second career) teachers' work socialization as a networked process: New empirical and methodological insights [manuscript submitted for publication]. *Teaching and teacher education* [currently major revision].

(Second career) teachers' work socialization as a networked process

New empirical and methodological insights

1. Introduction

Due to growing teacher shortages, governments worldwide have implemented alternative certification programs (Zirkle & Jeffery, 2017) and policies to make entry into the teaching profession more flexible (Mathou et al., 2020; OECD, 2021). As a result, the proportion of second career teachers (SCTs) in the teaching workforce is increasing worldwide. SCTs can be defined as professionals who left a prior occupation to become teachers as a second career choice (Trent, 2018). They currently represent approximately 25% of new teachers in the US (Redding & Smith, 2016); 27% of new teachers in secondary schools in the UK (Paniagua & Sánchez-Martí, 2018); 10% of new teachers in Israel (Paniagua & Sánchez-Martí, 2018); and approximately 40% of new teachers in secondary schools in French-speaking Belgium (FWB Administration of Education, 2021). Because of their professional background and job-related expertise, the majority of SCTs enter schools offering technical and vocational education and training (TVET) programs (Gautié, 2013; Holgado, 2021; OECD, 2021). These schools are also most affected by teacher shortages (OECD, 2021).

Beyond seeing SCTs as a promising solution for the problem of teacher shortages, researchers have described them as adding value to educational quality in general (Haggard et al., 2006; OECD, 2021). In addition to transferring practical and very specialized (often technical or vocational) expertise and knowledge from their prior jobs into the school curriculum (Troesch & Bauer, 2017), they can also bring transversal skills such as communication, management, or other organizational skills (Salyer, 2003). Therefore, SCTs are often presented as resources for school and curriculum improvement (Wilkins & Comber, 2015). In a recent systematic literature review, Ruitenburg and Tigchelaar (2021) emphasized the importance of recognizing what SCTs have to offer for school improvement. In the same vein, Wilkins and Comber highlighted that “initiatives to attract ECCs [‘elite’ career-changers/SCTs] into teaching are based on the presumption that they bring ‘added-value’ not just to the classroom, but to wider institutional culture and practices (...) they have the potential to become effective change agents” (Wilkins & Comber, 2015, p. 1026).

These two arguments (i.e., SCTs as solutions for teacher shortages and as change agents) depict SCTs as very important for educational systems (Wilkins & Comber, 2015). Yet, while governments are capable of attracting and recruiting SCTs into the teaching profession, they are less effective at retaining them. Research evidence has shown that SCTs suffer from a high attrition rate (Redding & Smith, 2016). They are twice as likely as first career teachers (FCTs) to leave the profession during their first five years (Chambers Mack et al., 2019),

mainly because their specific needs are not recognized (Rose & Sughrue, 2020). Research has suggested that because of their age and expected experience, they often do not receive support, as if they should be able to manage this new job alone (Bar-Tal et al., 2019). Several additional elements can help to explain this high attrition rate. Among these, some have been well presented in the literature: SCTs often do not occupy a secure job position, which is stressful and does not guarantee a full-time job (OECD, 2021); for some of them, their initial motivation to change careers does not match with the teaching job realities, making the “reality shock” a disappointing awareness-raising (Coppe, März, Coertjens, & Raemdonck, 2021); and finally, they struggle to fully integrate and familiarize themselves with their new profession and with the school as a new workplace (Lee, 2011; Rose & Sughrue, 2020), adding to the complexity of their induction process (OECD, 2021). In a recent study, Coppe, März, and Raemdonck (2021) concluded that the complexity of novice SCTs' induction process can be explained by the lack of professional interactions they experience, meaning that they lack opportunities to have work-related discussions with colleagues or to ask for job-related advice. Day-to-day professional exchanges with colleagues have been reported by SCTs as one of the most useful sources of learning and professional development (Csíkos et al., 2018). Indeed, “collegiality is of extra importance to second career teachers, many of whom enter the teaching profession from the business world with its work teams and collaborative projects” (Lee, 2011, p. 4). There is a lot of evidence in the literature describing teacher induction and professional development as a social process for first career teachers. Yet, more systematic and in-depth research is needed about the induction and professional development of SCTs (Ruitenburg & Tigchelaar, 2021) and the particular role of social interactions. In other words, more knowledge is needed on what we could call the *socially-embedded induction and professional development* of SCTs.

Social network approaches are particularly relevant to address such socially-embedded phenomena and have, in the past years, become mainstream in research on teachers (Baker-Doyle & Yoon, 2020). More and more studies have turned to social network approaches to understand teacher collaboration, teacher induction, teachers' support, teachers' learning, and so forth (März & Kelchtermans, 2020; Moolenaar, 2012; Thomas et al., 2020). Building on the concept of social capital (Bourdieu, 1980; Coleman, 1988; Lin, 2008), these studies put at the forefront the social dimension of teacher development and, consequently, the importance of the professional networks in which teachers are embedded (Daly et al., 2020; März & Kelchtermans, 2020).

Social network approaches have complex theoretical foundations that imply specific methodological practices. Until now, although efforts have been made to statistically operationalize social network models related to teachers' induction and professional development, some limitations have remained difficult to overcome (Daly et al., 2020; Moolenaar et al., 2011; Moolenaar & Slegers, 2010). One of the major limitations is related to the interdependence of network data. A social network is a pattern of ties (links) between nodes (actors) shaping the entire network. Each element of a network shares dependence with the others. Given the structural integrity of a social network, we can only grasp the reality that the network represents based on consideration of the *entire network* (including complex

patterns of interconnections and inter-influences between actors). This is specifically true in the case of school social networks, because the structural patterns of schools are not homogeneous, meaning that collegial dynamics vary between subgroups/departments of teachers¹ (i.e., loosely coupled/departmentalized organizational structure; De Lima, 2007; Meredith et al., 2017; Thomas et al., 2020).

In the area of teacher research, too many studies forget this crucial aspect when working quantitatively with social networks. In a way, we could say that these studies, despite strongly arguing that teachers' professional development is embedded in social networks, have partially overlooked that argued-for point when it was time to statistically operationalize that reality. This implies major issues of *network validity*, meaning a failure to answer the question "Is the object we claim to be a network really treated as a network in our study?" (Froehlich & Sarazin, 2021). Educational sciences are in need of a statistical procedure to analyze the impact of particular network data such as the degree centrality of actors on individual continuous outcomes, such as teachers' professional development, in network contexts with complex structural patterns that take into account the inherent interdependence of network data.

Regarding the increasing utilization of social networks in educational research, the importance of interactions with peers for the teaching profession, and the intrinsic social nature of their induction and professional development, this lack of suitable statistical procedures challenges researchers to develop a procedure to address questions linking social network data and individual continuous outcomes. While the social network literature has presented a range of statistical tests and models, procedures to predict continuous variables with network data have been less explored so far and need to be imported from other scientific domains (Silk et al., 2017; Tranmer et al., 2014).

Based on the idea that we need more research on SCTs' induction and development as a socially embedded process and that analyzing such social phenomena requires a statistical procedure that takes into account what a network really is, this study has two aims. First, our contribution aims to give new insights on the importance of professional interactions for SCT development. To pursue this objective, we compare the relevance of professional interactions for SCTs and FCTs, knowing that professional networks have been clearly stated to be of major importance for the induction process and for the professional development of all teachers, especially early-career teachers (Kyndt et al., 2016; Lecat et al., 2018, 2019; Struyve et al., 2016; Thomas et al., 2020; Vangrieken et al., 2017). We operationalize teacher induction and professional development as a work socialization process (Coppe, Raemdonck et al., 2021; Martineau et al., 2009) and use the concept of social capital as a relevant concept to operationalize theoretically the importance of peers (Beusaert et al., 2021; Bourdieu,

¹ To some extent, it is less necessary to consider a social phenomenon based on the entire network when the network is shaped by uniformly cohesive patterns of ties. In such a case, it could be hypothesized that the network influences each actor in the same way. This is not a relevant hypothesis for the school context.

1980; Coleman, 1988; Lin, 2008). Second, this study presents a transparent and replicable methodological procedure that considers the inherent structural dependence of networks (addressing the issue of data non-independence) inspired by the multiple-membership multiple-classification model to assess the link between social network data (here, centrality measures) and an individual continuous outcome (here, teachers' work socialization).

In the following theoretical section, we present the concept of work socialization and our social network approach, from both a theoretical and methodological point of view.

2. Theoretical framework

2.1 The work socialization process

Bringing together insights from the literature on teacher professional development and from organizational sciences, teachers' work socialization can be defined as a learning and adaptation process that begins upon entry into the school as a workplace and continues throughout teachers' careers (Coppe, Raemdonck et al., 2021; Wanberg, 2012). The work socialization process enables teachers to evolve in their professional practices and towards better adaptation to the teaching profession (Martineau et al., 2009; Uwamariya & Mukamurera, 2005). In this way, the concept of work socialization is closely related to the concept of teachers' professional development. While teachers' professional development has sometimes been conceptualized in a restricted way, referring to "transforming [teachers'] knowledge in practice for the benefit of their students' growth" (Avalos, 2011, p. 10) and focusing on teaching practices and students' learning (Evans, 2019), work socialization considers broader aspects of a given profession (Chao, 2012). This is in line with current trends in the educational literature presenting the teaching profession as a multidimensional activity embedded in an organization (Cherubini, 2009; Richards et al., 2019; Tang, Wong, et al., 2016). This literature has advocated for considering teachers' professional development as no longer related only to teaching practice, but also to "competence to work in schools" (Tang, Cheng, et al., 2016, p. 161). Drawing on the work socialization literature provides a strong theoretical foundation to approach the teaching profession more broadly. Indeed, the concept of teachers' work socialization is relevant when assessing teachers' induction and professional development process, because it captures more exhaustively the dimensions of the teaching profession (Kearney, 2015; März et al., 2019).

Work socialization requires learning and adapting to the dimensions of the job. According to the organization science literature, these dimensions are referred to as the *domains* of socialization (Klein & Heuser, 2008). For teachers, there are four such domains: teaching task socialization, workgroup socialization, micropolitical climate socialization, and organization socialization (Coppe, Raemdonck et al., 2021). *Teaching task socialization* refers to the technical aspects of the profession, such as the acquisition and the consolidation of pedagogical and didactic skills (Mukamurera et al., 2013). *Workgroup socialization* refers to the collaborative aspect of the teaching job. Teachers have to integrate and evolve into membership in their school professional community (Dupriez, 2010). *Micropolitical climate*

socialization refers to the ability to navigate the informal power dynamics in schools (Kelchtermans & Vanassche, 2017). *Organization socialization* refers to understanding the objectives, values, and culture of the school as a particular organization (März et al., 2019).

2.2 A social network perspective: theoretical point of view

Both the scientific literature in organization science about socialization and the literature about teachers' induction and professional development have presented a strong consensus, that is, the importance of professional interactions with peers (Baker-Doyle & Yoon, 2020; Klein & Heuser, 2008; Kyndt et al., 2016; Moolenaar, 2012). A large body of empirical research on teacher induction and professional development has highlighted that teachers prefer to learn socially with their peers (Colognesi et al., 2020; Lecat et al., 2019). Professional interactions allow teachers to learn, to improve their practice and to understand their workplaces (Shirrell, 2021). Recently, Daly et al. (2020) concluded that when teachers share knowledge within their professional school networks, they *learn*. In a recent paper, Van Waes et al. (2018) highlighted the importance of networks for teachers' professional development. Shirrel (2021) also showed that professional interactions have a negative relationship with teacher turnover.

The literature on SCTs has especially highlighted the extra importance of peers for SCT professional induction and development. In reviewing the literature on second-career teachers' induction experience, Ruitenburt and Tigchelaar (2021) found that a large majority of studies found colleagues to be a source of support. Indeed, as SCTs often pass through fast alternative certification programs or enter the teaching profession without receiving any pedagogical training, most of their professional learning process occurs "on the job" (Coppe, Enthoven et al., 2021). This particular situation shapes their day-to-day professional life into a continual workplace learning process, even more than for first career teachers, who complete a full teacher training program before entering the job (Perez-Roux, 2010). Watters and Diezmann (2015) highlighted that professional relationships are essential for SCTs' retention. In a recent empirical study by Csikos et al. (2018), "discussions with colleagues" were stated to be the most efficient source of professional development for SCTs. In the same vein, Rose and Sughrue (2020) highlighted that personal relationships with colleagues seem to encourage the professional development and retention of SCTs.

This importance of collegial dynamics for both first and second career teachers can be understood through the theoretical lens of social capital (Bourdieu, 1980; Coleman, 1988). From a network perspective, "social capital is defined as resources embedded in one's social networks, resources that can be accessed or mobilized through ties in the networks (Lin, 2008, p. 59). The fundamental idea of social capital is that "it is through one's ties to others that one gains access to particular expertise and resources (...) among individuals who interact frequently with one another" (Penuel et al., 2009, p. 129). In a recent systematic literature review on the role of social capital for teacher learning, Demir (2021) found that the majority of studies showed the benefits of social capital for teacher professional

development and successful teacher induction. They concluded that social capital promotes five categories of outcomes: teacher professional development, teacher retention, implementation of change, job satisfaction, and student achievement. Because social capital is intrinsically embedded in social relations (Daly et al., 2020), “in recent years, educational studies have been building on social network theory to understand the complex role of teacher relationships in improving teaching and learning and in facilitating educational change” (Moolenaar, 2012, p. 11). Using a social network approach to understand teachers' social capital provides a way to focus not only on the individual, but also on whole networks. Indeed, it is within the whole-school teacher community that individuals maintain the professional ties shaping their social capital (Penuel et al., 2009). Social capital is related to the resources embedded in teachers' professional relations and refers to the centrality of these teachers in the whole-school network (Berebitsky & Andrews-Larson, 2017). Consequently, social capital has often been considered in terms of teachers' *degree centrality* (Berebitsky & Andrews-Larson, 2017; Daly et al., 2020), because it operationalizes directly the number of colleagues in their professional network, or through teachers' *closeness centrality*, which operationalizes how easily the teachers can access their colleagues or how socially close teachers are to their colleagues (Hopkins et al., 2019).

More and more researchers in educational sciences have adopted a social network perspective to study relational aspects of the teaching profession such as collaboration, distributed leadership, reform implementation, teacher induction, or teacher professional development (Moolenaar, 2012). As is the case from a social capital theoretical lens, the social network lens in the field of teacher professional development builds on the fundamental assumption that resources, information, tips, routines, and knowledge pass to the individuals through relationships (Moolenaar, 2012). Social networks are relevant both theoretically and methodologically speaking. Social network analysis enables scholars to understand what the relationship pattern between teachers is, how this pattern can be explained, and what the consequences are, and it is therefore a relevant way to grasp this pattern (Baker-Doyle & Yoon, 2020).

2.3 A social network perspective: methodological point of view

As stated in the introduction, in social network analysis, the network is itself a source of dependence of observations (Tranmer et al., 2014). As the network *is* the social fabric within a given environment (such as a clique of friends, a classroom, a subgroup of teachers, a school department, a whole organization, a country, etc.), it inherently carries a dependency between the network observations (Silk et al., 2017). This can be illustrated with an example on the transitivity of friendship. If individual i is a friend of individual j , and j is a friend of k , there is a good chance that i is a friend of k , too. If we are interested in individual data, also called attributes (such as the number of friend nominations), X_i , X_j , and X_k are not independent observations. It is the same scenario if we are interested in network dyadic data (such as the existence of a friendship tie between individuals), X_{ij} , X_{jk} , X_{ik} are not independent

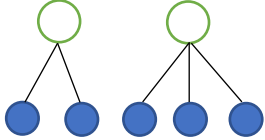
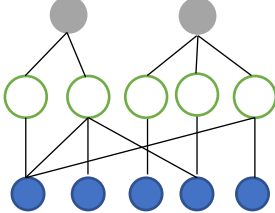
observations either (Snijders, 2011). In other words, social network observations are inter-correlated. This issue is well-known as “Galton’s problem” (originally stated for the cultural dependence of data; Freeman, 2004). Consequently, most conventional statistical procedures and models cannot be used with network data, because such data violate the basic assumption of the independence of observations (Borgatti et al., 2018). This dependency issue can be related to the consequences of the network (effect of contagion), to the formation of the network (effect of reciprocity), or to the network data (effect of sample autocorrelation). We can subsume these elements by a fundamental idea: taking into account the entire network is necessary when exploring a phenomenon through social network approaches (Froehlich & Sarazin, Submitted).

The social network literature has presented a range of statistical tests and procedures dealing with this issue of interdependence. Well-known statistical tools make it possible to predict the existence of ties according to nodal attributes (see exponential random graph models [ERGM] and $P^*1 P^*2$ models), to run correlations or regressions between networks (see quadratic assignment procedures [QAP]), and to predict network evolution (see stochastic actor-oriented models [SAOM]). Despite this growing emergence of statistical tools designed for social network analysis that deal with the issue of interdependence, procedures to predict individual continuous variables with network data are still quite unexplored. This might be surprising to the reader, but it can be understood in light of the history of social network analysis. Historically, social network analysis has emphasized the social structure of a given reality (Froehlich et al., 2020), trying to analyze and explain the pattern of ties between actors in a network (Wellman, 1983). Social network analysis is fundamentally about the configurations of social relations (Scott, 2011). In this sense, the network is mainly the object of the analysis in social network analysis (as in the statistical procedures listed previously), while in this study, we want to use the network as a way to represent the reality through which our data emerge (i.e., use the network to predict individual outcomes)

This lack of an applicable statistical procedure has led scholars in teacher research to model the structural or relational aspects they are interrogating statistically without being completely able to capture them by using a regular multilevel model, which cannot control for the specific interdependence of social network observations (Berebitsky & Andrews-Larson, 2017; Daly et al., 2020; Edinger & Edinger, 2018; Moolenaar & Slegers, 2010). Some of these researchers have acknowledged the dependence of their network data as a limitation, others have not.

To fill this gap, efforts have been made to transfer statistical models coming from other fields such as geographical literature, which uses models controlling the spatial dependence of observations, what is called an “autocorrelation model” (Tranmer et al., 2014). Table 1 presents different models that can be used to predict a continuous individual-level variable with network data while dealing with network data interdependence. We briefly explain these different models and enter into detail for the last one (i.e., MMMCM), as that is the one we build on for the statistical procedure used in this study.

Table 1. Models dealing with the dependence of observations

Model	Basic functioning	Illustration
"The exclusive group model"		
Hierarchical linear model (HLM)	- Interdependence within the group - Individuals embedded in one group	
"The couple model"		
Actor-partnership influence model (APIM)	- Interdependence within an Actor-Partner dyad - Individuals embedded in one dyad	
"The neighborhoods model"		
(Temporal) Network autocorrelation model (TNAM)	- Interdependence between neighbors (can be indirect neighbors) - The neighborhood is the only possible level	
"The embeddedness model"		
Multiple-membership multiple-classification model (MMMCM)	- Interdependence between related individuals - Can be nested in other group levels	

A hierarchical linear model (HLM) is the classic multilevel model used with data nested in structures such as classrooms, schools, or organizations. In this model, each individual is nested in one and only one higher-level unit. For example, one teacher is nested in only one school. This is an often-used model that is relevant for taking the data interdependence and group influence into account, but that cannot handle situations where observations are nested in multiple clusters at the same level (Chung & Beretvas, 2012), such as teachers who work in several different schools; this is a major gap in dealing with social network data. See Moolenaar and Sleegers (2010) and Daly et al. (2020) for examples of social network studies (teachers' professional network) in education using HLM.

An actor-partnership interdependence model (APIM; Cook & Kenny, 2005) is similar to an HLM, with the particularity that the nested structure is each pair making up an “actor-partner couple” (Hong & Kim, 2019). The fundamental idea is that observations in dyadic partnerships are interdependent (Fitzpatrick et al., 2016). In this type of model, an individual can be nested in one and only one dyadic group. See Zhou et al. (2017) for an example of a social network study (friendship dyads) in social psychology using APIM; we did not find any studies using this model specifically in education.

The (temporal) network autocorrelation model ([T]NAM; Leifeld et al., 2018) is a model inspired by geographical literature (Tranmer et al., 2014). It allows implementation of temporal autocorrelation or spatial cross-sectional autocorrelation and, in this way, takes into account the interdependence of different observations of the same individual over time, or the interdependence of observations between “neighbors”, connected observations (Mercken et al., 2010). In (T)NAM, the neighborhood is the only possible level of clustering. See Vitale et al. (2016) for an example of a social network study (students' exchange network) in education using (T)NAM.

The multiple-membership multiple-classification model (Tranmer et al., 2014) could be defined as a combination between (T)NAM and HLM. It provides a way to take into account network data interdependence, with individuals nested in several networks, as well as other levels of interdependence (Tranmer et al., 2014). For example, a teacher is part of several groups of teachers (with his colleagues in the whole-school network) and part of a specific school. See Tranmer et al. (2014) for an example of a social network study (friendship network) using MMMCM. This model is particularly relevant regarding our purpose because it provides a way to cluster teachers into several small networks such as ego networks, dyads, triads, or larger cliques and also to nest teachers in their schools. In our opinion, this is the most complete model for when researchers want to assess the relations between social network data and a continuous individual variable while controlling for this issue of observation interdependence at different levels (tackling the autocorrelation dependence issue).

Whereas the study by Tranmer et al. (2014) is an interesting starting point, their friendship network was fundamentally different from our professional network. As an example, in their study, they decided to consider that the more friends an individual has, the less important his or her impact on these friends is. As a result, an individual with 4 friends will have a weight or a “membership coefficient” of $\frac{1}{4}$ in each ego network. Indeed, this was a subjective choice that was inspired by a fundamental article describing the MMMC method (Browne et al., 2001). In that article, the authors chose to weigh the membership in different illustrative situations using the coefficient $1/r$, where r is the number of memberships for an individual. Yet, other weightings are possible, so that the choice of how to weight should depend on theoretical insights and/or model fit information (Durrant et al., 2018). We exhaustively describe in the method sections the choices made in this study, to provide a transparent, replicable procedure for using data from teachers' professional networks. This procedure was

inspired by Leckie's routine for prepare non-network data for use with the multiple-membership model (Leckie, 2013).

3. Method

3.1 Research objectives

In this study, we pursue two objectives – one empirical and one methodological. They are complementary because the methodological procedure we develop enables us to pursue our empirical objective. We operationalized the first objective with two research questions.

Objective 1: To provide insight into the importance of peers in the work socialization process of teachers, especially for second career teachers in comparison with first career teachers.

RQ1: To what extent does social capital predict the work socialization of teachers?

RQ2: How does this prediction differ between first and second career teachers?

Objective 2: To provide a transparent and replicable methodology to assess the link between social network individual attributes (teachers' social capital) and individual continuous variables (teachers' work socialization).

3.2 Data collection and participants

Data collection was conducted in two secondary schools offering technical and vocational (TVET) programs in the French-speaking part of Belgium. We selected schools offering TVET programs because of their high proportion of SCTs. Data collection for the first school was done in February 2020 and for the second at the end of April 2021².

Data were collected through a survey subdivided into three parts. The first part was related to biographical information such as years of experience and first or second career teacher status. The second part was a name generator (Borgatti et al., 2018) to obtain the complete professional network of the school (Tuytens et al., 2019). More specifically, we were interested in teachers' professional interactions as their available social capital, therefore we focused on identifying the colleagues with whom they talked about work. The name generator was the question, "Since September, to which colleagues do you turn to talk about work?" (Moolenaar & Sleegers, 2010). We asked the teachers to add the frequency of interactions, ranging from 1 to 5 (1 = *a few times a year*, 5 = *every day*). The third part was the teachers' work socialization scale, enabling us to operationalize to what extent they were socialized into the teaching job. Only teachers (FCTs and SCTs) were asked to complete the third part.

² Because of the Covid-19 pandemic, we had to postpone the data collection for the second school, waiting until the situation for secondary schools returned to somewhat normal.

Principals and school leaders only responded to the first and second parts of the survey. The response rate was 79% for the first school ($n = 104$) and 82% for the second ($n = 78$), which meets the requirement of 75% participation to generate whole network data (Kossinets, 2006).

3.3 Measures

Independent variables. Teachers' social capital was operationalized in two ways. First, it was operationalized with degree centrality, which is the number of colleagues with whom a teacher has professional interactions (both ingoing [indegree centrality] and outgoing professional interactions [outdegree centrality]). Degree centrality is a relevant way to operationalize social capital, because the more colleagues teachers have professional interactions with, the more resources they have to help them develop in the job (Borgatti et al., 1998). This score was weighted by the frequency of interactions, ranging from 1 to 5 (1 = *a few times a year*, 5 = *every day*). Second, social capital was operationalized through closeness centrality. Closeness centrality represents how socially close a teacher is to all the other teachers in the professional network of the school. Closeness centrality is also considered as a way to operationalize social capital (Kovanovic et al., 2014), because

the greater a teacher's closeness is, the more opportunities he has for professional interactions (Liou et al., 2017). As an illustration of these centrality measures, in Figure 2, Frank has the highest degree centrality and Rosa has the lowest closeness centrality. In order to neutralize the between-school differences, indegree, outdegree, degree centrality, and closeness centrality variables were standardized on the school mean³. We extracted these centrality measures from the whole-school network with Gephi software (Bastian et al., 2009).

Control variable. We controlled for years of experience in the teaching profession, as this can influence both work socialization and the number of professional interactions with colleagues. Years of experience are even sometimes considered as a proxy for human capital that could also act as a predictor of teachers' work socialization (see Daly et al., 2020). We did not standardize years of teaching experience. As such, the coefficient represents the effects of each additional year of teaching experience on teachers' work socialization.

Dependent variable. We used the ISaTE-scale (Teachers' work socialization scale; Coppe, Raemdonck et al., 2021) to measure the work socialization of teachers. The scale, tested on a large sample in French-speaking Belgium (Coppe, Raemdonck et al., 2021), has strong structural validity and strong measurement invariance between first and second career teachers, as well as between novice teachers (≤ 5 years in teaching) and more experienced

³ An alternative could be to standardize these data on the whole sample mean, if the researcher wanted to take into account differences between schools. With a larger number of schools, this would be the case if a three-level model was used, with schools at level 3.

teachers (> 5 years in teaching). The 20 items on the scale inquire about four aspects forming the global score for teachers' work socialization. The items use Likert-scale responses ranging from 1 (*I completely disagree*) to 5 (*I completely agree*). The first aspect is task socialization (example item: "I know how to explain the subject content to students so that they understand it"). The second aspect is group socialization (example item: "I am not usually present at informal meetings of colleagues [reverse-code]"). The third aspect is micropolitical climate socialization (example item: "I know who the most influential people are among my colleagues"). The fourth aspect is organization socialization (example item: "I think I fit well with my school"). The scale had a good reliability score ($\alpha = .84$). ISaTE scores were standardized on the school mean, following the same logic as for the independent variables.

Group variable. As we were interested in differences between first and second career teachers in the importance of professional interactions, we used this status as a binary variable (1 = first career teacher; 2 = second career teacher). We defined second career teachers as teachers who had a prior professional occupation before being teachers (Trent, 2018), while for first career teachers, teaching was their first professional occupation.

Multilevel cluster variables. Each ego network was considered as a cluster, a regrouping of teachers in relation to the "owner" of the ego (see data preparation section). There were 104 and 78 clusters in the first and second school, respectively. Consequently, level 2 of the hierarchical structure was formed by 182 cluster variables, each being one ego network. Ego-network clustering was preferred to other social network clustering variables as dyad, triad, or n-clique. Ego networks showed better fit indices (Tranmer et al., 2014). Choosing ego networks to nest the observations in was also a more parsimonious choice, because ego networks represent one level of embeddedness, while dyad, triad, and so on, represent several hierarchical levels. As we added self-membership (one teacher is a member of their own ego network), our ego networks included part of the n-clique information.

3.4 Data preparation for the multiple-membership multiple-level social-network models

Multiple-memberships social network models require specific data preparation to make the analysis possible (Leckie, 2013). We describe the different steps of the data preparation in this section, with a brief introduction to the encoding of social network data for the sake of clarity.

There are mainly two ways to encode social network data. The first takes the form of an adjacency list⁴, and the second takes the form of an adjacency matrix (Borgatti et al., 2018). An adjacency list, in its simplest form, presents one line per ego and for each ego, the list of

⁴ A third way could be an edge list, but we consider that to be an extended version of an adjacency list

the alters⁵ (see Table 2 – unweighted). Weights for each alter, such as the frequency of the interactions, can be added to this simplest form (see Table 2 – weighted).

Table 2. Example of a hypothetical adjacency list

Unweighted				
(ego 1) Frank	(alter 1) Mary		(alter 2) Evelyn	
(ego 2) Mary	(alter 1) Rosa		/	
(ego 3) Evelyn	(alter 1) Frank		(alter 2) Dominik	
(ego 4) Rosa	(alter 1) Evelyn		/	
(ego 5) Dominik	(alter 1) Frank		/	
Weighted				
Frank	Mary	3	Evelyn	2
Mary	Rosa	2	/	/
Evelyn	Frank	2	Dominik	4
Rosa	Evelyn	1	/	/
Dominik	Frank	2	/	/

An adjacency matrix is the organization of this adjacency list in a matrix. Each person in the network is listed in the first row and the first column to obtain a N x N matrix (with N the number of individuals in the network). The cells in this matrix show a 0 if there are no ties between the individual in the row and the individual in the column, or 1 if there is a tie (see Table 3 – unweighted). This matrix can also present the weights of the ties, such as the frequency of interactions (see Table 3 – weighted). If the ties are considered to be directed (i.e., one-directional, such as asking for advice from someone), the matrix is asymmetrical. If the ties are considered to be undirected (i.e., two-directional, such as Facebook friendship, which is automatically reciprocal), the matrix is symmetrical.

⁵ The term alter refer to someone who is mentioned an ego

Table 3. Example of a hypothetical asymmetrical adjacency matrix

	Frank	Mary	Evelyn	Rosa	Dominik
Frank	0	1[3]	1[2]	0	0
Mary	0	0	0	1[2]	0
Evelyn	1[2]	0	0	0	1[4]
Rosa	0	0	1[1]	0	0
Dominik	1[2]	0	0	0	0

Note: Unweighted [Weighted]

For the data preparation procedure used and explained in this study, the data must be in matrix form. Ucinet and R packages (igraph, sna) have routines to generate a (weighted) matrix on the basis of an adjacency list. In this study, the whole network matrix of professional interactions between teachers was an asymmetrical matrix weighted by the frequency of interactions (similar to the matrix presented in Table 3 [Weighted]). This matrix was the social network material we used for the next steps.

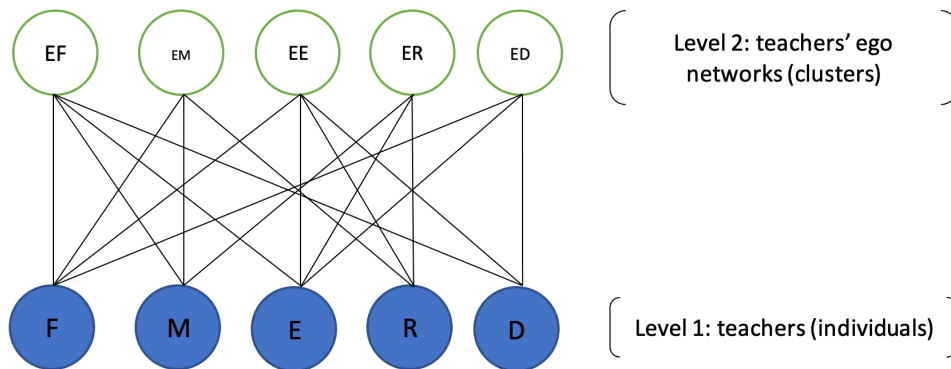
Social network observations are interdependent because of the relations between individuals; therefore, we needed to model this dependence in clusters of relations. Inside each cluster, observations share autocorrelations between them. The following explanations were inspired by a combination of the procedure described by Tranmer et al. (2014) for friendship network dependence and the procedure described by Leckie (2013) for non-network multiple-membership data. The most intuitive way to nest individuals in relationship clusters is to consider that each individual has a personal network (so-called an ego network), and other individuals in the whole network can be part of (or nested in) someone else's ego network. In this way, for every individual i , all of the people who are connected with i are nested in the ego network of individual i . To do this nesting, we needed to transform the asymmetrical weighted matrix into a symmetrical weighted matrix (see Table 4), because the purpose was to cluster teachers together if they have professional interactions (whether ingoing or outgoing). Additionally, we added the information that teachers are part of their own ego network by filling the diagonal with the number 5, representing the highest membership weight.

Table 4. Example of a hypothetical symmetrical weighted adjacency matrix with diagonal filled with 5

	Frank	Mary	Evelyn	Rosa	Dominik
Frank	5	3	2	0	2
Mary	3	5	0	2	0
Evelyn	2	0	5	1	4
Rosa	0	2	1	5	0
Dominik	2	0	4	0	5

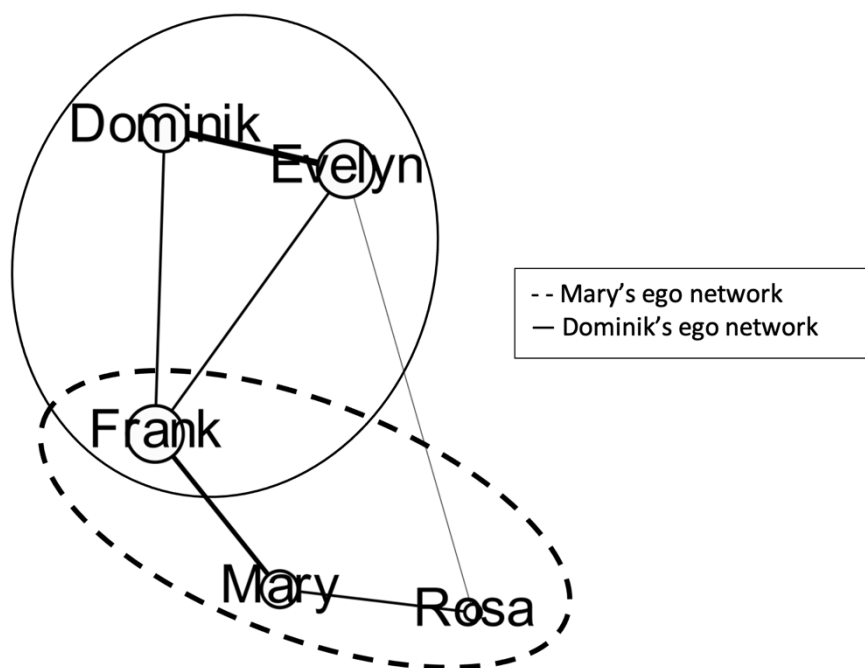
This new symmetrical weighted matrix could be directly used as the data table indicating the individual's memberships in the different ego networks and could be imported into our final data table. These memberships were not exclusive to one ego network and represented level 2 of the multiple-membership social-network model that we used in this study (see Figure 1 for an illustration of the multilevel structure of our hypothetical example and Figure 2 for an illustration of the embeddedness of ego clusters in the small whole network corresponding to our hypothetical example). This model enables to consider the autocorrelations between observations in a random intercept for each ego cluster. In our final data table, each row represents an individual and each column one cluster (Frank's ego network, Mary's ego network, etc.). In this table, other variables such as predictors, outcomes, or other clustering variables (such as teachers' school membership) can be added. An illustration of the final data table used for this study is presented in Table 5.

Figure 1. Multiple-membership multilevel structure



Note: EF = Frank's ego; EM = Mary's ego; ... ; F = Frank; M = Mary; ...

Figure 2. The embeddedness of ego networks, as illustrated by Mary's and Dominik's ego networks



The thickness represents the frequency of interactions.

Table 5. Illustration of the format of the data table used in this study (simulated data)

	FCT/ SCT	Years	DC	CC	WoSo	Ego F.	Ego M.	Ego E.	Ego R.	Ego D.
Frank	1	5	1.40	0.30	0.81	5	3	2	0	2
Mary	2	12	-0.97	-0.53	0.28	3	5	0	2	0
Evelyn	2	7	-1.02	-0.30	-0.82	3	0	5	1	4
Rosa	1	6	0.11	-0.68	0.25	0	3	1	5	0
Dominik	1	18	0.60	0.32	1.24	2	0	4	0	5

Note: FCT = first career teachers (1) / SCT = second career teachers (2); Years = years in the teaching profession; DC = z-score for degree centrality; CC = z-score for closeness centrality; WoSo = z-score for work socialization.

3.5 Data analysis

We passed through different analytic steps to answer our research questions. The analyses explained in this section were conducted in Stata 16.1. The model fits were compared using AIC and BIC criteria (Müller et al., 2013). We used the REML estimator because of the relatively small size of our sample (McNeish, 2017). As a preamble, we ran a null model (without any predictors) to compare the relevance of this MMSNM to that of a linear model⁶. Additionally, as an illustration of this relevance, we presented a comparison between MMMSNM and regular linear models for some of the selected fitted models at the end of the results section.

For the first research question, we added our different predictors to the model step-by-step. We ran different models for weighted indegree and weighted outdegree centrality, because of the conceptual and empirical correlation between them ($r = .44, p < .001$). We also ran different models for weighted degree centrality and closeness centrality, because they are two different ways to operationalize social capital. For the second research question, we reused the final models obtained for the first research question (on the basis of AIC and BIC) and ran these models for first and second career teachers⁷. In all of these models, ego networks were considered at level 2. As our research questions focused on the individual level, we treated the structural effect (teachers nested in ego networks) as a nuisance, that is, as the network data dependence we had to control for. Consequently, we focused our interpretation on the level 1 variance in the model⁸. Our model worked as a multi-level model with two levels. Thus, it captured from the singularity of each cluster to what extent the variability in the dependent variable was related to the variability in the independent variables.

⁶ This model control only for the interdependence of observation inside the ego networks for the dependent variable. See the comparison between MMSNM and single-level regression models to see the impact of controlling both for interdependences in the independents and dependent variables.

⁷ We ran different model for FCTs and SCTs instead of using this binary variable as a moderator. FCTs interacted mainly with FCTs and SCTs interacted mainly with SCTs (logic of homophily). Consequently, our level 2 variable captured a large part of the variance related to the status of FCT or SCT, making it irrelevant to enter the status in the model.

⁸ To interpret the level 2 variance in MMSNA, see Tranmer et al. (2014).

4. Results

The null model⁹ showed the relevance of our MMSNM model compared to a linear model ($\chi^2_{0,1} = 6.54; p < .01$), which demonstrated a significantly better fit than the single-level linear model. At the end of the results section, we have compared some of the fitted models using MMMSNA and regular linear models to highlight the differences.

Table 6 presents the results for models 1, 2, 3, and 4, which addressed the first research question. First, in model 1, we entered weighted indegree centrality as a predictor of work socialization. In model 1a, we added years of teaching as a second predictor. Model 1a presented a better fit than model 1, with lower AIC and BIC values. Model 1a showed that weighted indegree centrality predicted the work socialization of teachers ($\beta = .27; p < .001$), meaning that ingoing professional interactions had an impact on teachers' work socialization. This model also showed that years of teaching experience predicted teachers' work socialization. For each additional year of experience, teachers' work socialization score was 0.02 standard deviations higher ($B = 0.02; p < .001$).

Second, in model 2, we entered weighted outdegree centrality as a predictor of work socialization. In model 2a, we added years of teaching as a second predictor. As with the first models, model 2a presented a better fit than model 2, with lower AIC and BIC values. This model showed that weighted outdegree centrality significantly predicted the work socialization of teachers ($\beta = .27; p < .001$), meaning that outgoing professional interactions had the same impact on teachers' socialization as ingoing professional interactions. The equivalence of the two standardized coefficients ($\beta = .27; p < .01$) can be interpreted as an equivalent influence of these two directionalities of their professional interactions on teachers' work socialization. This model showed the same result as the previous one regarding the impact of years of teaching experience on teachers' work socialization.

As weighted indegree and outdegree centrality were both significant, in model 3 we entered the combination of them, resulting in weighted degree centrality as a measure of social capital, alongside years of teaching experience. Model 3 showed that weighted degree centrality significantly predicted teachers' work socialization ($\beta = .40; p < .001$) with a high standardized coefficient, meaning that social capital had a strong impact on teachers' work socialization. In this model, years of experience had the same impact as in model 1a and 2a ($B = 0.02; p < .001$).

Fourth, in model 4 we tested the predictive effect of closeness centrality as our second operationalization of social capital. Model 4 showed that closeness centrality significantly predicted the work socialization of teachers, but with a smaller standardized coefficient than weighted degree centrality ($\beta = .29; p < .05$). In this model, years of teaching experience also significantly predicted work socialization ($B = .03; p < .001$).

⁹ Model with teachers' work socialization only.

Table 6. Multilevel model estimates – dependent variables: Teachers' work socialization

	Model 1 (n = 147)		Model 1bis (n = 142)		Model 2 (n = 147)		Model 2bis (n = 142)		Model 3 (n = 142)		Model 4 (n = 142)	
	β	S.E.	β	S.E.	β	S.E.	β	S.E.	β	S.E.	β	S.E.
Weight. Indegree	0.33**	0.10	0.27**	0.09					–	–	–	–
Weigh. Outdegree					0.31***	0.08	0.27**	0.08	–	–	–	–
Weight. Degree	–	–			–	–			0.40***	0.10	–	–
Closeness	–	–			–	–			–	–	0.29*	0.12
Years of exp. ¹	–	–	0.02**	0.01			0.02**	0.01	0.02** ¹	0.01	0.03***	0.01
AIC	415.12		398.32		414.18		397.20		391.86		399.72	
BIC	427.08		413.10		426.15		411.98		406.54		414.50	

Note: * < .05; ** < .01; *** > .001

¹ Coefficient for the year of experience is not standardized.

Tables 7 and 8 address our second research question. Table 7 presents standardized means for the variables of interest for first and second career teachers. SCTs had smaller standardized means for all of these variables.

Table 7. Standardized means FCTs and SCTs by schools

	FCTs (<i>n</i> = 83)	SCTs (<i>n</i> = 64)
Work socialization	0.11	-0.13
Weighted degree centrality	0.05	-0.12
Closeness centrality	0.07	-0.10

Table 8 presents the results for several models. In model 5, we entered weighted degree centrality and years of experience as independent variables and teachers' work socialization as the dependent variable. This model was run separately for first career teachers (model 5) and second career teachers (model 5a). Models 5 and 5a showed that weighted degree significantly predicted teachers' work socialization for both first and second career teachers, but with a much higher standardized coefficient for second career teachers. Years of teaching was a significant predictor for first career teachers, but not for second career teachers.

Second, we entered closeness centrality and years of experience as independent variables and teachers' work socialization as the dependent variable. This model was run separately for first career teachers (model 6) and second career teachers (model 6a). Models 6 and 6a showed that closeness centrality significantly predicted teachers' work socialization only for second career teachers. The standardized coefficient for closeness centrality was close to the standardized coefficient for weighted degree centrality in the case of second career teachers. Years of teaching was significant for first career teachers, but not for second career teachers.

Table 8. Multilevel model estimates (FCTs / SCTs) predicting teachers' work socialization

	Model 5 (FCTs) (<i>n</i> = 81)		Model 5a (SCTs) (<i>n</i> = 61)		Model 6 (FCTs) (<i>n</i> = 81)		Model 6a (SCTs) (<i>n</i> = 61)	
	β	SE	β	SE	β	SE	β	SE
Weighted Degree	0.33**	0.11	0.54**	0.18	–	–	–	–
Closeness	–	–	–	–	0.13	0.15	0.48**	0.18
Years of exp. ¹	0.02**	0.01	0.01	0.01	0.02**	0.01	0.02	0.01
AIC	218.21		189.31		223.76		191.32	
BIC	230.19		199.87		235.73		201.87	

Note: * < .05; ** < .01; *** > .001 FCTs = first career teachers SCTs = second career teachers.

¹ The coefficient for years of experience is not standardized.

To end this results section and as an evaluation of our second objective, Table 9 presents a comparison between the estimates from our MMSNM and regular linear regression for the last models presented (models 5, 5a, 6, and 6a). This comparison showed similar results and interpretations for some of the estimates, but showed important differences, too¹. Using linear regression would have led to interpretation errors regarding the coefficient and the significance of closeness centrality in Model 6. Overall, linear regression seemed to increase the value and significance of the coefficients compared to MMSNM, leading to some possible misinterpretations.

¹ The same picture was seen for the other MMSNM reported in the results section.

Table 9. Comparison of MMSNM and regular linear model estimates

	MMSNA				Regular linear model			
	5	5a	6	6a	5	5a	6	6a
	β	β	β	β	β	β	β	β
Weighted Degree	0.33**	0.54**	–	–	0.39***	0.54**	–	–
Closeness	–	–	0.13	0.48*	–	–	0.29*	0.48**
Years of exp. ¹	0.02**	0.01	0.02**	0.02	0.02**	0.01	0.03**	0.02

Note: * < .05; ** < .01; *** < .001.

¹ The coefficient for years of experience is not standardized.

5. Conclusion and discussion

We began by presenting the contradiction between the actual trend of recruiting second career teachers and their high attrition rate, notably due to the complexity of their induction process. One explanation for this complexity is related to the lack of professional interactions and consequently the lack of social capital that they experience. The first objective of this study was to obtain new insights into the importance of social capital for teachers' work socialization, especially in the case of second career teachers.

Because of the social embeddedness of social capital, we used a social-network approach to operationalize social capital, extracting measures of degree centrality and closeness centrality from whole-school professional networks. The lack of statistical procedures for using individual network-based data (such as individual social capital) as predictors of individual continuous variables has forced researchers to address their research questions with methodological limitations related to the interdependence between their network data. The second objective of this study was to provide a transparent and replicable methodological procedure to predict individual outcomes with network-based individual data.

First, our results showed that, as measures of social capital, the number of professional interactions (weighted degree centrality) and the ease of access to colleagues (closeness centrality) were both predictors of teachers' work socialization for the total sample. Years of teaching experience also predicted teachers' work socialization. Carrying out these analyses separately for first and second career teachers, we highlighted that, generally speaking, social capital seemed more important in the work socialization process for second career teachers than for first career teachers. The relationship of closeness centrality with teachers' work socialization was significant only for second career teachers. This means that the ease of access to colleagues seems to be more important for SCTs. In the separate models for first and second career teachers, we showed that years of teaching experience was only significant for first career teachers. Second, our results showed that the multiple membership multiple

classification social network model was more accurate than a simple linear model and that the results differed between the MMSN and the linear model.

5.1 Theoretical implications

First, our results clearly show the importance of social capital for teachers' work socialization. This is in line with current trends in the literature presenting the importance of peers for developing in the teaching job (Baker-Doyle & Yoon, 2020; Colognesi et al., 2020; Lecat et al., 2018; Moolenaar, 2012; Penuel et al., 2012; Thomas et al., 2020). The number of professional interactions proved to be a strong predictor of teachers' work socialization. This confirms that the more teachers have work-related discussions, the more they evolve professionally (Daly et al., 2020; Grangeat & Gray, 2007; López Solé et al., 2018). Results were less clear when operationalizing social capital through closeness centrality. For first career teachers, closeness centrality did not significantly predict work socialization. The relation was positive though. We could postulate that because they have enough direct interactions to fulfil their needs, they do not need central positions to give them easy access to indirect colleagues (i.e., colleagues reachable through other 'more direct' colleagues).

Second, this importance of social capital is even more true for second career teachers. The impact of professional interactions was stronger for second career teachers than for first career teachers. Similarly, the ease of access to colleagues for professional interactions was only significant for second career teachers. This confirms previous studies stating that collegial dynamics are of extra importance for second career teachers (Csíkos et al., 2018; Lee, 2011). It also shows that being in the periphery of the network (i.e., being socially distant from colleagues) has a negative impact on the work socialization process. Following Pérez-Roux and Lanéelle (2013), we can postulate that because of the fast alternative certification program they pass through, or the absence of pedagogical certification, their work socialization process is mainly an "on-the-job" workplace learning process that requires professional interactions and collegial dynamics around them. SCTs benefit from access to direct colleagues as well as easy access to indirect colleagues in order to develop as teachers.

Third, given this extra importance of social capital for the work socialization of second career teachers, descriptive statistics (see Table 7) that identify them as having lower social capital scores and subsequent lower work socialization scores must open our eyes to this critical situation. Our results confirm that second career teachers are more isolated than first career teachers (Coppe, März, & Raemdonck, 2021) and they highlight how this situation can have a negative impact on their work socialization.

5.2 Methodological implications

This study provides a transparent and replicable methodology to use social network data as a predictor of continuous individual outcomes. By doing so, we hope to reduce the existing gap in the social-network literature regarding the lack of statistical procedures for using social network data as predictors of individual outcomes. The methodological procedure we

presented enables researchers to explore socially-embedded phenomena (such as teacher development) while considering the entire network in which they take place. As such, by nesting teachers in teachers' ego networks for the whole school, we were able to control for the dependence of network observations.

As shown by comparison between estimates in the MMSNM model and single-level regression model, the single-level regression model seemed to increase the value and significance of the coefficients. Thus, considering the dependence of observations at the level of the ego networks made it possible to avoid misinterpretations and type I errors.

5.3 Limitations

Certain limitations must be kept in mind regarding this study. First, we aimed to tackle the autocorrelation dependence between network observations. We were not interested in controlling for other types of dependence such as the contagion effect or reciprocity effects, which are related to other research questions than those addressed in this study. For example, we did not try to "explain" the formation of the network, we just took it as a given. Second, the model presented called for entering the school at level 3. As our sample included only two schools, we were not able to consider level 3. Increasing the sample size would make it possible to enter the school at level 3 and to refine the results highlighted in this study. Third, we attributed the maximum membership-weight to teachers for their own ego network, which makes sense theoretically but could be arguable. Fourth, because of the homophily issue we described in the data analysis section, we ran separate models for first and second career teachers. Therefore, we were unable to report inferential tests to support the generalization of the differences we found between these two subgroups of teachers. Fifth, it should be noted that the variable "years of experience" could be constructed to take into account not only seniority in the profession (which is what we did), but also seniority in the school currently attended. Given the way we worked with the concept of teachers' work socialization, such a variable could have a distinct pattern from seniority in the profession. Finally, in our measures of social capital we weighted the ties with their frequencies, and it could be argued that the quality of ties should also be considered (Siciliano, 2016).

5.4 Practical implication

Opening school doors more and more to second career teachers requires taking the time to think about their work socialization process in order to keep them in the profession. In this study, we showed that a key factor in this process is the availability of social capital through interactions with peers. As noted by Rose and Sughrue (2020), school principals may not be aware of the importance of social capital for meeting the specific needs of second career teachers. Because second career teachers develop their competencies and familiarize themselves with the job mainly directly "on the job" (Perez-Roux & Lan  lle, 2013), the responsibility to support their work socialization falls to the school (Rose & Sughrue, 2020). Yet, second career teachers do not receive special "on-the-job" training or support (OECD, 2021), which represents a major issue to address. More generally, given the importance of

building strong social capital for both first and second career teachers, principals could turn to distributed mentorship practices (März & Kelchtermans, 2020). Through the measure of closeness centrality, representing the ease of access to indirect colleagues, our results showed that the peripheral positions held by second career teachers in their school professional networks can have particularly negative effects on their work socialization process. As shown in a previous study (Coppe et al., submitted), having few opportunities to ask and to share during work-related discussions represents a substantive problem for second career teachers' professional development.

Chapter 6

General discussion

General discussion

1. Introduction

In the General Introduction of this thesis, we started with an overview of the three key issues that guided this doctoral research. First, we have argued that when we compare the current increase in the number of novice SCTs with their low retention rate, it is evident that we need to reflect on their retention. Second, we identified a lack of research that could allow us to understand this attrition phenomenon among SCTs. Most research on retention issues focused on first career teachers, but earlier studies already showed that SCTs' realities are not the same as first career teachers. Third, we postulated and justified that in order to understand SCTs retention, we need to take a look at their entry process. More specifically, both their transition as their induction process were presented as key elements in SCTs entry process. We choose to focus our reflections on TVET schools in French-speaking Belgium as this context needs SCTs particularly and it represent a particular organizational context.

The objective of this doctoral research was to **untangle the entry process of SCTs in TVET schools**. This general objective has led to two overarching research questions that guided the different studies: (1) How can we describe and understand the heterogeneity with regard to SCTs' transition process (i.e., the first momentum of their entry process); (2) How do SCTs experience their induction process (i.e., the second momentum of their entry process) and why. We added two sub-objectives to answer the second overarching question: developing the concept of teachers' work socialization and clarifying the concept of social capital for understanding SCTs' induction process.

Each chapter of the thesis is linked to one of the two overarching questions. They are either empirical chapters that directly sought to answer one of the questions partially or entirely, or theoretical(/methodological) chapters that sought to lay the foundation for empirical chapters. In chapter two, we reported an empirical study that sought to answer our first overarching question. In Chapters 3, 4, and 5, we reported conceptual, methodological, and empirical studies that aimed to answer the second overarching question. More specifically, chapters 3 and 4 were conceptual/methodological contributions, and chapter 5 reported two empirical studies.

In this final chapter, we outline how the various studies contributed to addressing the objectives of this doctoral research. In the following sections, we first examine the insights given by this doctoral research on the first momentum of the SCTs' entry process. We present key results, theoretical contributions, and practical reflections related to the study reported in Chapter 2. Second, we examine the second momentum of the SCTs' entry process. For the second momentum, we start by reflecting on the theoretical developments of the concepts of teachers' work socialization and social capital. Then, we focus on the work socialization experience of SCTs. We present key results, theoretical contributions, and practical implications of the studies reported in Chapter 5. Third, we outline the limitations of this

doctoral research. Fourth, we discuss how our epistemological posture has shaped this doctoral research and its consequences. Finally, we shed light on the key messages of this doctoral research as a concluding section.

2. The first momentum: The importance of recruitment strategies in line with successful induction experiences

To study the first momentum of SCTs' entry process, we considered that the career transition of SCTs is determined by pull factors, that are their motivations to enter teaching; push factors, that is their prior job satisfaction; and personal resources, that is their career adaptability. We postulated that considering the heterogeneity of SCTs' transition stories through these three aspects of their transition can make the heterogeneity of SCTs entry profiles visible and give insight into different induction experiences.

2.1 Key results

In the study reported in chapter 2, we identified and described the heterogeneity in profiles of SCTs making the transition into TVET school on the basis of these three different aspects. For this profiling, we first used a person-centered quantitative approach using latent profiles analysis to discover the number and patterns of the profiles existing among SCTs. Second, we followed a qualitative multiple case study design to deepen our understanding of the profiles. Finally, we explored to what extent different profiles predict different teacher self-efficacy beliefs as a way to operationalize different induction experiences.

We presented a typology of SCTs' transition stories and the relation between SCTs profiles and an outcome variable referring to the success of their transition. Our analysis revealed three different profiles based on the entry-related variables we took into account. Considering the pattern in their scores for opportunity, intrinsic motivation, perceived ability to teach, social utility motivations, personal utility motivations, career adaptability, and prior job satisfaction, and the qualitative interview, we labeled them the "Finally found my calling" profile, the "Newly convinced profiles, and the "maladaptive" profile. We found significant and meaningful differences between the profiles in terms of self-efficacy score and a relevant means classification regarding how our profiles are related to a successful transition. The "Finally found my calling" profile predicts the most successful career transition, followed respectively by the "Newly convinced profile" and the "Maladaptive" profiles. Our interview with the participant from the "Maladaptive" profile revealed that she decided to partially left the teaching profession (part-time) as the complexity of the teaching job was not aligned with her expectations.

2.2 Theoretical contributions

Through this study, we have confirmed that it is necessary to consider the heterogeneity of SCTs' profiles, as previous works showed (Berger & D'Ascoli, 2012; Tigchelaar et al., 2010). Indeed, the fact that different profiles exist and differ in terms of self-efficacy beliefs,

suggests that the reasons for the professional transition to teaching and their ability to make this change can impact the success of their professional transition and their induction experience. Additionally, our study also confirmed that SCTs' choice to join the teaching profession is driven mainly by a sort of calling, a "sense of mission" (Tigchelaar et al., 2010, p. 168) as our most represented profile is a vocational profile. Finally, we showed that push factors were important in the decision to join the teaching profession for our three profiles. Even the "Finally found my calling" profile, who showed the strongest "positive" motivations to become teachers, experienced an event that made them leave their previous job. This result was also suggested by Anthony and Ord (2008), who highlighted that the need to leave a previous occupation is an important part of the professional transition of SCTs. However, for the 'finally found my calling profile' and 'newly convinced profile', these push factors combine with pull factor and the choice for the teaching profession was not done randomly.

As an answer to the question "How can we understand the heterogeneity among SCTs regarding the first momentum of their entry process?", our study showed that there are at least three entry profiles of SCTs and that certain profiles are more likely to make a successful professional transition to teaching. Indeed, the 'finally found my calling' profile, characterized by intrinsic motivations, social utility motivations, in-depth reflection on the choice of becoming a teacher, and the ability to make a professional transition, seems to face the entry into teaching with greater ease than the other two profiles. On the contrary, for the 'maladaptive' profile, the transition is experienced negatively, and the adaptation to this new career is very uncertain. This negative experience can be understood with the hypothesis that their reasons for choosing the transition are not compatible with the realities of the teaching profession, as suggested by many studies using the FIT-choice model (Alexander et al., 2020; Bilim, 2014; Watt & Richardson, 2014). While these teachers of the third profile are looking for job security, light workloads, and work schedules that are compatible with family life, they find themselves confronted with an entirely different set of realities as they make their first steps into their new professional role. These realities do not fit their expectations of the teaching profession. Echoing Kelchtermans (2017) about the attrition/retention phenomenon, it is probably fair to say that this is not a problem if these teachers leave the teaching profession. Without arguing that entering teaching with the 'wrong' motivations implies being a 'bad' teacher, we can nevertheless say that if the teachers in this third profile leave teaching, it is not for wrong reasons, and their turnover could be considered as better for both the school as for themselves. Thus, their attrition would not be considered a problem (Kelchtermans, 2017). The problem comes from elsewhere. For these teachers, while leaving the profession has not to be regarded as problematic, having them in the first place in the teaching profession could be the problem, as we detail in the practical implications.

2.3 Practical implications

The results we presented in Chapter 2 lead us to state that reflections on attraction must be accompanied by reflections on retention. It is necessary to acknowledge that policies for

recruiting and attracting SCTs cannot be limited to presenting idyllic stories of professional reconversions to teaching. They must also consider the realities of the profession and warn against certain preconceptions that justify 'wrong' motivations for joining the teaching profession. The risk is to attract candidates for whom the match with the teaching profession will be a mismatch. French-speaking Belgium is an example of such problematic recruitment strategies. Below we present quotes from two of the six presentations available on the main page of the "Pourquoi pas prof." [Why not a teacher?] website, which serves as a campaign to promote the teaching profession. This page presents SCTs' stories.

A real quality of life – you have freedom in the organization of your work "outside the classroom", which facilitates the balance between private and professional life. Having a rhythm similar to the rhythm of your children, planning your work independently, having time during vacation periods to rest, ... all this offers great flexibility in your schedule. (Pourquoipasprof.be, s.d., free translation).

There is no job crisis in teaching, and young people are waiting for you! Many courses are even declared "in short supply" (...). After a few years of temporary contracts, teaching allows you to obtain a permanent contract, which guarantees excellent stability over time. Will we see you in classrooms soon? (Pourquoipasprof.be, s.d, free translation).

One-third of the arguments presented in this recruitment campaign emphasizes time for family life, vacation time, and job security. All of these represent undesirable motivations in terms of outputs for the teaching profession (Bilim, 2014; Follens-Bruinsma & Canrinus, 2012; Watt & Richardson, 2014). Moreover, emphasizing and legitimizing these motivations for joining the teaching profession is to risk that an increase in attractiveness will give way to a rise in SCT attrition by attracting a profile of teachers who are not destined to remain in the profession. Recruitment campaigns should rather show how experienced acquired in other professions, and suitable entry profiles can contribute both to the school and to become accomplished SCTs.

We should note that even though this recruitment campaign has been widely publicized since 2019 (cinema, radio, web, etc.), only 10% of our sample matched the profile corresponding to the 'wrong' motivations. We can hypothesize that this 10% is an underrepresentation of the actual proportion of teachers with the 'maladaptive' profile. Indeed, our sample includes a large proportion of teachers who have already passed their induction period (> 5 years of teaching experience). In this part of the sample, the 'maladaptive' profile is likely under-represented since it is probable that most teachers with this profile do not stay more than a few years in the teaching profession.

With the conclusions of this study, we do not want to take a normative view that would push to exclude potential candidates who show certain motivations less compatible with the realities of the teaching profession than other types of motivations. Nevertheless, we think it is essential to focus particularly on the characteristics of 'positive' SCT profiles in the recruitment campaigns and strategies. These characteristics include, at a minimum, motivations for social utility, an intrinsic appreciation of the teaching profession, and a perception of being able to teach and adapt to this new professional role. Should these

recommendations be followed, it should lead to attracting the most suitable candidates to become SCTs, or at least the ones who will not leave because of misconceptions about the profession. Our conclusions raise also implication for SCT training programs. SCT preparation must invite SCTs to reflect upon the reasons why they decided to become teachers, and identify their pull, push factors and personal resources. Being reflective about their own entry profiles could make them adapt their perceptions about the teaching profession or/and recognize that maybe it is not a career path for them.

3. The second momentum: A complex process that should be socially supported

To study the second momentum of SCTs' entry process, we pass through two main steps representing two different types of studies. First, we developed our theoretical understanding of teachers' work socialization process. To this end, we developed the teachers' work socialization scale (Chapter 3), we critically reflected on the concept of social capital (Chapter 4) as we argued that the teachers' work socialization process is mainly socially-embedded, and we emphasized the bidirectionality of this process (Chapter 5, part 1.). Second, we empirically analyzed the work socialization of SCTs in TVET schools through two empirical studies (Chapter 5). In this section, we first retrace our theoretical understanding of the teachers' work socialization concept, and we highlight the contributions of the theoretical developments proposed in this thesis. Then, we present the key results, the theoretical contributions, and the practical implications of our empirical studies.

3.1 Teachers' work socialization: synthesis and theoretical contributions

The development of the concept of teachers' work socialization proposed in this thesis is rooted in current trends in teacher induction research that are particularly relevant to the study of the induction of SCTs. These trends invite us to consider the induction as a multidimensional, bidirectional, and social process and, in doing so, highlight the importance of considering the work context in the socialization process (Chao, 2012; Korte & Lin, 2013; Özdemir & Ergun, 2015; Tang, Cheng, et al., 2016), namely the school organization (März et al., 2019; Tang, Wong, et al., 2016). Therefore, we decided to nourish the teacher induction literature with another field of research emphasizing these trends for many years, namely the organization studies. Through the concept of organizational socialization, organization studies have long focused on the elements that characterize the entry of novices into an organization, including the multidimensionality, the bidirectionality, and the social dynamic of this process (Wang, 2012).

We decided to name our concept teachers' work socialization and not teachers' organizational socialization. On the one hand, the concept of work socialization had already been stated in one of the studies that inspired our work (Martineau et al., 2009). On the other hand, the concept of organizational socialization has evolved over the years. Initially, organizational socialization was considered to be a process of enculturation into the

organizational culture of a company, with the objective of making this organizational culture sustainable. As such, organizational socialization was defined as “the process by which a new member adapts to the value system of an organization” (Schein, 1968, p. 53). The concept then evolved to identify all of the elements constituting the professional role in an organization (Chao et al., 1994). Some traces of this conceptual evolution remain. For example, Mukamurera defined organizational socialization only as a familiarization process to the organization culture and the school's workgroup. This definition excluded the learning of the teaching tasks, which she placed under the concept of professionalism (Mukamurera, 2010). As such, Mukamurera's perspective on organizational socialization is similar to the first definitions of the concept and did not follow the evolutions of the concept.

Since our objective is to be holistic about the process of entering the school organization as a new work environment, we chose the terms teachers' work socialization to ensure that we were not referring only to a socialization process to the organization as it is sometimes the case when using the terms organization socialization.

3.1.1 About the multidimensionality: four dimensions

Regarding the multidimensionality of the teaching profession, in Chapter 3, we identified four dimensions that all require a process of work socialization. These four dimensions are entirely (Chao, 2012) or partially (Perrot & Campoy, 2009) reflected in previous work on socialization and emerged specifically for the teaching profession from both our literature review and our factor analyses. The first is the teaching tasks socialization. The first dimension is undoubtedly the most intuitive one. It is one of the aspects that has been the focus of educational research from a long time ago (Kelchtermans, 2019). For many years, research on teacher induction has shown the difficulties of novice teachers for classroom-related activities (Dicke et al., 2015). The second dimension is workgroup socialization. While having its solitary aspects in the classroom activities, the teaching profession is embedded in collaborative dynamics and an educational community within the school (Kelchtermans, 2006; Newberry & Allsop, 2017). Teachers are increasingly asked to become part of their school's educational community and operate in collegial dynamics (Dupriez, 2010; Kearney, 2015). The third dimension is the micro-political climate socialization. Informal power dynamics are also part of the mechanisms that structure the teaching profession within the school context (Kelchtermans, 2006; Kelchtermans & Vanassche, 2017; Tang, Chang, et al., 2016). Finally, the fourth dimension is organization socialization. Teachers enter a school organization with its own culture that they need to become familiar with (Cherubini, 2009). This is a process of enculturation (Feiman-Nemser, 2003).

The study we presented in Chapter 3 of this thesis is the first to develop a contextualized multidimensional work socialization scale for the teaching profession. Our scale shows good psychometric properties (for both first and second career teachers, and both novice and experienced teachers) and promising results in terms of predictive power.

3.1.2 About the bidirectionality: learning and being recognized

In the first study reported in Chapter 5, we highlighted that work socialization is not only a process of familiarization with the multiple dimensions of the teaching profession but that it is also a process of recognition of the novice's own skills and expertise. The context and the colleagues must provide this recognition to the newcomers. Research on organization socialization has long emphasized the importance of considering the expertise of novices, both because their skills are resources for the organization and because recognizing them in their specific expertise participates in their socialization process (Saks & Ashforth, 1997).

The teacher induction research highlights this need for recognition in an emerging trend (Kelchtermans, 2019). In response to many years of research on the 'deficits' of novice teachers, this trend of research has sought to take distance from a so-called 'deficit approach' (Correa et al., 2015). This trend of research highlights, alongside research from the field of organizational socialization, that recognizing the expertise of novice teachers is essential in their socialization process within their schools (März & Kelchtermans, 2020; Ulvik & Langørgen, 2012).

This perspective is more and more present in research on first career teachers, and we believe that taking this view is even more critical in the case of SCTs. Indeed, they are 'experienced-newcomers' and have a background that is important to recognize (Cooper-Thomas et al., 2011). Several studies on SCTs showed that SCTs reported being frustrated by the lack of consideration given to their professional experience and specific skills and expertise (Nielsen, 2016; Ruitenburg & Tigchelaar, 2021; Varadharajan et al., 2019). Thus, to the multidimensional aspect that we had developed in Chapter 3, the first part of Chapter 5 added the aspect of bidirectionality, seeking both to analyze the conditions that allow SCTs to become familiar with the teaching profession but also to be recognized in their expertise as it is essential for their retention.

3.1.3 About the social aspect: Having access and being part of the social capital

In the two studies reported in Chapter 5, we have specifically developed the social aspect of the work socialization process of SCTs. We highlighted, following other authors, that informal interactions in the workplace are a lever for both job familiarization and recognition (Fang et al., 2011; Jokisaari & Nurmi, 2012; Korte & Lin, 2013; Pogodzinsky, 2012). Newberry and Allsop highlight the critical importance of these interactions:

For as much as we recognize teaching as a service profession, the one area that may be overlooked is the human nature of those who work in it and their need to belong, be included, be supported, and loved, as much as those they serve. All else can combine, yet when people band together they prevail. When they are left to their own devices, they fail. (2017, p. 876)

Thus, we have developed the idea that the novice teacher's professional network allows them to learn the ropes of the profession as well as to be recognized for their specific expertise. If interactions in the workplace are important, it is because they represent

resources, a form of capital called network-based social capital (Lin, 2008). Thus, the bidirectionality of the process of work socialization refers, on the one hand, to having access to social capital and, on the other, to being part of the social capital of the school workplace.

As interactions with peers seems to be particularly essential for SCTs socialization (Csíkos et al., 2018), in Chapter 4, we discussed this notion of social capital in detail. We have highlighted that social capital is a concept that has somewhat become blurry through its historical development. We have shown that two overarching conceptualizations coexist: individual social capital and collective social capital (Son, 2020). These two conceptualizations are sometimes considered incompatible since they refer to two very different realities (Rostila, 2011; Tzanakis, 2013). Individual social capital is the prevailing notion in research on teachers using the concept of social capital (Baker-Doyle, 2012). Nevertheless, it is not rare that studies mix the individual and the collective social capital perspectives. We highlighted that this mix of these two conceptualizations under the umbrella concept of social capital can be problematic and constitutes a loss of meaning of the concept of social capital, as has been shown in other disciplines using this concept (Fine, 2010; Portes, 2000).

The most common mistake made is that individual social capital is used as a definition and operationalization of the concept is a mix of individual and collective social capital measures. Such practices are problematic as they can lead to tautological statements, and collective and individual social capital can exist both with and without each other. Mixed use of individual and collective social capital under the same umbrella concept social capital has been under criticism for a long time (Lin, 2008; Son, 2020; Tzanakis, 2013; Woolcock, 2010). Therefore, we recommend authors make explicit if they use individual and/or collective social capital and align their conceptualization with the way they define and operationalize the concept. In cases where individual and collective social capital are measured in the same study, we suggest that authors clarify the research objectives and position of each of the main concepts in the theoretical model.

For what concerns the measurement of individual social capital, we encourage researchers to measure not only the quantity of teachers' social interactions. Some interactions could have negative consequences, referring to the dark side of social capital (Rostila, 2011). To be able to make these negative interactions visible, we need also to understand the content of the interactions. Are they helpful? Do they represent opportunities to develop? Or on the contrary, are they stressful? Do they represent barriers to make own choices? Therefore, we need to go beyond the quantity and grasp the interactions' quality and meaning. A promising avenue to this end is to combine quantitative (quantitative social network approach) and qualitative (qualitative social network approach, interviews, and observation) research methods (i.e., mixed methods social network analysis). In this perspective, MMSNA is a promising area (Penuel et al., 2009).

3.2 The teachers' work socialization process of SCTs

Chapter 5 presents two empirical studies that focused on the social dimension of SCTs' work socialization process. Both of these studies built on the fundamental idea that the facilitating conditions for the SCTs' work socialization process are social conditions. In the same way that Newberry and Allsop presented it, we strongly believe that:

(...) that is not necessarily the challenges of the field, nor the characteristics of the individual that determine if one stays or leaves; it is the structure of the social-professional support. It appears that a combination of difficult elements in a high intensity situation, will only result in a departure if there are not strong social-professional relationships intact (2017, p. 876)

With adequate support through collegial relationships that are personally and professionally significant, we believe that many more teachers may be able to enjoy a longer, more successful teaching career. And in the end, that is a benefit to the schools and children alike" (2017, p. 877).

Therefore, Chapter 5 empirically interrogated these social conditions under which novice SCTs enter the teaching profession, specifically in the context of TVET schools.

3.2.1 Key results

In the first study reported in chapter 5, we showed that SCTs are mostly relegated to the periphery of their school's professional network. The departments formed by a majority of SCTs are therefore poorly connected to the rest of the school and are not part of the core of the school. This type of informal organizational configuration has been described as inhibiting the potential for relationships among teachers (De Lima, 2007). In contrast, the department of first career teachers are highly connected to each other and forms a dense network that shapes the core of the school.

As a result, novice SCTs experienced difficulties in both directions of their socialization process. They had few opportunities to talk with colleagues to learn the ropes of the profession and share and be recognized for their own expertise. They felt isolated professionally, and they were frustrated that the expertise they could bring to their colleagues and school remained untapped. SCTs reported having to make a lot of effort themselves to connect with colleagues.

Interviews conducted with novice SCTs provided insight into the reasons to understand this isolation. SCTs described themselves as carrying a double stigma. First, they are 'second career' teachers and therefore not truly considered and recognized as real teachers by their colleagues. Second, they teach TVET courses. They are therefore considered 'less' than their first career counterparts teaching courses in the schools' academic programs. As such, it is visible that the problem is twofold: a lack of recognition for SCTs and a lack of valorization for the TVET programs and the teachers who teach in these programs.

In the second part of Chapter 5, we focused on the influence of social capital on SCTs' work socialization. Our results show that, as measures of social capital, both the number of professional interactions (weighted degree centrality) and ease of access to colleagues (closeness centrality) are predictors of teachers' work socialization for our total sample regrouping first and second career teachers. Conducting these analyses separately for first and second career teachers, we found that social capital appeared to be more critical in the work socialization process of SCTs than for first career teachers. In particular, the predictive relation between closeness centrality and teachers' work socialization was statistically significant only for SCTs. This means that the ease of access to indirect colleagues (colleagues that one's could reach through other direct colleagues) appeared to be more important for SCTs than for first career teachers. Furthermore, our results showed that SCTs had less social capital (for both degree centrality and closeness centrality) than first career teachers, confirming the results reported in the first part of Chapter 5.

3.2.2 Theoretical contributions

In response to the question « How do SCTs experience the second momentum of their entry process and why? », our results showed that this is a complex and challenging process that is mainly experienced with negative feelings, and that this difficulty is intrinsically linked to the isolation that SCTs experience in their school workplace.

Our results echo previous studies that highlighted both SCTs' feelings of isolation (Brindley & Parker, 2010) and their frustration of not being recognized for their specific skills (Wilkins & Comber, 2015). These different elements participate in SCTs experiencing a challenging work socialization process (Perez-Roux, 2011; Ruitenburg & Tigchelaar, 2021). These results offer new insights regarding studies postulating that because they have professional experience, SCTs will act proactively to become fully integrated into their school and, as a consequence, their induction process could be facilitated (Wilkins & Comber, 2015). Our results refute this hypothesis. Even if SCTs seemed to act proactively and showed agentic behavior in trying to build their professional network, this did not allow them to overcome the mechanisms (organizational structure, double stigma) that isolate them.

Our results also showed that these interpretations are related to the specific context investigated in this doctoral study, namely TVET schools. This is in line with previous work presenting TVET schools as loosely coupled organizations (Paulsen, 2008), which implies, therefore, a fragmentation of the internal professional network and possible isolation of teachers (De Lima, 2007). Furthermore, following previous studies showing the consequences of the fragmentation of schools' professional networks (De Lima, 2007; Hodgkinson & Hodgkinson, 2010), this leads us to believe that the specific context of TVET schools does not support the work socialization process of SCTs.

Regarding the impact of social capital on teachers' work socialization process, our results support current trends in the literature presenting the importance of peers for teacher induction (Baker-Doyle & Yoon, 2020; Colognesi et al., 2020; Moolenaar, 2012; Thomas et al., 2020). Furthermore, the extra importance of social capital for SCTs confirms previous

studies highlighting that the collegial dynamics are essential for SCTs (Csíkos et al., 2018; Lee, 2011).

3.2.3 Practical implications

The results presented in the two studies reported in Chapter 5 raise several practical implications. First, we strongly argue for the strengthening of SCTs' professional network and the provision of more opportunities for novice SCTs to become part of the school's social fabric (Moolenaar, 2012). Encouraging and creating informal meeting environments that bring together the different subgroups of teachers could recouple the internal organizational structure of schools. These informal environments could also aim to bring forward the expertise that each teacher can share with colleagues, shedding light explicitly on how first and second career teachers can be resources for their peers. As noted by Rose and Sughrue (2020), school principals may not be aware of the importance of social capital for meeting the specific needs of second career teachers. Because second career teachers develop their competencies and familiarize themselves with the job mainly directly "on the job" (Perez-Roux & Lanéelle, 2013), the responsibility to support their work socialization falls into the hands of the school (Rose & Sughrue, 2020). Yet, second career teachers do not receive special "on-the-job" training or support (OECD, 2021), which represents a major issue to address. More generally, given the importance of building strong social capital for both first and second career teachers, principals could turn to distributed mentorship practices (März & Kelchtermans, 2020).

Second, SCTs need to feel recognized for their prior professional experience. As Ruitenburg and Tigchelaar highlighted, the "lack of recognition [of SCTs] has a boomerang effect on general school development. However, fortunately, the reverse is also true: Recognizing what SCTs need and have to offer may foster teacher quantity, teacher quality, and school development more generally" (2021, p. 12). We believe it is necessary to make principals and teachers aware of the importance of SCTs so that they do not feel relegated to the bottom rung of the social pyramid at school.

Third, we showed that TVET schools tend to function following a loosely coupled organizational structure. Consequently, teachers or entire subgroups may be isolated from the core of the school, and SCTs experience a dual stigma due to their TVET course teacher status combined with their SCT status. To resolve that situation, principals of TVET schools have human resource management responsibilities to bring teacher subgroups together and cultivate a culture of openness in which SCTs are recognized as real teachers. In the recommendations of the "Pacte pour un enseignement d'excellence" [Pact for excellence in teaching], schools are invited to reflect on their collegial dynamics. We think that this aspect should be seriously taken into account by TVET schools as these workplaces are particularly in need of densifying their whole school network.

The alternative entry routes for TVET course teachers are common in many countries (Grollmann, 2008), and SCTs have a more than legitimate claim to teacher status. This need for legitimacy has also implication at the macro level (i.e., political level). In educational

policies and policy discourses in French-speaking Belgium, SCTs are often considered as alternative to first career teachers. Indeed, they are presented as alternative teachers to tackle the teacher shortage. When referring to them, political discourses are often directed toward a solution for the teacher shortage. The CAP (training program for SCTs) is not included in the current reform of the teacher training. This program is perceived as an alternative program. If the policy discourses do not give them the teacher status, it is likely that the principals and the other teachers do not perceive them as real teachers as well.

4. Limitations

Reading this thesis, apart from the specific limitations highlighted in each empirical chapter that we will not detail here again, the readers should be aware of certain limitations related to the entire doctoral research process.

First, our analysis of the SCTs' experiences of their work socialization process is based on data collected in three schools (2 schools for each of the studies reported in Chapter 5, one school was used in the two studies). While it represents a significant number of teachers, it only represents three different school contexts. As such, we should be careful when thinking about the generalization of the conclusions of this doctoral research for the socialization experience of SCTs. Our two empirical studies represent in-depth case studies of three organizational contexts rather than studies based on a statistically representative part of the population of SCTs. Even though, we believe that our results are transferable to similar organizational contexts and that they are insightful to understand the socialization experience of SCTs.

Second, we could have been used longitudinal designs in this doctoral research at least for two reasons. First, we stated that understanding the transition stories of SCTs is important to understand their socialization experience. As such, we presented three different entry profiles of SCTs and their impact on the teacher self-efficacy as a measure related to their successful transition. It would have been interesting to follow the profiled SCTs during their first years of experience in the teaching profession to analyze the actual impact of these profiles on their socialization process. As we decided to take an organizational entry point to analyze the work socialization process of SCTs, the design of such follow-up was difficult to manage. The 262 profiled SCTs in the first study were likely working in dozens of different schools, and we would not be able to capture the socialization process of this sample of teachers through such amount of whole school networks. Second, we defined the teachers' work socialization as a process. It means that it is a phenomenon evolving through time. It could have been interesting to grasp the whole school networks at a different measurement time to analyze how the position of novice SCTs is evolving through time and understand the reasons for these potential changes. Such longitudinal network study could be used in further research on the social dimension of SCTs' work socialization process.

Third, one of our conclusions is that SCTs suffer from a dual stigma: being SCTs and being TVET course teachers. This dual stigma makes them feel isolated and unrecognized

because of their lack of interactions with colleagues. These interpretations are only based on the voice of SCTs but also imply first career teachers and school principals per se. It could have been interesting to hear the voices of first career teachers and school principals about how they perceive SCTs. Future studies on SCTs could include these actors as participants to better understand this phenomenon of stigmatization and isolation.

Fourth, we would have been happy to explore how SCTs can be resources for their school development. While the literature presents a discourse of SCTs as added-value for schools, this remains empirically poorly investigated (Wilkins & Comber, 2015). Understanding how and to what extent can SCTs be resources for their school could also improve our understanding of the conditions facilitating their work socialization. Future studies should explore this facet of the SCTs realities more. We are currently collecting evidence on this, but as doctoral research cannot be without time limitation, this study could not be part of the project.

Finally, and this is related to our first limit regarding the investigation of three organizational contexts, the Covid-19 pandemic situation started when we were still building collaborations with schools and before part of the expected data collection in several schools. It implied postponing data collections but more importantly, it jeopardized most of our collaborations with schools because school principals were busy and overwhelmed by the management of the crisis. As such, we lost at least three potential TVET schools that should have been part of our sample.

5. Epistemological pluralism: reflection on our epistemological posture

In the introduction of this thesis, we highlighted that we were in need of three different strands of research to untangle the entry process of SCTs: teacher motivation research, teacher induction research, and organizational socialization research. We articulated these three strands of research by two mechanisms from interdisciplinary research (Boon & Van Baalen, 2019): first, by ‘integrating’ teacher induction research and organizational socialization research into the concept of teachers’ work socialization; second, by ‘linking’ teacher motivation and teachers’ work socialization as a chronological articulation that we have called the first and the second momentum of the SCTs’ entry process. As teacher induction and organizational socialization research do not necessarily share the same epistemological paradigms — for the sake of clarity, in the General Introduction chapter, we simplified by associating teacher induction research with the constructivist paradigm and the organizational socialization research with the positivist paradigm —, integrating them into a new conceptual framework rooted us in an epistemological pluralism perspective per se (Miller et al., 2008).

Taking this perspective enabled us to go beyond literature on teacher induction and open our minds to another domain of research that was particularly relevant to reflect upon the SCTs induction, namely the organizational socialization research. Integrating these two

domains of research, we were able to define SCTs' work socialization process as a multidimensional, bidirectional, and social process. Even if we already had some insights pushing us in this direction from the teacher induction literature, we would not have been able to clearly define these three aspects and highlight the four specific dimensions in our scale development without being inspired by the literature on organizational socialization.

Consequently, we believe that taking an interdisciplinary research perspective is relevant to reflect upon complex phenomena and that it provides a way to nourish research domains. However, in the meantime, it takes time to integrate the concepts and these conceptual developments are intrinsically part of the research process. As such, the time given to these conceptual developments represents time not given to empirical research.

6. Where to go from here

While we enter this doctoral research by the door of the attrition issue of SCTs, there is still much more to do to completely understand the phenomenon and to propose systemic answers to support their retention. We have clearly shown that different SCTs' entry profiles imply different induction experience. We also have given a lot of insights to understand their complex work socialization process through a relational approach. From that, we formulated recommendations at the policy level (e.g., recruitment strategies), organizational level (e.g., principals' HRM practices), relational level (e.g., collegiality and support between teachers), and individual level (e.g., motivations, teacher training). Specific suggestions for future research related to the studies we conducted have been addressed at the end of the chapters. However, by taking different perspectives, several other aspects of the SCTs' realities could be examined, and we are certainly also in need to grasp them to reflect upon systemic and sustainable answers to tackle their high attrition. Below, we sketch some ideas on the themes that we have glimpsed through SCTs' interviews, discussions with politicians, or other interactions during the doctoral process. These could be interesting elements to consider in future research.

From a sciences of work perspective, it would be useful to analyze the importance of a salary increase for SCTs' corresponding to the seniority acquired in the previous profession(s). For now, SCTs can only valorize 8 years of seniority when they enter the teaching profession, but many of them worked for a longer period before their professional transition. The drop in salary resulting from their entry into teaching may be an unpleasant surprise that does not encourage them to stay. From a political sciences perspective, studying how other national contexts and their policies result in other regulation strategies for alternative entry routes to enter the teaching profession could bring new insights to understand the situation in French-speaking Belgium. Many countries (e.g., USA, UK) have explicitly integrated SCTs into the career pathways to become teacher for a long time. We could learn from studies proposing international comparisons. Finally, from an economic sciences perspective it is interesting to translate the massive attrition rate of SCT into a cost to society. From there, it would be then possible to think of sustainable investments in

interventions to support their entry into the profession and allow them to have viable conditions to follow a training program.

7. Conclusion

This thesis sought to untangle the entry process of SCTs in TVET school. Our results related to the first momentum of their entry process (i.e., their transition) highlighted three profiles of SCTs that are likely to experience different work socialization experiences: the ‘finally found my calling profile’, the ‘newly convinced profile’, the ‘maladaptive’ profile. The most at-risk profile (the ‘maladaptive’ profile) combined ‘bad’ motivations to enter the teaching profession and low personal resources to adapt to a new career. While the two other profiles seemed to be more successful in their transition, it is likely that teachers in this third profile do not remain more than a few years in the profession. Consequently, recruitment policies and strategies should avoid emphasizing arguments that attract SCTs candidates of this third profile and should focus on arguments corresponding to the more successful profiles. These recruitment strategies in line with the retention of SCTs are critical in this particular time when government are trying to attract more and more SCTs in the teaching profession to fill the gap created by the teacher shortage.

Regarding the second momentum of their entry process (i.e., the teachers’ work socialization). We showed that SCTs’ work socialization process is challenging as they enter an organizational context that is shaped by departmentalized organizational structure positioning SCTs in the periphery of the schools’ professional network. As such, they are isolated, and this situation jeopardizes their socialization process. Our studies showed that SCTs are in need of having access and being part of the social capital of their school in order to socialize into the teaching profession. We have shown that SCTs have higher needs than first career teachers in terms of professional interactions. Yet, SCTs are the teachers who are the less surrounded by a professional network. As more and more SCTs are entering into the teaching profession, it becomes critical to acknowledge this situation and to take measure to integrate the SCTs into the social fabric of their schools.

Bringing together insights from our understanding of the first and the second momentum of SCTs’ entry process, we are now convinced that these two facets are important to understand the huge attrition rate of SCTs. On the one hand, part of the phenomenon is likely due to misguided recruitment campaigns attracting SCTs who do not have motivations and perceptions of the profession fitting the teacher work. On the other hand, part of the phenomenon seems clearly related to the isolated position which does not enable SCTs to learn the ropes of the profession and to be recognized in their specific expertise and experience. As such, if even “good profiles” of SCTs are experiencing a difficult work socialization process, it is necessary to ensure that we attract the suitable profiles but also that we integrate them in the social fabric of their schools.

In addition to these contributions based on empirical studies, this thesis proposed theoretical and methodological contributions. We developed a four dimensions scale to

measure the work socialization of teachers, representing both theoretical and methodological contributions. We critically discussed the concept of social capital, offering a theoretical contribution about this concept. We showed the strengths of mixed-methods design through two studies combining quantitative and qualitative approaches, one approach preceding the other and vice versa. Finally, we presented a methodological and statistical routine for social network analysis through the multilevel multiple classification multiple membership social network model.

Through all this doctoral research are also reflected broader thoughts than those solely directed to the SCTs' realities. First, for novice teachers in general, the induction process goes beyond discovering the classroom practices and coping with student-related challenges. The teacher induction process must be considered with ecological approaches. It means that we need a holistic view of the reality of entering the school as a workplace if we want to grasp the real experiences of novice teachers. Second, novice teachers in general have something to share, something to bring to their schools. Research has to look beyond their rookie mistakes and beyond what they still have to learn to realize that they can also be resources for the school and how much this is important to be perceived as such for their work socialization process.

As a conclusive thought, we hope that this doctoral research will bring new theoretical and methodological insights for the teacher research and will represent foundations for future research on the SCTs' realities as they are definitively a part of the future of the teaching profession.

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**Appendices: Paper published in “Prof”,
a journal for practitioners**

Immersion dans le monde des enseignants de deuxième carrière

Cette rubrique invite un/des expert(s) à faire part d'un message jugé important dans le contexte actuel. Thibaut Coppe, doctorant en Sciences de l'éducation, s'intéresse à l'insertion des enseignants ayant eu auparavant une carrière hors enseignement.

La pénurie d'enseignants est un phénomène international dont souffrent particulièrement les sections d'enseignement qualifiant de la Fédération Wallonie-Bruxelles. En conséquence de cette situation émergent bon nombre de recherches scientifiques et de réflexions dans le chef des décideurs politiques au sujet du recrutement d'enseignants de deuxième carrière.

Une valeur ajoutée pour l'enseignement

Ces enseignants au profil particulier sont des professionnels ayant exercé dans un autre secteur que celui de l'enseignement et ayant décidé de réaliser une transition professionnelle vers celui-ci. Au-delà d'être considérés comme un levier d'action contre la pénurie, ils sont également décrits dans les écrits scientifiques, mais également dans les discours supranationaux comme une valeur ajoutée pour les systèmes éducatifs.

Ces enseignants sont ainsi présentés comme porteurs de connaissances de terrains spécifiques nécessaires à la formation des apprenants, comme modèles charriant les cultures professionnelles propres à leur champ d'expertise, ainsi que comme vecteurs d'amélioration du fonctionnement organisationnel de leur établissement scolaire. Bien que ce discours consensuel soit en faveur de leur importance pour nos systèmes éducatifs, peu de considération est accordée aux difficultés que ces enseignants ont à surmonter à l'entrée dans leur nouvel environnement de travail : l'école.

En effet, l'attention est particulièrement portée sur les raisons qui motivent leur transition professionnelle et cela se comprend puisque cela pose, en substance, la question de leur attraction et leur recrutement dans l'enseignement, ce qui répond directement au besoin créé par la pénurie.

Malheureusement beaucoup moins d'attention est portée à leur vécu des premiers pas dans leur nouvelle fonction, laissant dès lors

en suspens la question de leur rétention dans le métier.

Accrochez-vous : en Fédération Wallonie-Bruxelles, on estime que 59,06 % des enseignants de deuxième carrière étant entrés en fonction dans le courant de l'année scolaire 2014-2015 ont quitté l'enseignement en deçà des cinq premières années d'exercice. À titre de comparaison, ce sont seulement 26,6 % des enseignants de première carrière qui partagent cette situation pour cette même période. Ces chiffres sont alarmants et appellent avec urgence une réflexion portant sur la rétention de cette population particulière d'enseignants, ô combien essentielle pour notre système éducatif en Fédération Wallonie-Bruxelles.

Pour répondre à cette nécessité, la thèse de doctorat que je mène a été initiée en 2018, et est supervisée par Virginie März et Isabel Raemdonck. Cette contribution est l'occasion de partager certains des enjeux identifiés dans ces travaux, et de soumettre aux multiples professionnels de l'enseignement que sont les lecteurs du magazine *PROF* les réflexions et conclusions des recherches réalisées dans ce cadre. Ces recherches ont été majoritairement menées au sein d'écoles qualifiantes qui regroupent une grande partie de ces enseignants.

Titres et fonctions et les mystères de l'école

Si le taux d'attrition de ces enseignants est si important, ce n'est pas sans raison. Ils témoignent vivre de nombreuses difficultés lors de leurs premiers pas dans la fonction enseignante et ce, à différents niveaux.

Au niveau institutionnel, et donc lié au cadre régissant l'accès à la fonction enseignante, les enseignants de deuxième carrière novices ressentent une grande insécurité d'emploi. C'est source de beaucoup d'inquiétude et d'incertitude et cela concerne la grande majorité de cette population d'enseignants.

En Fédération Wallonie-Bruxelles, selon les *Indicateurs de l'enseignement* de 2020, ce sont, en moyenne, respectivement 57,5 % et 42 % des enseignants de pratique professionnelle et de cours techniques qui exercent avec un statut de titre de pénurie. Et c'est sans compter les enseignants qui exercent avec un titre suffisant. Au regard du lectorat du magazine *PROF*, il n'est certainement pas nécessaire de s'étendre sur les conséquences de ces statuts précaires.

Ces difficultés sont également d'ordre organisationnel. Les dialogues menés avec ces enseignants décrivent d'une part à quel point la familiarisation à cette organisation particulière qu'est l'établissement scolaire est complexe, et décrivent de l'autre à quel point l'intégration dans le staff d'enseignants est une démarche délicate voire pénible. Les schèmes de compréhensions construits dans le monde du travail du secteur privé se révèlent être des conceptions qui rentrent bien souvent en tension avec ce qu'est l'école comme organisation. Il leur est alors nécessaire de les déconstruire pour pouvoir se familiariser avec leur nouvel environnement de travail, mais l'isolement professionnel qu'ils ressentent complexifie l'accès aux informations nécessaires à cette déconstruction-reconstruction.

Un isolement professionnel manifeste

Cet isolement professionnel est très alertant. Un postulat fait de plus en plus son chemin dans les considérations liées à l'insertion, au développement professionnel et à l'apprentissage continu des enseignants : « Relationships matter » (les relations comptent). L'idée conceptuelle sous-jacente à ce postulat est que les enseignants apprennent et se développent mieux par les interactions avec leurs pairs que par toute autre stratégie ou dispositif.

Pour interroger spécifiquement les dynamiques collaboratives autour des enseignants de deuxième carrière et comprendre leur impression d'isolement, nous avons reproduit les tissus d'interactions professionnelles d'écoles d'enseignement qualifiant dans des visuels appelés sociogrammes.

Les analyses de ces tissus d'interactions professionnelles montrent que dans ces écoles, les enseignants de deuxième carrière ont nettement moins de contacts avec leurs collègues

que leurs homologues de première carrière, et qu'ils sont relégués en périphérie du réseau professionnel de leur école. Cette situation complexifie fortement leurs opportunités d'apprentissage et de découverte du métier enseignant.

Ils expliquent notamment cela par le regard qui est porté sur leur statut de « deuxième carrière ». Les propos d'une enseignante interrogée sont explicites : « Les professeurs de cours généraux se considèrent comme l'élite. C'est l'élite de notre école et puis selon la section qualifiante où vous êtes il y a comme une échelle sociale selon l'importance du métier. L'école se structure en fonction des hiérarchies des métiers dans la société et donc les relations entre enseignants se structurent comme ça aussi. »

En conclusion

Cette contribution ne me permet que de brosser (très) succinctement certains des constats mis en évidence par nos travaux⁽¹⁾, mais il me permet de formuler cette invitation : « Et si, pour changer, on parlait d'eux ?... »

Et si on prenait le temps d'aller au-delà du besoin de combler les trous créés par la pénurie, et qu'on se penchait sur les réalités professionnelles de ces enseignants coincés dans des statuts précaires, et pour lesquels le contexte de découverte du métier est extrêmement complexe ?

Trop peu d'attention est portée à cette catégorie d'enseignants qui est pourtant importante et en forte augmentation. Il y a énormément de travail à faire en ce sens, notamment du côté des politiques éducatives, et nous espérons que nos travaux participeront à inspirer des actions concrètes. ♦

Thibaut COPPE

⁽¹⁾ Pour en savoir plus, lire COPPE T., MÄRZ V., & RAEMDONCK I. (sous presse). « Rencontre entre l'enseignant de deuxième carrière et son établissement scolaire : un mariage sans idylle ». *Revue des sciences de l'éducation de McGill*. COPPE T., MÄRZ V., COERTJENS L., & RAEMDONCK I. (2021). « Transitioning into TVET schools : An exploration of second career teachers' entry profiles ». *Teaching and Teacher Education*, 101, 103317.

EN DEUX MOTS

Thibault Coppe est agrégé de l'enseignement secondaire inférieur en mathématiques et a également un master en Sciences de l'éducation.



Il a enseigné les mathématiques dans le qualifiant et est actuellement doctorant en Sciences de l'éducation à l'UCLouvain.

Ses travaux de recherches, financés par le FNRS, portent sur l'insertion professionnelle des enseignants de deuxième carrière, et ont été récompensés par les prix transversal et de la communication scientifique de la Journée de la Recherche 2020 en Fédération Wallonie-Bruxelles⁽¹⁾. Sa thèse de doctorat est supervisée par les Professeures Virginie März et Isabel Raemdonck.