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NEST
NOVICE EDUCATOR SUPPORT AND TRAINING

Concepts and first data of the NEST project:

Developing an adaptive mentor training programme for novice teachers at disadvantaged schools in seven European education systems

[5.3.1 & 5.3.2 REPORT 1&2]

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Deliverable description
This deliverable is divided into five chapters which outline the Novice Educator Support and Training (NEST) project and describe the results of the first measurement point. Chapter 1 offers a short introduction. Chapter 2 provides a detailed description of the NEST project, including its theoretical background, evaluation design, and instrument development, as well as an overview of the sample. The main concepts of the NEST project are explained in greater detail across Chapters 3 to 5. Each concept is discussed at a theoretical level, and baseline data collected at the first measurement point (prior to mentors receiving their training and novice teachers being mentored) are analysed. Chapter 3 focuses on the concept of disadvantaged schools and on the different indicators used to identify and describe disadvantaged schools in the seven education systems participating in the NEST project. Following a description of the common challenges observed at these disadvantaged schools, the perspectives and the current support needs of novice teachers working at disadvantaged schools are presented. Chapter 4 examines the benefits arising from mentoring for novice teachers working at disadvantaged schools. In addition, the current mentoring structures in the education systems participating in the NEST project are analysed using information both about mentoring structures at a theoretical level and baseline data gathered through the first questionnaire to describe current practice. Chapter 5 discusses the adaptive mentor training programme that was developed and implemented as part of the NEST project. The chapter outlines different concepts of adaptivity and explains the benefits of adaptive mentoring for the novice teachers participating in the project.

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ABBREVIATIONS AND ACRONYMS

Abbreviation/Acronym	Description
CFT	Coaching for Teaching
CG	Control Group
EC	European Commission
GDPR	General Data Protection Regulation
IG	Intervention Group
M	Mean
Mdn	Median
NA	No answer
NEST	Novice Educator Support and Training
N_{min}	Minimum number of participants
NS	Not significant
OCB	Onderwijscentrum Brussel
OKI	Onderwijs Kansarmoede Indicator
PES	Participating Education Systems
SD	Standard Deviation
SES	Socioeconomic Status

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Executive summary

The Novice Educator Support and Training (NEST) project is a multilevel Erasmus+ policy experiment co-funded by the European Commission. The goal of the NEST project is twofold. The first goal is to develop an adaptive mentor training programme to train mentors specifically in supporting novice teachers who work at disadvantaged schools (Intervention I). The second goal is to implement an effective mentoring programme for novice teachers at disadvantaged schools using the specially trained mentors (Intervention II). The mentor training programme and the mentoring programme for novice teachers have been implemented in seven European education systems (Austria, Belgium [Flanders and Wallonia], Bulgaria, Romania, and Spain [Madrid region and Catalonia]) with the aim of increasing teacher retention at disadvantaged schools. The underlying NEST model builds on the 4As scheme which defines four basic principles of the right to education: availability, accessibility, acceptability, and adaptability (Tomaševski, 2001). The design of the NEST project applied these categories to mentoring for novice teachers. In doing so, it has yielded an innovative model for comparing national mentoring structures and practices in great depth. It enables taking the European discourse on novice teacher mentoring and support to a higher level. The resulting model defines the outputs and outcomes of the NEST intervention group (Chapter 2).

When examining and describing the different indicators used to identify disadvantaged schools in the education systems participating in the NEST project, we found that each of the seven education systems uses different indicators to classify schools as disadvantaged. For instance, in some education systems, disadvantaged schools are mostly situated in urban areas with a low socioeconomic status (SES), whereas in other education systems, the rural location of the schools is an important indicator of disadvantage. However, the baseline data from the first questionnaire indicate that despite these differences, there are many similarities in the needs expressed by novice teachers at these disadvantaged schools. In all education systems, novice teachers reported strong support needs, indicating that they would benefit from the high-quality mentoring that the NEST project aims to provide (Chapter 3).

The analysis of the current mentoring structures in the education systems participating in the NEST project using information about mentoring structures in theory and the baseline data collected in the first questionnaire shows that in most of the education systems, the existing mentoring structures do not succeed in making mentoring available to all novice teachers working at disadvantaged schools. The lack of availability of mentoring reported by the novice teachers participating in the NEST project (before they received NEST mentoring) and in the education systems as a whole suggests that it could be a challenge to make mentoring accessible to all novice teachers. Moreover, our baseline data show that mentors in most education systems did not have access to mentor training prior to becoming mentors. At the same time, the novice teachers participating in the project had a positive attitude towards being mentored and valued mentoring in general (Chapter 4).

Adaptivity is a key requirement for the NEST project because the project involves seven different European education systems. Therefore, three specific aspects of adaptivity were included in the design of the NEST mentor training programme: 1) selecting mentors who show the potential to be adaptive; 2) teaching mentors to adapt their mentoring approach to the needs of individual mentees; and 3) adapting the mentoring strategy to the specific challenges which the disadvantaged school context entails. The mentor training programme itself consists of several content modules delivered over three terms via reflection and feedback cycles with coaches as well online (self-)learning modules via an online platform, depending on the implementation method in each given education system (Chapter 5).

1 Introduction

The education sector is evolving rapidly and dramatically in response to technological advancements, social forces (e.g. immigration, income inequality), and political necessity (e.g. COVID-19 response, climate change; see Abs, 2021). The adaptations required by this level of change are particularly acute for novice teachers who are still developing their foundational skills in the profession. Moreover, novice teachers working with children in disadvantaged communities have the added responsibility of addressing the needs of a larger number of students learning in less supportive or even adverse environments, but with fewer resources at their disposal and less developed skills for self-directed learning. Despite the clear need for induction support for novice teachers, structured induction programmes remain rare, especially so in disadvantaged schools, and few novice teachers have access to high quality mentoring (EACEA, Eurydice, 2013). Focusing on teachers at disadvantaged schools is important since it is more difficult to attract teachers to disadvantaged schools, and teacher turnover and attrition are higher than at non-disadvantaged schools (Allen et al., 2018; Hall et al., 2020; Borman and Dowling, 2008).

The combination of a challenging school environment and lack of experience calls for an adaptive mentoring system that effectively supports and prepares novice teachers on the job and equips them to address the needs of their students. While access to adaptive mentoring remains rare for novice teachers across Europe, there is growing evidence of its potential benefits (OECD, 2018; Kraft et al., 2018). Ingersoll and Strong (2011) found evidence in most of the studies that they examined that mentoring positively influences teacher commitment and retention, classroom teaching practices, and student achievement. However, these potential benefits are only realised when mentors receive adequate training and employ their skills adaptively and deliberately. For instance, Richter et al. (2013) indicate that mentor quality, not frequency of interaction, determines the successful start of a teacher's career.

2 The NEST project

The NEST project is an ERASMUS+ policy experiment which is co-funded by the European Commission. The term 'policy experiment' means that several European countries which share a common challenge have to find a scalable solution for this challenge in terms of a new policy or intervention, which is then to be tested in comparison to the status quo.

In the case of the NEST project, the common challenge is high attrition rates among novice teachers, especially those working at disadvantaged schools. As a solution to this challenge, the seven education systems participating in the NEST project (Austria, Belgium [Flanders and Wallonia], Bulgaria, Romania, and Spain [Madrid region and Catalonia]) planned the development and implementation of an adaptive mentor training programme as well as the provision of adaptive mentoring to novice teachers at disadvantaged schools. The project is managed by Bulgaria as the managing partner. Overall, the project includes 19 partners who form a project consortium. In each participating education system, there is one Teach For partner and at least one other partner from the educational sector, such as the ministry for education or teachers' unions. Within this consortium, each partner has different responsibilities and manages different work packages. The University of Duisburg-Essen (UDE) in Germany is responsible for evaluating the project. Project evaluation encompasses assessing existing mentoring structures, researching and describing the characteristics of disadvantaged schools in the participating education systems, and assessing the needs of novice teachers working at those schools. Moreover, the UDE's evaluation team will assess the impact of the mentor training programme (Intervention I) and adaptive mentoring for novice teachers (Intervention II) in the participating education systems.

2.1 Theoretical background—The NEST *theory of change*

The NEST model is part of a *theory of change* which was developed by Teach For Belgium in cooperation with researchers from UDE. In order to develop the theory of change, the partners from Teach For Belgium conducted a comprehensive literature review on studies about local and international mentoring practices and their impact. Furthermore, the Teach For All international expertise and the expertise of the five Teach For partner organisations of the NEST consortium were included in the development of the theory of change. Lastly, good practices of national and regional public authorities were collected and incorporated into the theory of change. In this manner, the whole consortium contributed to creating the theory of change for the NEST project.

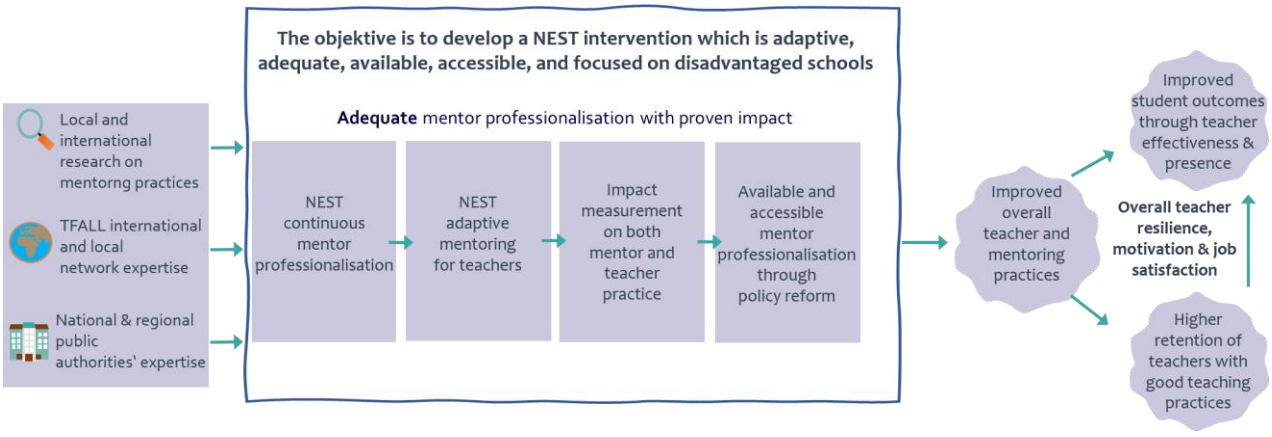

Figure 1: The theory of change model underlying the NEST project

Furthermore, the NEST model builds on the 4As scheme which defines the four basic principles of the right to education: availability, accessibility, acceptability, and adaptability (Tomaševski, 2001). In the design of the NEST project, these categories were applied to mentoring for novice teachers and yielded an innovative model for comparing national structures and practices in more depth, thus taking the European discourse on novice teacher mentoring and support to a higher level.

As a starting point, the NEST model of novice teacher mentoring and support focuses on the availability of mentoring. This includes the recruitment and qualification of mentors and the professional development and working conditions of mentors.

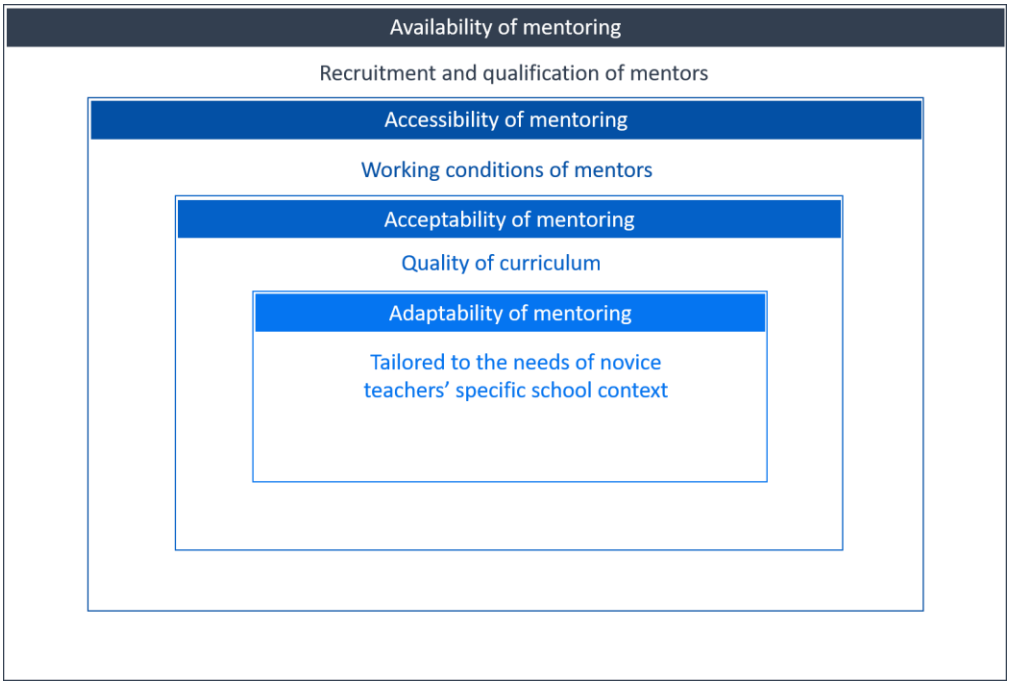

Figure 2: The 4A model of mentoring

Secondly, the NEST model considers the accessibility of mentoring. The model examines whether novice teachers receive mentoring regularly and whether mentors are granted sufficient time to provide mentoring (mentor's time per novice teacher and number of novice teachers per mentor).

Availability and accessibility alone are not sufficient to yield effective mentoring practices (for more information see section 4.2.1). Therefore, the NEST model also incorporates considerations regarding the acceptability of the mentoring curriculum and methods. The curriculum and methods must be relevant, culturally appropriate, and of good quality.

Lastly, the model focuses on the adaptability of mentoring. In the case of the NEST project, this focus is directed at the degree of adaptive mentoring required to meet the specific professional development needs of teachers teaching at disadvantaged schools. Therefore, the qualification of new mentors in the NEST project includes support elements that incorporate this focus.

Finally, the NEST model defines outputs and outcomes for the two NEST interventions. For mentors this means that through their continuous professional development and NEST mentor training, they are

supposed to develop further certain mentoring competences (outputs) which will enable them to actively improve their mentoring practice (outcomes). For the novice teachers receiving mentoring from the specially trained NEST mentors, this means that through this mentoring they will also improve certain teacher competences (outputs) which in turn will enable them to improve their teaching practice and self-regulation (outcomes).

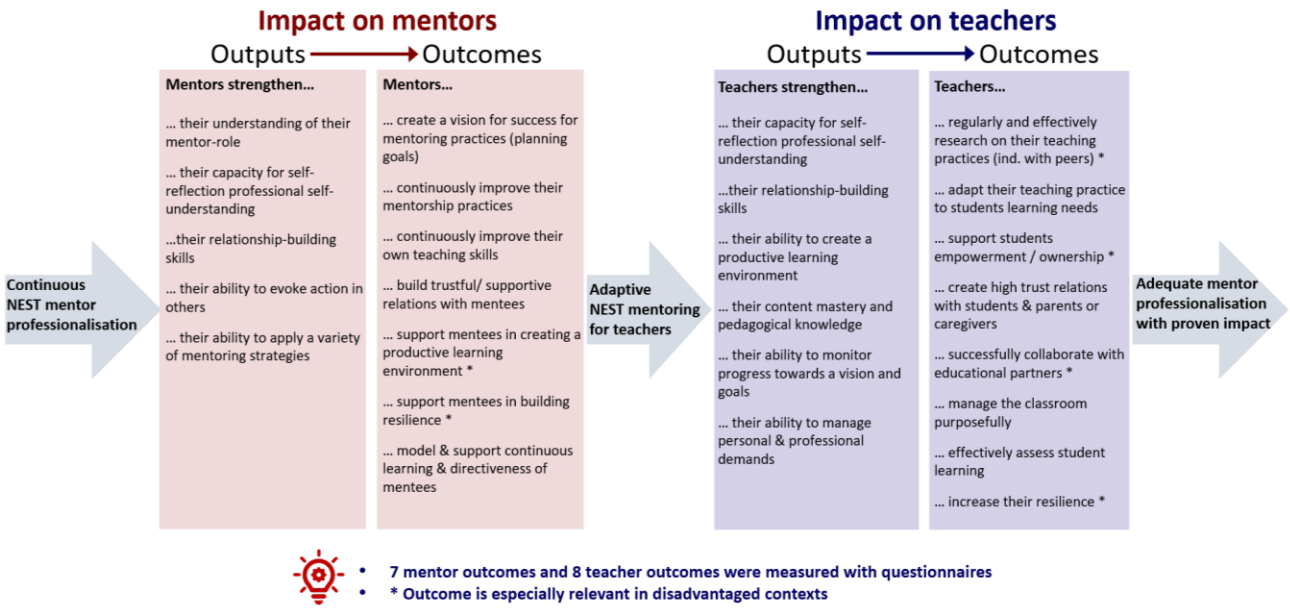

Figure 3: Theory of change of the NEST interventions

2.1.1 Hypotheses

The policy measure will make mentoring available in some countries that currently have only few professionals with experience in this type of novice teacher support. For other countries, the project will increase the accessibility of mentoring, especially for teachers at disadvantaged schools. The tailored mentor training programme will increase the extent to which mentoring is adapted to disadvantaged school contexts. While providing adaptive mentoring, the project will analyse the acceptability of the new approach. Therefore, the following main hypotheses will be tested.

1. The intervention group of NEST-trained mentors will show a greater ability to work with novice teachers at disadvantaged schools than mentor teachers in the control group, who provide mentoring only occasionally and without specific training.
2. The intervention group of NEST novice teachers will rate their mentors' compliance with general criteria for professional mentoring significantly higher than the comparison group of novice teachers who will assess mentor teachers who have not received adaptive mentor training.
3. Compared to novice teachers who have not received adaptive mentoring, novice teachers at disadvantaged schools who have received adaptive mentoring will show significantly more positive results regarding several outcome indicators such as knowledge of the specific content transmitted via mentoring, higher skills and efficacy with regard to hard-to-reach learners, stress resilience, and job satisfaction.

2.2 Evaluation design and data collection stages

The NEST project entails two interventions for two different groups of participants. In Intervention I, a group of experienced teachers (intervention group of mentors) take part in the NEST adaptive mentor training programme. In Intervention II, a group of novice teachers at disadvantaged schools (intervention group of novice teachers) will be supported by the mentors from Intervention I and will receive tailored, adaptive mentoring. In order to test our hypotheses, we implemented a control group of experienced teachers who do not receive special mentor training (control group of mentoring teachers) as well as a group of novice teachers who receive only the standard support prevalent in their education system (control group of novice teachers). Thus, the NEST methodology follows a quasi-experimental design.

Moreover, the NEST project design is also a panel design as all participants will be surveyed at least twice. Experienced teachers will be followed over a period of two school years. Those in the intervention group (adaptive mentors) will complete three online surveys; those in the control group (standard mentors) will need to complete two online surveys. The first survey for both groups of mentors was planned for late September 2021, i.e. the beginning of the first school year of the timeframe of the NEST project. However, this proved to be impossible due to recruitment issues. Experienced teachers (mentors) in Catalonia and Madrid were the first to receive their first online survey in late October 2021. Other education systems also had to postpone the first questionnaire considerably; however, all education systems ensured that the intervention group mentors did not receive any NEST training before completing their first survey. This was because the survey was to serve as the baseline measurement which will be used to calculate the effect of the NEST adaptive mentor training on the mentors' professional development, such as mentoring competence.

A second survey for intervention group mentors was planned for April 2022. However, in view of the delayed implementation of the first survey round, the second survey was rescheduled for June 2022 (i.e. the end of the first school year in the NEST project), and the third survey is now planned for late April 2023. At that same time, the experienced teachers in the control group will receive their second online survey to assess their professional development over time.

As a higher level of turnover of novice teachers in their first years can be expected, this group will be followed only over one school year. Consequently, the NEST project will work with two successive cohorts of novice teachers: one cohort for the school year 2021/2022, and one cohort for the school year 2022/2023. Each cohort consists of one intervention group (receiving adaptive mentoring) and one control group (receiving standard, prevalent mentoring). Participants of both groups have to complete two surveys, one at the beginning and one at the end of the school year. For the novice teachers, the first online survey was planned for late September 2021. Again, problems with recruitment as well as the global pandemic led to a delayed survey date. Novice teachers in Catalonia and Spain were the first to receive the online survey in late October 2021. Countries which had to postpone the launch of the first online survey made sure that novice teachers in the intervention group did not meet their respective mentors before completing the survey in order to maintain the integrity of the baseline measurement. The next survey for the 2021/2022 cohort was scheduled for early June 2022. The surveys for the second cohort are scheduled for September 2022 and June 2023.

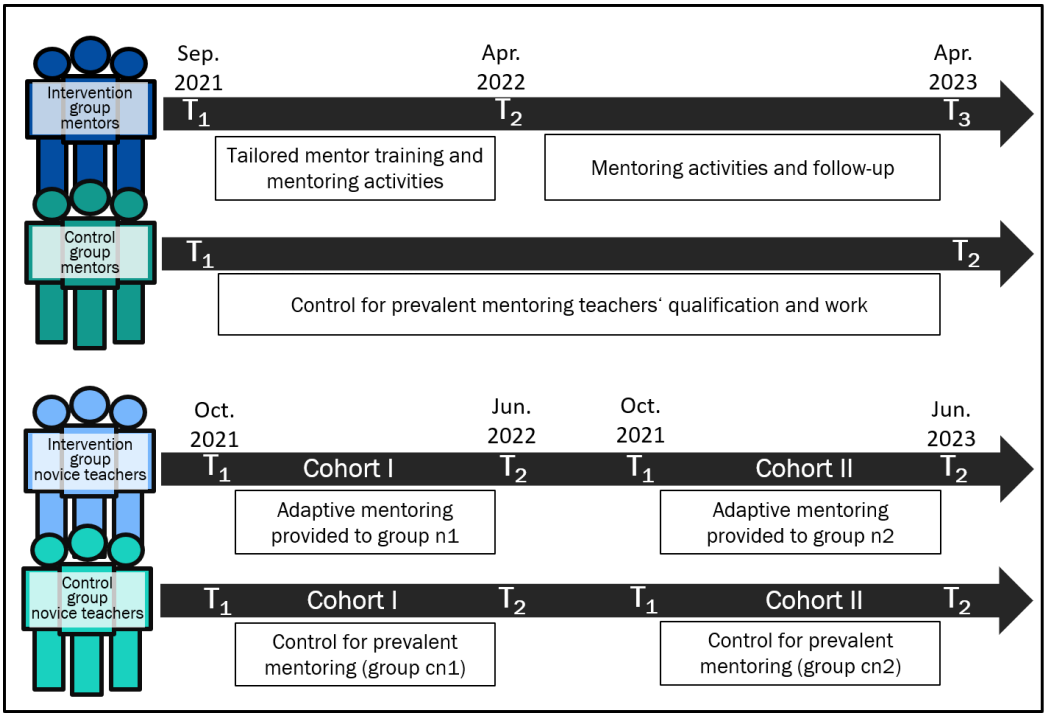

Figure 4: Overview of the quasi-experimental design of the NEST project

2.3 Instrument development

In creating the NEST surveys, the most important source of pre-existing survey instruments was the Organisation for Economic Co-operation and Development's *Teaching and Learning International Survey* (TALIS), which surveys teachers and school principals in 34 countries[1]. Most of the education systems participating in the NEST project had already participated in TALIS 2008, and/or TALIS 2013, and/or TALIS 2018. The TALIS study is the international study that is most similar to the NEST experiment in terms of the thematic issues it addresses, covering various areas of teaching and learning such as the learning environment, support and induction structures, teachers' classroom practices, self-efficacy, and job satisfaction. In addition, TALIS provides a basis for extensive discussion on culture-specific tendencies regarding responses to survey questions. Therefore, anchoring the NEST study in TALIS allows a comparison of nationally representative samples and adjustment of questions according to national cultural tendencies in answering questions (e.g. cultural levels of acquiescence).

The first NEST survey, which is the focus of this report, explored the personal background of participants, their prior teaching and mentoring experience, structures of teacher induction at the respondents' schools, and attitudes towards teaching and learning. Additionally, the survey contained questions about mentoring in general in the participants' education system. The scales concerning personal background, current working situation, and mentoring experience were purposely designed by the NEST project team.

[1] In 2008, only 30 countries participated in TALIS.

A few scales, most of them concerning teacher attitudes and teacher reflection, were taken from international research beyond TALIS. They refer to constructs that have not been tested to the same degree in all seven participating education systems until now, but that are of importance for the objectives of the NEST project. Examples of such scales are the scale on emotional exhaustion or the scale on reflection on common problems that can occur when working as a teacher, which were taken from the BilWiss study – a German study on pedagogical knowledge and the development of professional competencies of student teachers (Kunter et al., 2016).

In addition to the questions, the NEST team developed introductions to questions and segues between sections of the questionnaire. Furthermore, an introduction to the questionnaire including information on the NEST experimental approach, the topics of the questionnaire, and instructions on how to complete the questionnaire were developed. Participants were also informed about GDPR and had to give their consent to taking part in the survey under GDPR before they could start filling in the questionnaire.

The instruments for novice teachers and mentors were designed in parallel so that we could ensure that topics were examined from the perspective of both the novice teachers and the mentors. For example, novice teachers were asked whether they thought that mentoring was valued in their education system, and mentors were asked whether they thought that being a mentor was valued in their education system. Novice teachers were asked about how they would like their mentor to behave, and mentors were asked about their mentoring approach or their mentoring styles. Participants had to agree or disagree to different statements, and those statements were rephrased to fit the respective group. All instruments used in the first survey for novice teachers are depicted in Table 1. All instruments used in the first survey for mentors are listed in Table 2.

Table 1: Constructs measured in the first questionnaire for novice teachers

Category	Construct	Source	Novice teacher	
			Intervention Group	Control Group
Personal background	Gender, age, family background	Developed by NEST team	x	x
Professional background	Qualification type, entering the teaching profession, demands of teacher profession	Developed by NEST team	x	x
	Elements of education, teaching experience	Adapted from TALIS 2018	x	x
School characteristics/working conditions	Teaching hours, extent of school disadvantage	Adapted from TALIS 2018	x	x
	Reduced teaching load, reduced teaching hours	Developed by NEST team		
	Prospective budget spending (proxy for school challenges)	Adapted from TALIS 2018	x	x
Professional attitudes/ beliefs	Teacher motivations	Watt& Richardson (Included in TALIS 2018)	x	x
	First choice career	TALIS 2018	x	x
	School challenges in everyday work as a teacher	Adapted from BilWiss 2016	x	x
	Reflection on challenges in working as a teacher	Linninger, 2016 (Included in BilWiss 2016)	x	x
	Teacher competence, interaction with students / parents	Developed by NEST team		
	Emotional exhaustion	Kunter et al., 2010 (adapted from Enzmann & Kleiber, 1989 (Included in BilWiss 2016)	x	x
	Intention to quit	Adapted from Klassen & Chiu, 2011 (based on Blau, 1985; Hackett et al., 2001) (Included in BilWiss 2016)	x	x
General Mentoring	General acceptability of mentoring, mentor attributes	Developed by NEST team	x	x
Personal attitudes towards mentoring	Attitudes towards mentoring	Developed by NEST team	x	x
	Preferred mentoring styles	Van Ginkel et al., 2016; Crasborn et al., 2008 (Table 2); Adapted from BilWiss 2016	x	x
Previous mentoring experience	Received mentoring, mentoring focus	Developed by NEST team	x	x
	Induction, induction elements	Adapted from TALIS 2018	x	x
	Additional mentoring activities, assigned mentor, teacher needs	Developed by NEST team	x	x
	Satisfaction with organisation of NEST project, meeting with NEST mentor (control question)	Developed by NEST team	x	

Table 2: Constructs measured in the first questionnaire for mentors

Category	Construct	Source	Mentors	
			Intervention group	Control group
Personal background	Gender, age	Developed by NEST team	x	x
Professional background	Qualification type, demands of teacher profession, currently teaching	Developed by NEST team	x	x
	Elements of education, teaching experience	Adapted from TALIS 2018	x	x
School characteristics/ working conditions	Teaching hours	Adapted from TALIS 2018	x	x
	Reduced teaching hours	Developed by NEST team	x	x
Professional attitudes/ beliefs	Mentoring enthusiasm	Adapted from teacher enthusiasm Kunter et al. (2016, p. 119), adapted by Martin & Marsh (2008)	x	x
	School challenges in everyday work as a teacher	Adapted from BilWiss 2016	x	x
	Reflection on challenges in working as a teacher	Linninger, 2016 (Included in BilWiss 2016)	x	x
General Mentoring	General acceptability of mentoring, mentor attributes, adaption of mentoring	Developed by NEST team	x	x
	General mentoring practice	Van Ginkel et al., 2016; Adapted from Crasborn et al., 2008 (Table 2)	x	x
Previous Mentoring experience	Previous mentor training, focus of previous mentor trainings, previous mentoring	Developed by NEST team	x	x
	Satisfaction with organisation of NEST project	Developed by NEST team	x	
Personal Mentoring	Mentoring focus, benefits of mentoring, mentoring hours	Developed by NEST team	x	x
	Mentoring styles	Van Ginkel et al. 2016; Adapted from Crasborn et al., 2008 (table 2)	x	x
	Mentoring competence	Developed by NEST team	x	x
	Challenges of mentoring	Adapted from BilWiss 2016	x	x

2.4 Sample

This report refers to the first online survey, which served to collect participants' data for baseline calculations. This means that at the point of data collection, the mentors in the intervention group had not received any mentor training, and the novice teachers in the intervention group had not yet received any adaptive mentoring. Table 3 shows the numbers of participants who completed the first survey in the seven education systems. The numbers might be different from the number of actual participants who take part in the programme as some of them did not complete the first survey. This was mostly due to technical difficulties experienced by the participants. Unfortunately, the deadline for completing the survey could only be extended for a limited amount of time. Otherwise, the results between participants would not have been comparable. As some participants continued to have technical issues, and as participant recruitment proved to be difficult and time-consuming in some countries, a small number of participants missed the opportunity to complete the first survey.

Table 3: Participant numbers by intervention and control group for novice teachers

Country (education system)		Number of novice teachers	Per cent	Number of mentors	Per cent
Austria	Intervention group	13	50.00%	18	52.94%
	Control group	13	50.00%	16	47.06%
	Total	26	100.00%	34	100.00%
Belgium (Flanders)	Intervention group	50	63.29%	14	40.00%
	Control group	29	36.71%	21	60.00%
	Total	79	100.00%	35	100.00%
Belgium (Wallonia)	Intervention group	66	32.35%	34	35.42%
	Control group	138	67.65%	62	64.58%
	Total	204	100.00%	96	100.00%
Bulgaria	Intervention group	171	58.70%	64	100.00%
	Control group	243	41.30%	-	-
	Total	414	100.00%	64	100.00%
Romania	Intervention group	89	51.74%	43	36.44%
	Control group	83	48.26%	75	63.56%
	Total	172	100.00%	118	100.00%
Spain (Catalonia)	Intervention group	97	47.09%	41	59.42%
	Control group	109	52.91%	28	40.58%
	Total	206	100.00%	69	100.00%
Spain (Madrid)	Intervention group	102	44.16%	45	52.33%
	Control group	129	55.84%	41	47.67%
	Total	231	100.00%	86	100.00%

Bulgaria provided the largest sample of novice teachers in the NEST project. Austria and Flanders provided the smallest samples of novice teachers, so results for these education systems must be interpreted cautiously. Overall, the samples of experienced teachers and mentors were smaller than those of novice teachers. This is because one mentor supports more than one novice teacher. Madrid provided the largest number of mentors. Ideally, the number of teachers in the control group should be larger than the number

of teachers in the intervention group as the dropout rate in control groups is usually greater than that in intervention groups. However, providing a larger control group than intervention group was not possible in most of the education systems. Only Wallonia and Romania very nearly managed to provide larger control groups than intervention groups. Bulgaria declined to install a control group of mentors altogether. This was because it would have been impossible to contact eligible participants due to the lack of sufficient administrative networks for identifying and reaching experienced teachers. In light of the above, this report will focus on intervention and control group novice teachers and on the intervention group mentors.

Overall, 259 mentors who will receive the adaptive mentor training completed the first survey. Of the respondents, 80.31% were female, and 19.31% were male (see Table 17). One respondent did not disclose their gender. Flanders had the highest percentage of male mentors (35.71%), and Romania had the lowest percentage of male mentors (4.65%; see Table 18). The average age of mentors was 46.22 years with a median age of 47 years. Two people did not report their age. Overall, the age range of mentors was quite large (26 to 64 years; see Table 20). These values were representative of the samples of most education systems. However, in Austria, mentors were on average younger (32.83 years), and in Bulgaria they were on average older (50.06 years). In Wallonia and Flanders, the age range was the widest with a span of 34 years, and in Austria, mentors were closest in age with an age range of 16 years (see Table 21). The majority of experienced teachers already had mentoring experience. Of the of experienced teachers, 62.93% reported that they had mentored novice teachers in the past five years. However, answers differed across the education systems, ranging from 33.33% of experienced mentors in Austria to 89.06% in Bulgaria (see Table 31).

In total, 1,332 novice teachers participated in the first survey. In the intervention group of novice teachers who will receive adaptive mentoring from the specially trained mentors, 588 participants completed the survey. Of those, 74.66% were female, 24.83% were male, and 3 participants identified their gender as ‘other’. Of the novice teachers in the control group, 744 participants completed the survey. Here, the distribution of genders was very similar to the intervention group of novice teachers: 72.04% were female, 27.42% were male, 3 people identified their gender as ‘other’, and one person did not provide an answer (see Table 17). In the intervention group, Flanders had the highest percentage of male novice teachers (42.0%) and Romania had the lowest percentage of male novice teachers (6.74%). In the control group, Catalonia had the highest percentage of male novice teachers (45.87%) and Romania had again the lowest percentage of male novice teachers (10.84%; see Table 19). The average age of novice teachers in the intervention group was 32.43 years with a median age of 30 years, compared to an average age of 33.06 years with a median age of 31 years in the control group. Two persons, one in each group, did not report their age (see Table 20). The novice teachers in the Romanian intervention group were the youngest on average (27.92 years) with a median age of 25 years. Overall, Madrid had the oldest intervention group novice teachers with an average age of 34.95 years and a median age of 33. Regarding the control group, Wallonia had the youngest novice teachers (*M* = 29.8; *Mdn* = 27) and Madrid had the oldest novice teachers (*M* = 35.27; *Mdn* = 33). The age range of novice teachers was larger than expected (20 to 60 years for the intervention group; 20 to 64 years for the control group). The age range for the intervention group was largest in Wallonia (39 years), and the age range for the control group was largest in Flanders (43 years; see Table 21). The samples from Flanders, Wallonia, and Romania comprised the novice teachers with the least amount of teaching experience in both intervention and control groups respectively (see Table 22 to Table 28). However, the range of teaching experience was quite high in most education systems. There were a few exceptions (outliers) in the sample who reported a lot of years of teaching

experience (up to 31 years). Further analyses in this report will focus only on those novice teachers who had three years of teaching experience or less. In terms of experience of working at schools in disadvantaged areas, teachers from all education systems were very inexperienced overall. The majority had not worked at disadvantaged schools before.

2.5 Conclusion

This chapter explained the scope and design of the NEST project. It clearly set out the goals of the NEST project and how it is expected to achieve these goals. The NEST project stands out because it focuses on the lack of support available to novice teachers working at disadvantaged schools in several education systems across Europe. By developing and implementing an adaptive training programme for mentors, the NEST project aims to improve and individualise the support available for novice teachers at disadvantaged schools in seven education systems. To explain the importance of the focus of the NEST project, the next chapters will discuss disadvantaged schools in the participating education systems (Chapter 3), review the existing mentoring available to beginning teachers (Chapter 4), and explain the importance of adaptivity in the NEST mentor training programme (Chapter 5). Each of these concepts will be addressed both from a theoretical viewpoint and using actual baseline data from the participating education systems drawn from the first questionnaire completed by novice teachers and adaptive mentors. In doing so, the following chapters will highlight and explain the rationale behind the NEST project.

3 Disadvantaged schools

The NEST project focuses on disadvantaged schools or schools situated in disadvantaged areas. The project facilitates the development and implementation of an adaptive mentor training programme as well as the provision of adaptive mentoring to novice teachers at disadvantaged schools. The impact of the mentor training programme and the adaptive mentoring will be evaluated across five participating countries (Austria, Belgium, Bulgaria, Romania, and Spain). In Spain and in Belgium, two education systems are participating in the project. Thus, the project will examine the impact of the mentor training programme (Intervention I) and the adaptive mentoring for novice teachers (Intervention II) in seven education systems overall. Different criteria are being used to characterise a school as disadvantaged both in international literature and in the seven different education systems participating in the NEST project. We developed the following definition to designate schools as disadvantaged:

> A disadvantaged school is confronted with more difficulties than other schools in the same education system in providing an adequate social and learning context that enables students to acquire competences and to reach their maximal potential.

This definition of disadvantaged schools focuses on the difficulties that disadvantaged schools face. These difficulties might make it harder to provide the most optimal social and learning context for the students attending the school in comparison to non-disadvantaged schools. However, the specific challenges which a disadvantaged school experiences can vary between disadvantaged schools both within and across different education systems.

3.1 Terminology used for designating disadvantaged schools

The seven education systems in the NEST project use different terminology for disadvantaged schools. In some cases, the official term used by government organisations differs from the term that is more widely used in society. In Austria, for example, the term 'Herausfordernde Schule' [a school which challenges the learner] is the politically correct term. The term 'index school' is not widely used but is the suggested term to avoid stigmatising disadvantaged schools. The term 'Brennpunktschule' [focus school] is an older term which is still widely used in public discourse, but this usage is now seen as stigmatising. This example shows that once certain stigmatising names for disadvantaged schools have become established, it can be difficult to change the terminology within the wider society even if the term is subsequently perceived as creating a stigma. In addition, the Austrian example also shows that the very terminology used to describe a disadvantaged school can provide information on how disadvantaged schools are viewed.

Figure 5: Categorisation of the terminology used for designating disadvantaged schools

Therefore, we have created a threefold distinction between *stigmatising* or *problematising* terminology, *neutralising* or *technocratic* terminology, and *visionary* or *euphemistic* terminology (see Figure 5). Since the participating education systems only provided one example of visionary terminology (the 'Herausfordernde Schule' in Austria), we have added two examples that are used in Germany, namely the 'starke Schule' [strong school] and the 'Talentschule' [talent school].

The choice of a specific term can have a profound impact on disadvantaged schools. On the one hand, a problematising or stigmatising term can impact negatively on the students attending and the teachers working at the school. On the other hand, it may be easier to defend dedicating extra resources to disadvantaged schools when the term used to describe the school clearly indicates that the school is facing problems. A more neutral term might mean that students and teachers at these schools are less negatively affected; however, the technocratic nature of a neutral description makes it more complicated to communicate to policymakers and to wider society why these schools require additional resources. This is even more true for the visionary terminology. It can be great to attend a 'strong school' or a 'talent school', but it is difficult to make a good case for spending additional funds on schools that are already designated as being strong or full of talent. The categorisation of terminology thus also shows that it is very difficult to find a term for disadvantaged schools that encapsulates the challenging situation of the schools without creating a stigma. In addition, even if a government has found a suitable official term for designating disadvantaged schools, it is difficult to get the term used in wider society and to prevent it from becoming a stigmatising term in the future.

Table 4 shows the terms used to describe disadvantaged schools in each of the education systems participating in the NEST project. In most education systems, multiple terms are used for disadvantaged schools.

Table 4: Terminology used for designating disadvantaged schools in the education systems participating in the NEST project

Education system	Terms used	English translation or description
Austria	Indexschule Brennpunktschule Herausfordernde Schule	Index school Focus school School that challenges learners
Belgium (Flanders)	School met een hoog aantal indicatorleerlingen (Onderwijskansarmoede (OKI)-indicator)	School with a high concentration of students living in disadvantaged circumstances
Belgium (Wallonia)	École à indice socio- économique faible	School with a low socioeconomic index
Bulgaria	Училища, които работят с уязвими ученици /общности	School serving vulnerable students/communities
Romania	Unități școlare defavorizate	Disadvantaged school
Spain Catalonia	Centre de Màxima Complexitat Centre d'Alta Complexitat	Maximum complexity school High complexity school
Spain Madrid	Centro de especial complejidad Centro Gueto	Special complexity school Ghetto school

3.2 Characteristics of disadvantaged schools

Disadvantaged schools can be located in both urban and rural areas. Pàmies Rovira et al. (2016, p. 4) focus their research on schools situated in disadvantaged areas of four major Spanish cities. These schools are all located in densely populated areas in working-class neighbourhoods with high unemployment rates and with a large proportion of both internal and international migrants. McCoy et al. (2014) distinguish between disadvantaged schools in rural areas, disadvantaged schools in urban areas (Band 1 and Band 2), and non-disadvantaged schools. Urban Band 1 schools are the most deprived schools; children attending these schools have the most disadvantaged socioeconomic background. Generally, all disadvantaged schools show an overrepresentation of children living in lone-parent households compared to non-disadvantaged schools. Moreover, immigrant students are more prevalent in urban disadvantaged schools in Ireland (McCoy et al., 2014). These findings indicate that the location of a disadvantaged school even within the same country can have a profound impact on the characteristics of the school and likely also on the challenges that the school faces.

Many studies use socioeconomic status (SES) as the only or the main criterion to classify a school as disadvantaged (see Kyriakides et al., 2019; Pàmies Rovira et al., 2016). Kyriakides and colleagues (2019) operationalised their use of SES by focusing on the father's and mother's level of educational attainment, the social status of both the father's and the mother's job, and the main elements of the learning environment at home. Using this understanding of SES as the criterion for identifying disadvantaged schools implies a focus on input criteria, i.e. the circumstances of the children when they enter the school. In other cases, educational outcomes (output variables) are also used for designating schools as disadvantaged. For example, Martínez (2014, p. 960) argued that Mexican disadvantaged schools are 'schools with low educational achievement located in poor economic environments'. In this definition, an output criterion—low educational achievement—is added to the input variable of poor economic environment. Hall et al. (2020) also used a combination of input and output criteria. They focused on low employment rates (input), a high reliance on social assistance (input), and a high number of students who do not manage to qualify for entering high school (output), in order to select the most disadvantaged city districts for their Coaching for Teaching (CFT) intervention in Sweden.

In sum, this section has shown that research studies vary in how they classify a school or area as disadvantaged. The next section will focus on whether the different ways of defining disadvantaged schools also reflect a variation in the challenges that disadvantaged schools face.

3.3 What challenges do disadvantaged schools face?

As the previous section has shown, disadvantaged schools can be defined in numerous ways, and different types of disadvantaged schools can exist even within the same country. The characteristics of the disadvantaged schools likely also reflect the challenges that teachers and students at these schools face. This idea seems to be confirmed by Naidoo and Wagner (2020) who interviewed mentor teachers in Australia. Naidoo and Wagner report that mentor teachers felt that their most important contribution was to increase pre-service teachers' awareness of and responsiveness to contextual factors in order to prepare them for teaching in disadvantaged school contexts. An ability to adapt to the specific challenges that the disadvantaged school context poses seems to be a key competence for (beginning) teachers working at disadvantaged schools.

Although specific challenges may vary between disadvantaged schools, research literature has identified some challenges that are common across disadvantaged schools in different countries. One of these shared challenges seems to be the limited resources, both physical and human, that many disadvantaged schools have at their disposal (Wilson, 2021; Tannehill and MacPhail, 2017; Martínez, 2014). This lack of resources, which often results in large class sizes, affects all areas of learning (Wilson, 2021) and can make it difficult for schools that are already at a disadvantage to improve their teaching and their student outcomes. In addition, disadvantaged schools on average have a higher proportion of students who display challenging behaviours (Tannehill and MacPhail, 2017) and students who lack basic skills and abilities (Martínez, 2014). Another challenge for disadvantaged schools is involving parents in the education of their child (Martínez 2014). The combination of these different challenges means that teachers at disadvantaged schools often experience a high workload and a lot of stress (Martínez, 2014). This, in turn, leads to high levels of teacher turnover at disadvantaged schools (McCoy et al., 2014). In fact, McCoy et al. (2014) argued that high levels of teacher turnover account at least in part for the achievement gap that they found in secondary schools in Ireland; this may be because high teacher turnover disrupts student learning and forms a barrier to the professional development of the teachers themselves.

3.4 Identifying disadvantaged schools in the seven education systems

In this section, we will first describe the different indicators used to identify and classify disadvantaged schools in each of the seven education systems participating in the NEST project. Next, we will present our categorisation of these indicators, which will allow us to compare the different classification strategies in the seven education systems.

3.4.1 Indicators used in each of the seven education systems

As we showed in the previous sections, different indicators are being used in research studies to classify schools as disadvantaged. The seven education systems (Austria, Bulgaria, Catalonia, Flanders, Madrid, Romania, and Wallonia) in the five different countries participating in the NEST project also have different ways of identifying which schools are disadvantaged.

There are different terms used in Austria for disadvantaged schools, namely ‘Indexschule’ [index school], ‘Brennpunktschule’ [focus school] and ‘Herausfordernde Schule’ [a school that challenges learners]. The Austrian Institute for Quality Assurance in Education calculates how socioeconomically disadvantaged a school is based on criteria like: parents’ income, highest education level attained by parents, migration background, and the language spoken at home. There are 4 index levels; levels 3 and 4 are viewed as socioeconomically disadvantaged.

In Flanders, schools in disadvantaged areas are called ‘Scholen met een hoog aantal indicatorleerlingen’ (OKI-indicatoren: Onderwijs Kansarmoede Indicator/GOK-decreet: Gelijke Onderwijskansen), [schools with a high concentration of students living in disadvantaged circumstances; *OKI* is an acronym that refers to poverty of educational opportunities] see Table 4). The number of OKI-indicators of the pupils at a school is important to establish whether a school is disadvantaged. The OKI-indicator uses four student characteristics to assess the ‘social profile’ of the school. The first indicator is eligibility for the school

allowance. The school allowance supports families on a low income with children in primary and/or secondary school and is therefore a clear indicator at economic level. The second indicator is the level of education of the mother. If the education of the mother is known and the mother's maximum level of attainment is lower secondary education, the child will be classed as a child with a low-educated mother. The third indicator is the language spoken at home. If a child speaks the language that is spoken in school with only one family member at home (siblings are counted as one family member), it is considered that the language spoken at home is different from the language of instruction at school. The final indicator is the neighbourhood in which the child lives. In Flanders, the level of educational delay in the neighbourhood is the deciding factor for this indicator. This is being calculated by looking at the proportion of 15-year-olds in the neighbourhood with an educational delay of two years or more in the past six years. In addition, the indicator is always flagged by homeless children and children from traveller families. Together, these four student characteristics, which are all input characteristics, are used to define the social profile of a school in Flanders (Statistiek Vlaanderen, n.d.).

In Wallonia, the term 'École à indice socio- économique faible (ISE faible)' [schools with a low socioeconomic index] is used to describe disadvantaged schools. To establish the socioeconomic index of each school, different student criteria (see Table 4) are being used to calculate an index score between 1 and 20. For each of the different criteria, data from the 'Banque Carrefour de la Sécurité Sociale' (BCSS) for the past seven years are used to calculate an average score for this period of time for each student. Three clear economic indicators are used: household income; the number of persons aged 18 or over in the household who are in employment, and receipt of social assistance (e.g. unemployment benefits). In addition, the number of people in the household holding a high education degree (ISCED level 5 or 6) and the number of people in the household with a low educational level of attainment (ISCED level 1 or 2) are considered to calculate the ISE score. The final factor considered is the sector in which household members are working, with a distinction being made between working in the primary or secondary sector and working in the tertiary sector. A formula including all these variables is being used to establish the socioeconomic index (SEI). A low index value indicates a less favourable socioeconomic level (AGE, DGPSE & DED, 2021).

In Bulgaria disadvantaged schools are called 'Училища, които работят с уязвими ученици / общности', which literally translates as 'schools serving vulnerable students/communities'. We interviewed an official representative of the school inspectorate in Bulgaria who explained that several indicators (called coefficients) are used in Bulgaria to define which schools can be classed as disadvantaged. Our interviewee's understanding is that disadvantaged schools typically serve children who are at a high risk of dropping out of school. These schools are mostly very small schools situated in remote underprivileged areas, and the children often do not speak Bulgarian very well. The first indicator is the regional coefficient. Schools are categorised for funding purposes into categories from 1 (very large town, average income is high) to 8 (small town or village, mostly very remote from big cities, average income is low). The second coefficient is the proportion of marginalised groups at a given school, which is operationalised through the level of education of the parents. The third coefficient is the school type. Bulgaria distinguishes two types of vulnerable school: protected schools, which are very remote and educate only very few children; and regional schools, where children from all nearby villages are educated because their own villages are not large enough to have a school. Funding is used to pay for transport, food, and after-school homework clubs. The fourth and final coefficient is an output indicator, namely the school's results in the national assessment tests. This indicator should already be an official coefficient, but that is not yet so. All schools in Bulgaria may apply for funding irrespective of their performance. However,

depending on their performance, schools would have to use the funding for different things. Schools that perform well might use the additional money to increase teacher salaries or fund international competitions; schools that perform badly would only be allowed to use the additional money to support their students.

The English translation of the term 'Unități școlare defavorizate', which is used for disadvantaged schools in Romania, is 'disadvantaged school'. To classify a school as disadvantaged, Romania uses four indicators which comprise a mixture of input and output indicators. One input indicator is the level of teacher training at a school. This is measured by the proportion of untrained teachers in relation to the total number of teachers in the respective school unit. The other input indicator is the level of socioeconomic development of the locality in which the respective school is located. This indicator ensures that the degree of marginalisation of the locality is considered. The two output indicators focus on students. The first output indicator relates to the risk of student dropout. Dropout is defined as the share of students who repeat or do not complete a year or do not gain a school-leaving certificate. The dropout rate of a school is used to determine how disadvantaged a school is. The second output indicator is the degree of exam preparation of students, which is calculated by establishing what proportion of fourteen-year olds did not participate in the national assessment and the average mark of those students who did sit the national assessment (Postoiu, Bușega & Pele, n.d.).

In Catalonia, disadvantaged schools are referred to as 'maximum complexity schools' (Centres de Màxima Complexitat) or 'high complexity schools' (Centres d'Alta Complexitat). Different indicators are combined to calculate the level of complexity (see Table 4). The main purpose of calculating the level of school 'complexity' is to determine the extent of resources required by schools to reduce inequality and to enable talent development among all students at all schools (Departament d'Educació de Catalunya, 2021). The indicators used to establish school complexity are the educational level of students' parents, the employment type and status of students' parents, the proportion of migrant students at a school, and the proportion of students with special educational needs/new entrants. 'Level of education' ranges from *lower than primary school* (1) to *primary school* (2), *secondary school* (3), and *higher education* (4). For each school, the average level of education and the proportion of parents with the lowest and highest level of education are used to calculate the indicator of the level of education of the parents. To establish the employment type and status of the parents, three different types of employment are distinguished, namely *officials and specialists* (1), *support staff, administrative, and other office staff* (2), and *technical and management staff* (3). To establish the proportion of migrant students at a school, the country of birth of both parents is retrieved from the Catalonian population register. The final indicator is the proportion of the total number of students with special educational needs enrolled at any given school, and the proportion of new students. Special educational needs is a broad category which refers to students who need additional support due to a disability, disorder, or illness, but also due to other circumstances such as having high abilities, a lack of language proficiency, or risk of abandonment. All these factors are used to calculate the level of complexity of each school in Catalonia, which is then used to guide the allocation of resources (Departament d'Educació de Catalunya, 2021).

In the Madrid region, disadvantaged schools are called 'special complexity schools' (Centros de especial complejidad). However, there is no specific official classification for what constitutes a disadvantaged school. The profile of students at any given school is considered when designating schools as special complexity schools. The first indicator is the proportion of students with judicial measures against them; this is the case, for example, in schools located in correctional facilities. The second indicator is whether

the proportion of students with specific needs for additional educational support or with special educational needs at any given school exceeds 30 per cent. This is often the case for special schools or special educational units within a school. Less than five per cent of schools are classified as special complexity schools using these two indicators. For this reason, we have expanded the existing classification of disadvantaged schools in the Madrid region to include socioeconomic criteria in order to identify schools that are eligible for participation in the NEST project.

3.4.2 Categorization and comparison of indicators used to designate schools as disadvantaged

The previous section has described the different indicators used by the seven education systems participating in the NEST project to classify schools as disadvantaged. These indictors can be categorised along five dimensions:

- Economic situation
- Migration and language
- Educational and professional family background
- School characteristics
- Student characteristics

The following tables show the different indicators used by the education systems to designate disadvantaged schools for each of the five dimensions.

Table 5 shows the different economic indicators used by the education systems for the classification of disadvantaged schools. Family or household income is used most often. Only Romania does not use any economic indicators to establish which schools are disadvantaged.

Table 5: Economic indicators used to identify disadvantaged schools

Economic indicator	Education system	Total
Family/household income	Austria, Wallonia	2
Employment status	Wallonia, Catalonia	2
Receiving social assistance/benefits	Wallonia	1
School allowance	Flanders	1

Migration and language indicators are used in only three of the seven education systems (see Table 6). However, Austria and Catalonia use both the language spoken at home and the migration background to identify disadvantaged schools, indicating that this is an important dimension in these two education systems.

Table 6: Migration and language indicators used to identify disadvantaged schools

Migration/language indicator	Education system	Total
Language spoken at home/language proficiency	Austria, Catalonia, Flanders	3
Migration background	Austria, Catalonia,	2

The educational and professional background of the family is used in six of the seven education system and is, therefore, an important dimension for identifying disadvantaged schools (see Table 7). The level of education of the parents (or in some instances only the mother) is seen as a particularly important indicator. This suggests that the level of education of the parents is generally viewed as a good predictor of the educational career of the child.

Table 7: Education and professional family background indicators used to identify disadvantaged schools

Educational/professional indicator	Education system	Total
Level of education (parents or mother)	Austria, Bulgaria, Catalonia, Flanders, Wallonia	5
Type of employment	Catalonia, Wallonia	2

Table 8 shows to which extent school characteristics are being considered to classify schools as disadvantaged in the seven education systems. Both input and output indicators are used to identify disadvantaged schools. The average mark of students in the national assessment is seen as an output indicator relating to school characteristics because it is not about individual student marks but about the average grade of all students at a school. In Bulgaria, the size and remoteness of a school is a key indicator for establishing the level of disadvantage of a school. Very small schools far away from a large town face many challenges in Bulgaria; for example, it is difficult to recruit teachers to these schools because they would have to move to the remote area, and sometimes the position is not even full time.

Table 8: School characteristics indicators used in to identify disadvantaged schools

School characteristics indicator	Education system	Total
Average mark of students in national assessment (output indicator)	Austria, Bulgaria, Romania	3
Untrained teachers within school district	Romania	1
Percentage of students who drop out of school (output indicator)	Romania	1
Size and remoteness of the school	Bulgaria	1

The last dimension is student characteristics (see Table 9). The first two indicators here are individual student characteristics over which schools have minimal influence. This is also how these characteristics differ from the school characteristics discussed above, such as the average grade of students in national assessments. The third indicator in Table 9 relates to the neighbourhood in which the students attending a given school live, rather than the neighbourhood of the school itself.

Table 9: Student characteristics indicators used to identify disadvantaged schools

Student characteristics indicator	Education system	Total
Students with special educational needs (SEN)	Catalonia, Madrid	2
Students who have been in prison	Madrid	1
Educational delay in neighbourhood of the students	Flanders	1

3.5 The disadvantaged schools participating in the NEST project

The previous section has shown that there are many differences and similarities in the indicators that are being used to identify disadvantaged schools in the different education systems. Therefore, it is important to consider to what extent the schools participating in the NEST project are disadvantaged in the same way; different levels or types of disadvantage could lead to different challenges. Consequently, it is also possible that novice teachers in the seven education systems have different needs due to the specific school contexts in which they are teaching. For this reason, the second NEST questionnaire (i.e. the second measurement point) will ask novice teachers about different indicators to determine the type and level of disadvantage the novice teachers observe at their schools. Questions about indicators will be included in the second questionnaire rather than the first survey because the novice teachers will have been working at the school for at least a year by that point. This means they should have a better view of the school's demographics and other factors. However, the novice teachers were questioned about their specific current needs in the first questionnaire. Novice teachers' reported needs will be described in Section 3.6. First, we will pursue another avenue for exploring the level and type of disadvantage of the participating schools, which is to take a closer look at how schools in the seven education systems were selected for inclusion in the NEST project.

3.5.1 School selection for the NEST project in some of the NEST education systems

This section will describe how schools were actually selected for participation in the project in some of the NEST education systems and how it was assured that the participating schools are indeed disadvantaged schools.

In Austria, all '(Neue) Mittelschulen' based in Vienna were selected potentially to be part of the NEST project. These schools are so-called '(new) middle schools', i.e. secondary schools that replaced the former 'Hauptschulen' or vocational schools. These schools are all disadvantaged schools.

In Flanders, recruiting schools to participate in the NEST project proved difficult because only two schools registered to participate in the project after the first information rounds (see Section 5.3.2.2). As a result, Teach For Belgium decided to broaden the regional reach and to contact more Teach For Belgium partner schools. Since the Teach For organisations specifically focus on schools in disadvantaged areas, the Belgian schools participating in the NEST project are all disadvantaged schools.

In Romania, a regional target was used to ensure that the schools participating in the project are disadvantaged schools. For the NEST project, two regions consisting of twelve counties with a high concentration of disadvantaged schools were targeted.

In the Madrid region of Spain, *Empieza por Educar* conducted telephone interviews with the 35 school principals who showed interest in participating in the NEST project. However, half of the schools did not meet the project's requirements for being disadvantaged schools. *Empieza por Educar* subsequently introduced two new criteria for schools to be classified as disadvantaged and therefore be allowed to participate in the project: first, the school had to be a state school; and second, the average income in the district of the school had to be lower than the average income for the Madrid region overall.

These examples show that it is difficult to determine the level and type of school disadvantage based only on the selection criteria for the schools used in the different education systems. In Vienna, school type

was the deciding factor, whereas in the Madrid region and in Romania, schools in disadvantaged districts or regions were selected. However, it remains unclear whether these regions or districts are disadvantaged in the same way. Therefore, it is important to focus on the similarities of disadvantage between the schools and the needs of the novice teachers participating in the project. Additional analyses of the type and level of school disadvantage will need to be conducted based on the data that will have been collected from the novice teachers at the second measurement point in June 2022.

3.6 Needs of novice teachers working at disadvantaged schools

The first survey of novice teachers focused on the professional background of novice teachers and their current experiences of working at disadvantaged schools. We asked novice teachers to think about their current situation at school and to rate their specific needs. For each needs statement, respondents could indicate that they *strongly disagree, disagree, agree,* or *strongly agree*. For the purpose of analysis, we treated this response scale as a 4-point scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*)[2].

Our analysis shows that novice teachers in both the intervention and control groups on average agreed or strongly agreed with the statements on teacher needs. The highest means in the intervention group ranged from 3.08 in Flanders to 3.50 in Romania. The highest means in the control group ranged from 3.14 in Wallonia to 3.56 in Madrid. Comparing all the groups, the highest needs were expressed most commonly in the areas of sharing best practice with other teachers, raising self-confidence and ambitions in students, and introducing learning strategies in the classroom. In Bulgaria, Wallonia, and Romania novice teachers in the intervention group expressed higher needs on average than novice teachers in the control group. The sample for Bulgaria was the only one that allowed testing these differences for significance[3]. Two-tailed *t*-tests[4] showed that Bulgarian novice teachers in the intervention group reported significantly higher needs regarding 12 of the 16 statements, although there was no significant difference regarding the four needs revolving around interaction with other teachers.

However, in Madrid and Flanders, means for the intervention group were lower than for the control group. In the Madrid sample, these differences could be tested for significance with two-tailed *t*-tests. The results showed that novice teachers in the intervention group reported significantly lower teacher needs for 12 of the 16 statements. They did not differ significantly from the control group regarding their need for integrating students from culturally diverse backgrounds, the need for support to establish routines in the classroom, the need to be observed while teaching for feedback purposes, and the need to reflect on their teaching performance with others. In contrast, the Catalonian sample was very homogenous regarding average teacher needs, i.e. the two groups had very similar means. Two-tailed *t*-tests showed significant differences for only three of the 16 statements on teacher needs. Catalonian novice teachers in the control group reported significantly higher needs regarding relationship building

2 There is scientific debate on whether or not to treat ordinal scaled survey data (such as Likert scale data) as interval scaled data for the purpose of statistical analysis such as calculations of means, differences, etc. However, in the social sciences, this is a standard procedure. Numerous researchers have shown that unless data are severely skewed, ordinal scaled data can be treated as interval scaled data (Baker et al., 1966; Labovitz, 1967; Marcus-Roberts & Roberts, 1987).

3 A significance-level of 5% (p-value ≤ 0.05) means that there is only a probability of 5% that the observed difference in means is random. It indicates strong evidence against the null hypothesis (no difference in means), as there is less than a 5% probability that the null hypothesis is correct. The 1% significance-level is even stricter or more conservative. It means that there is only a probability of 1% that the observed difference in means is random.

4 For the *t*-tests, we are reporting two significance levels. Significance on the 1% significance level is marked by two stars (**) next to the *t*-value; significance on the 5%-significance level is marked by one star (*) next to the *t*-value.

with hard-to-reach learners, examples for culturally sensitive teaching, and integrating students from diverse cultural backgrounds.

The data also showed that the averages of different education systems within the same country were more similar than means between countries, i.e. ratings in Wallonia and Flanders as well as Madrid and Catalonia were more similar than the ratings of, for instance, Romania and Bulgaria. Detailed tables including respective means and standard deviations for all education systems as well as *t*-test statistics for Bulgaria, Catalonia, and Madrid can be found in (Table 44 to Table 50).

3.6.1 Teacher needs by education system—Austria

In the intervention group in Austria, average agreement with the statements on teacher needs ranged from 2.50 ('I would like more support in dealing with work-related stress') to 3.50 ('I would like more information about strategies to reflect about my work as a teacher'). Other statements that were rated high included how to motivate students (*M* = 3.33), integrate routines in the classroom (*M* = 3.17), introduce learning strategies (*M* = 3.17), and share experiences about situations of conflict with others (*M* = 3.25). In the intervention group, 12 of the 13 novice teachers answered the question regarding teacher needs. For the novice teachers of the control group, the average agreement was lower overall than for the intervention group, with means ranging from 2.31 ('I would like more support on how to establish routines in my classroom') to 3.15 ('I would like more examples on how to improve students' language competences'). Interestingly enough, the needs that were rated among the highest in the intervention group were rated among the lowest by teachers of the control group. Apart from the need regarding how to improve students' language competences, control group teachers reported a need to share experiences about situations of conflict (*M* = 3.08) and best practice with others (*M* = 2.85). All 13 control group novice teachers rated the statements. Since the Austrian sample is very small, means should be interpreted cautiously. All descriptive statistics can be found in Table 38.

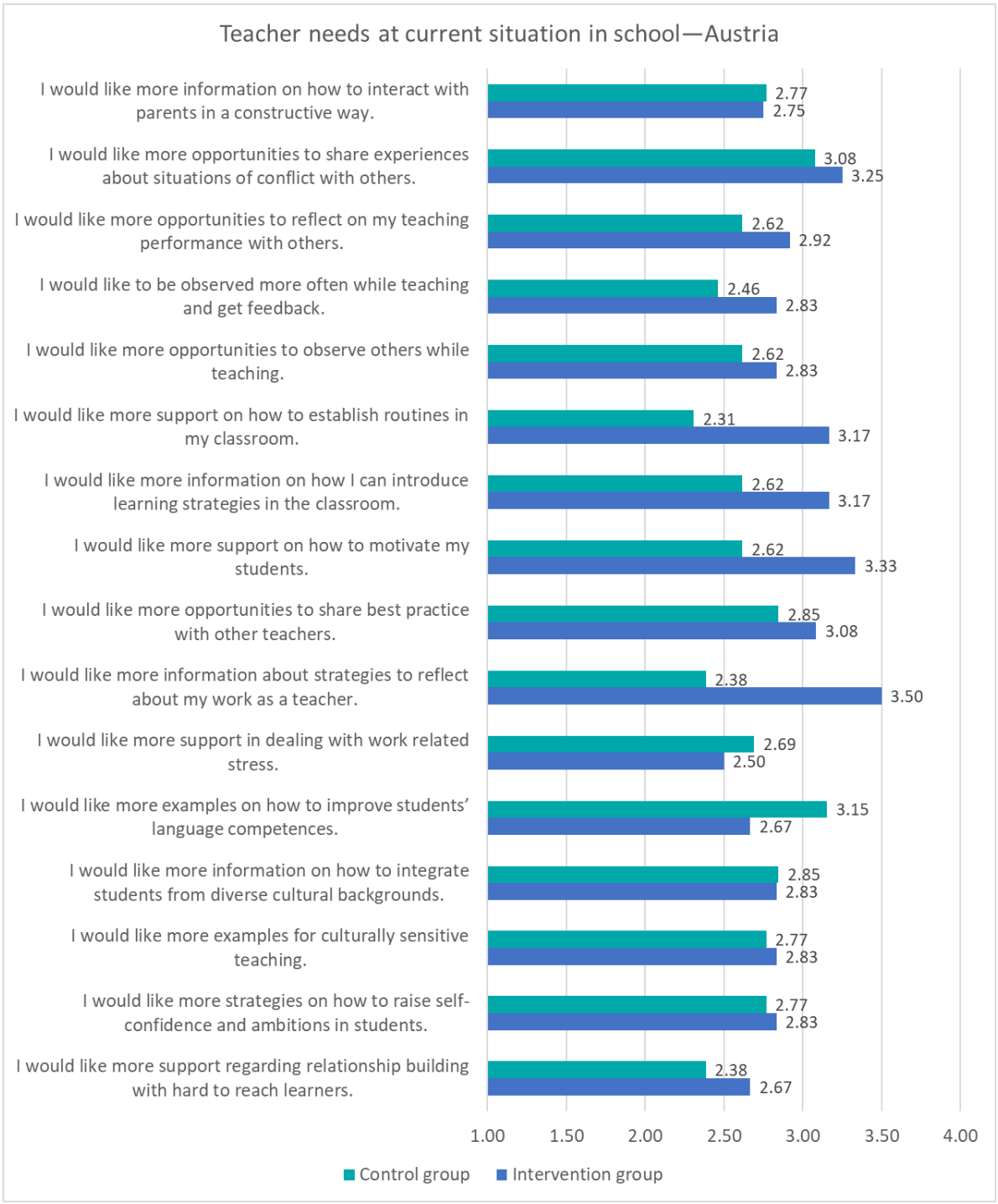

Figure 6: Teacher needs by group—Austria

3.6.2 Teacher needs by education system—Belgium (Flanders)

In the intervention group in Flanders, average agreement with the statements on teacher needs ranged from 2.46 ('I would like to be observed more often while teaching and get feedback') to 3.08 ('I would like more examples on how to improve students' language competences').

Other statements that were rated high concerned motivating students and sharing best practice with other teachers. Depending on the statement, between 47 and 50 of the 50 novice teachers of the intervention group answered the question on teacher needs. For the teachers of the control group, the lowest- and highest-rated statements were the same as for the teachers of the intervention group; however, the range was a little wider. Here, average agreement ranged from 2.41 to 3.24. Other teacher needs receiving high ratings included sharing best practice with other teachers and observing others while they are teaching. Between 25 and 29 novice teachers of the 29 novice teachers of the control group rated the different statements. Since the sample for the control group is very small, means should be interpreted cautiously. All descriptive statistics can be found in Table 39.

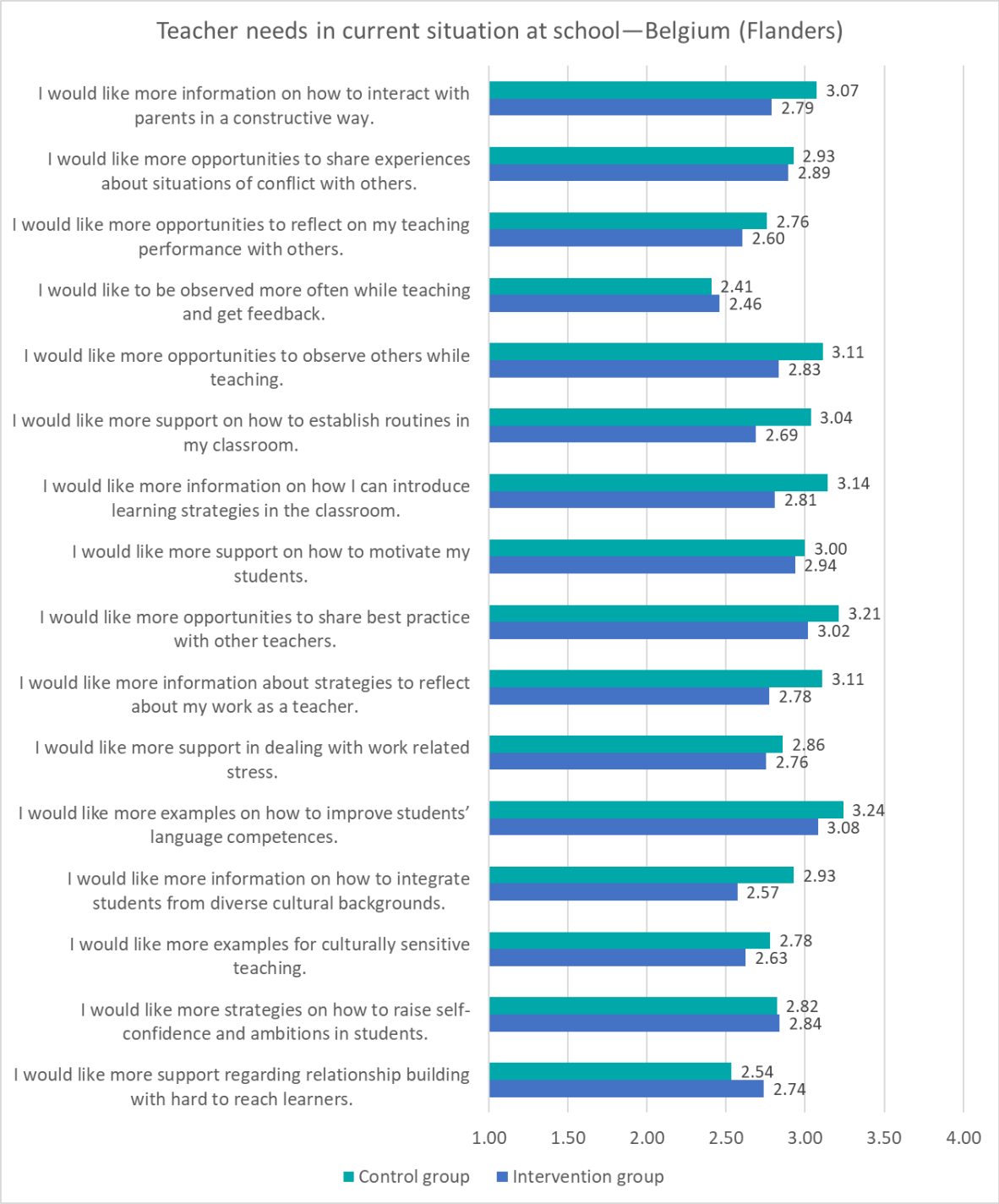

Figure 7: Teacher needs by group—Belgium (Flanders)

3.6.3 Teacher needs by education system—Belgium (Wallonia)

In the intervention group in Wallonia, average agreement with the statements on teacher needs ranged from 2.14 ('I would like to be observed more often while teaching and get feedback') to 3.09 ('I would like more opportunities to share best practice with other teachers').

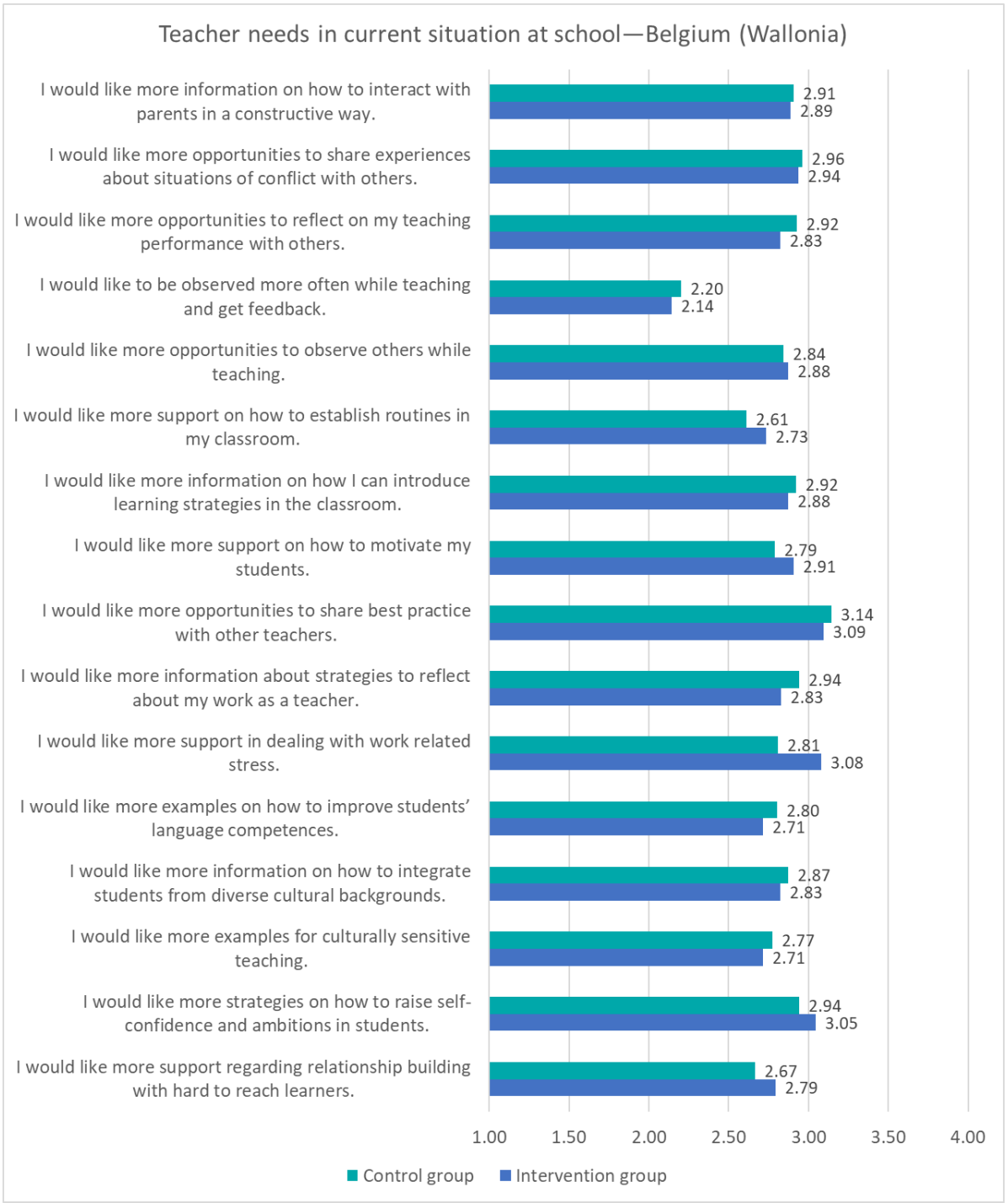

Figure 8: Teacher needs by group—Belgium (Wallonia)

Other statements that were rated high concerned raising self-confidence and ambitions in students (*M* = 3.05) and dealing with work-related stress (*M* = 3.08). Depending on the statement, between 63 and 64 of the 66 novice teachers of the intervention group answered the question on teacher needs. For the teachers of the control group, the lowest- and highest-rated statements were the same as for the teachers of the intervention group, with average agreement ranging from 2.20 to 3.14. Other teacher needs that were rated high included the need to reflect on one's own teaching performance (*M* = 2.92) and one's work as a teacher (*M* = 2.94), the need to share experiences about situations of conflict with other teachers (*M* = 2.96), the need to have more information on introducing learning strategies in the classroom (*M* = 2.92) and the need to raise self-confidence and ambitions in students (*M* = 2.94). Between 131 and 135 novice teachers of the 138 novice teachers of the control group rated the different statements. All descriptive statistics can be found in Table 40.

3.6.4 Teacher needs by education system—Bulgaria

In the intervention group in Bulgaria, average agreement with the statements on teacher needs ranged from 2.56 ('I would like to be observed more often while teaching and get feedback') to 3.27 ('I would like more support on how to motivate my students'). Other statements that were rated high concerned integrating students from diverse cultural backgrounds (*M* = 3.26) and improving students' language competences (*M* = 3.25). Depending on the statement, between 147 and 161 of the 171 novice teachers of the intervention group answered the question on teacher needs.

Two-tailed *t*-tests showed that Bulgarian novice teachers in the intervention group reported significantly higher teacher needs for 12 of the 16 statements. These significant differences were most prominent regarding relationship building with hard-to-reach learners ($t(399) = -5.55^{**}$, $p = 0.00$), motivating students ($t(391) = -5.06^{**}$, $p = 0.00$), and integrating students from diverse cultural backgrounds ($t(397) = -4.79^{**}$, $p = 0.00$). Intervention group teachers did not differ significantly from control group teachers regarding all statements which revolve around interacting with other professionals. This included the need to reflect on one's own teaching performance with others, the need to observe others while teaching, the need to be observed while teaching for feedback purposes, and the need to share best practice with other teachers. For the teachers in the control group, the lowest-rated statement was the same as for the teachers in the intervention group, whereas the highest-rated statement among the control group teachers was about sharing best practice with other teachers. In the control group, average agreement ranged from 2.58 to 3.20. Another teacher need that was rated high was dealing with work-related stress (*M* = 3.08). In the control group, between 236 and 240 novice teachers of the 243 novice teachers of the control group rated the different statements. All descriptive statistics and *t*-test statistics can be found in Table 41.

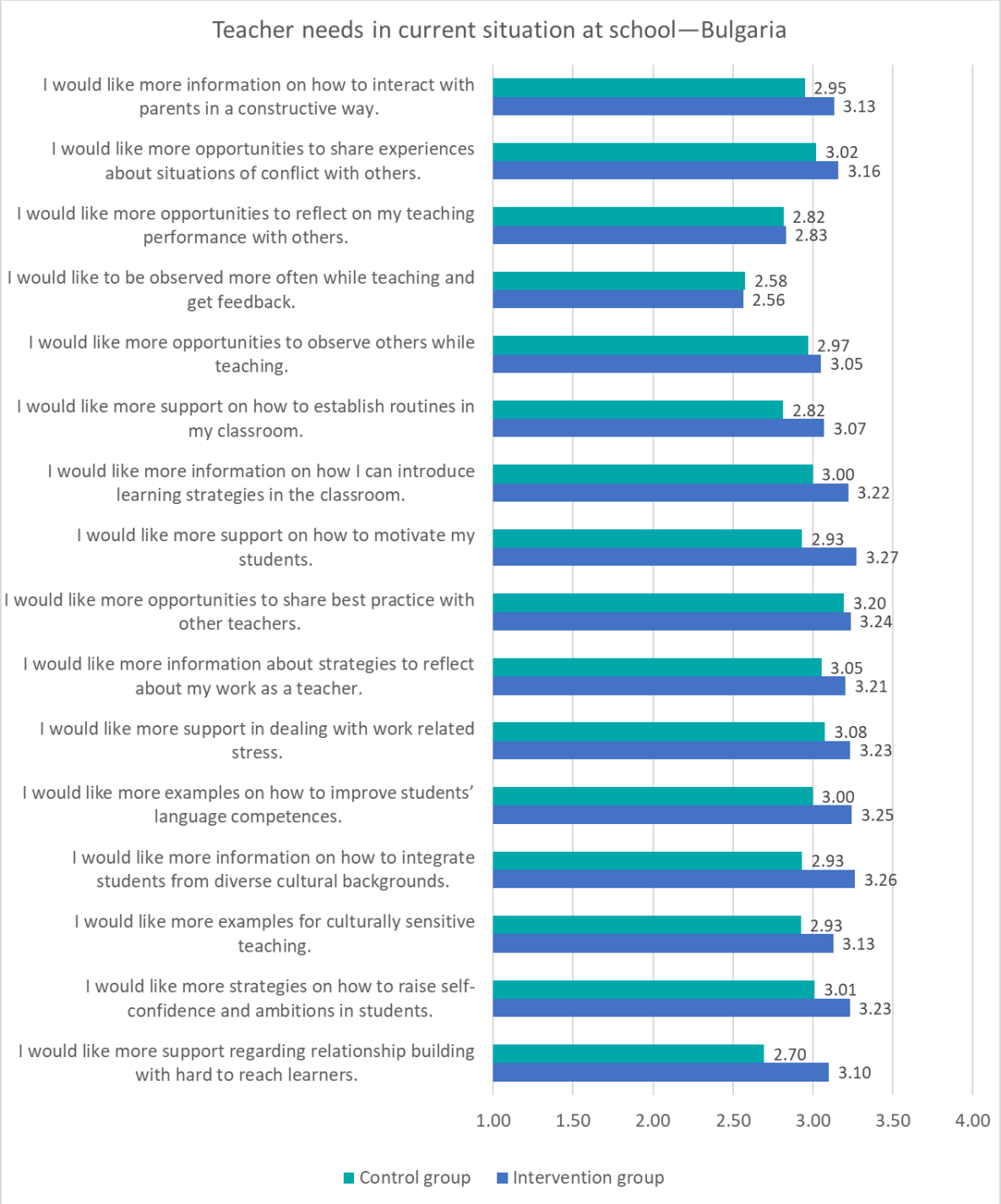

Figure 9: Teacher needs by group—Bulgaria

3.6.5 Teacher needs by education system—Romania

In the intervention group in Romania, average agreement with the statements on teacher needs ranged from 2.86 ('I would like to be observed more often while teaching and get feedback') to 3.50 ('I would like more opportunities to share best practice with other teachers'). Rated almost as high were the needs

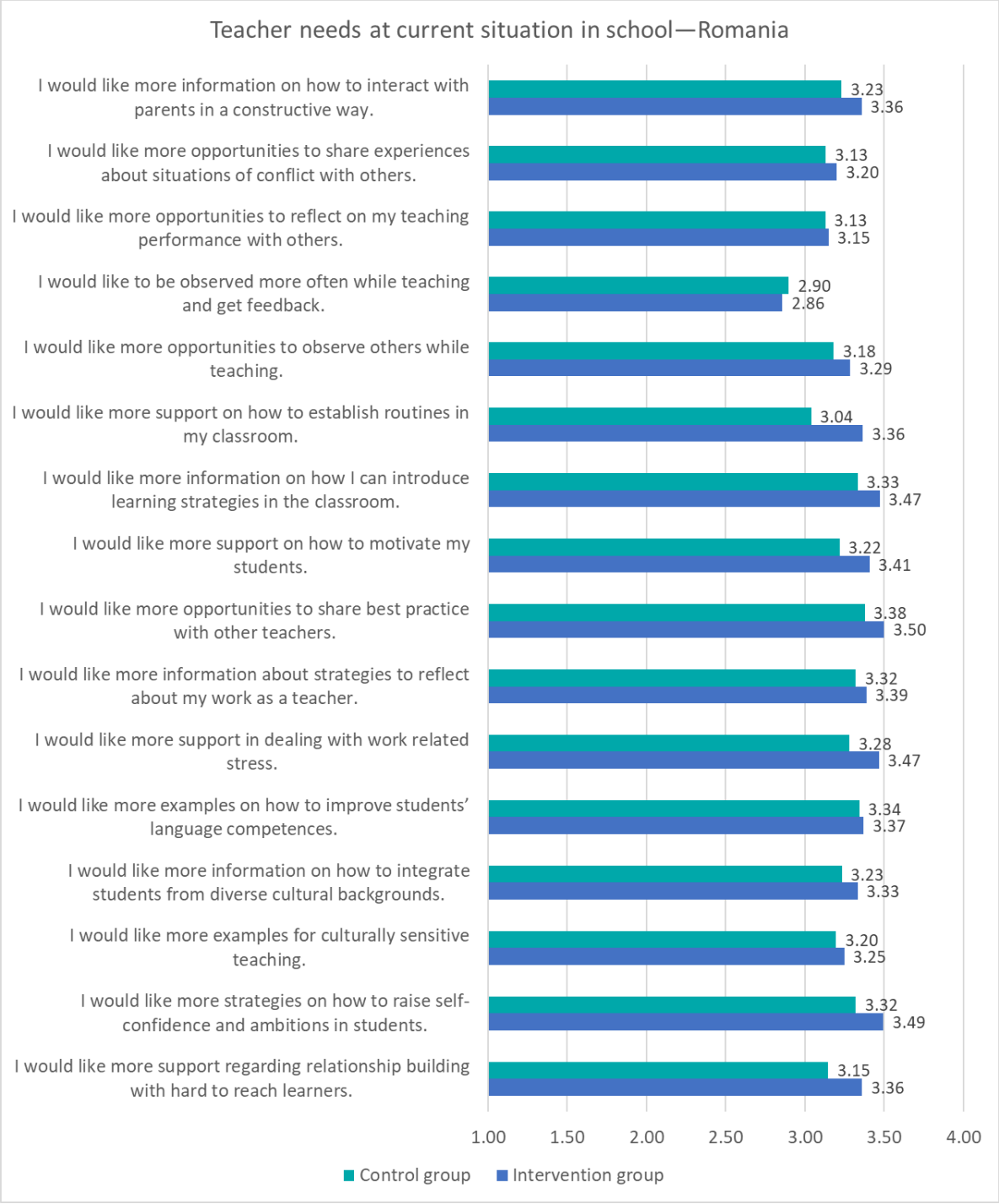

Figure 10: Teacher needs by group—Romania

concerning how to raise self-confidence and ambitions in students (*M* = 3.49), dealing with work-related stress (*M* = 3.47), and introducing learning strategies in the classroom. Depending on the statement, between 81 and 89 of the 89 novice teachers of the intervention group answered the question on teacher needs. For the teachers in the control group, the lowest- and highest-rated statements were the same as for the teachers in the intervention group, with average agreement ranging from 2.90 to 3.38. Other teacher needs that were rated high concerned how to improve students' language competences (*M* = 3.34), how to introduce learning strategies in the classroom (*M* = 3.33) and raise self-confidence and ambitions in students (*M* = 3.32), as well as the need for strategies to reflect on one's own work as a teacher (*M* = 3.32). In the control group, between 77 and 82 novice teachers of the 83 participants rated the different statements. All descriptive statistics can be found in Table 42.

3.6.6 Teacher needs by education system—Spain (Catalonia)

In the intervention group in Catalonia, average agreement with the statements on teacher needs ranged from 2.82 ('I would like to be observed more often while teaching and get feedback') to 3.36 ('I would like more opportunities to share experiences about situations of conflict with others'). Other statements that were rated high included the need to share best practice with other teachers (*M* = 3.34) and how to introduce learning strategies in the classroom (*M* = 3.34). Depending on the statement, between 95 and 96 of the 97 novice teachers of the intervention group answered the question on teacher needs. For the teachers in the control group, the lowest-rated statement was the same as for the teachers in the intervention group, whereas the highest-rated statement among the control group teachers was about sharing best practice with other teachers. In the control group, average agreement ranged from 2.95 to 3.39. Other teacher needs that were rated high concerned sharing experiences of conflict with other teachers (*M* = 3.34), observing other teachers while they are teaching (*M* = 3.33) and how to integrate students from diverse cultural backgrounds (*M* = 3.32). In the control group, between 108 and 109 novice teachers of the 109 novice teachers rated the different statements. Two-tailed *t*-tests showed that Catalonian novice teachers were very similar overall regarding their reported teacher needs irrespective of whether they were in the intervention or control group. However, novice teachers of the control group reported higher teacher needs regarding relationship building with hard-to-reach learners, ($t(203) = 1.91^*$, $p = 0.03$), regarding culturally sensitive teaching ($t(203) = 2.46^{**}$, $p = 0.00$), and regarding how to integrate students from diverse cultural backgrounds ($t(202) = 2.13^*$, $p = 0.03$). All descriptive statistics and *t*-test statistics can be found in Table 43.

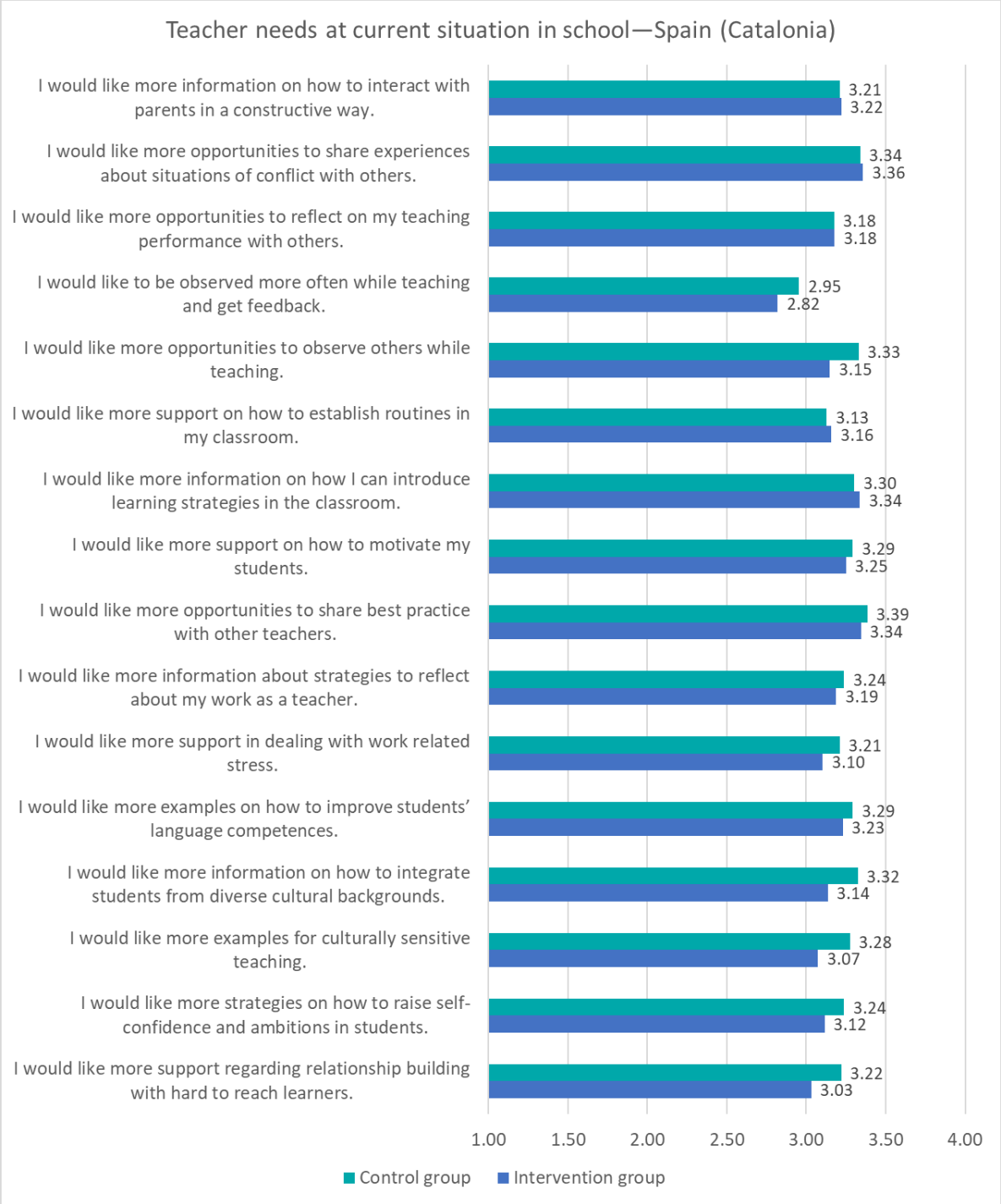

Figure 11: Teacher needs by group—Spain (Catalonia)

3.6.7 Teacher needs by education system—Spain (Madrid)

In the intervention group in Madrid, average agreement with the statements on teacher needs ranged from 2.96 ('I would like to be observed more often while teaching and get feedback') to 3.28 ('I would like more information on how I can introduce learning strategies in the classroom'). Other statements that

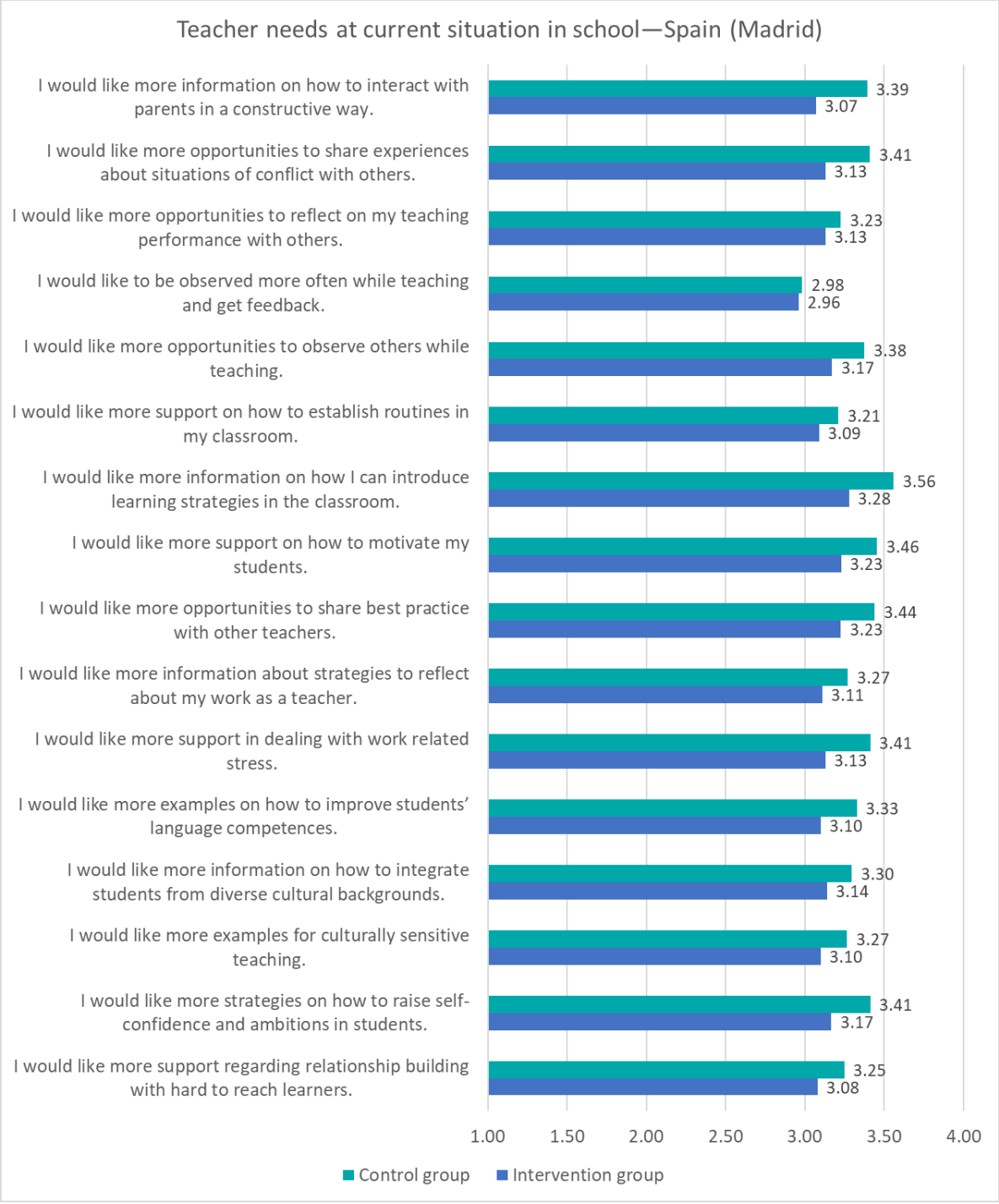

Figure 12: Teacher needs by group—Spain (Madrid)

were rated high included the need to share best practice with other teachers (*M* = 3.23) and how to motivate students (*M* = 3.23). Depending on the statement, between 99 and 101 of the 102 novice teachers in the intervention group answered the question on teacher needs. Two-tailed *t*-tests showed that novice teachers in the intervention group in Madrid reported significantly lower teacher needs for 12 of the 16 statements.

These significant differences were most prominent regarding constructive interaction with parents ($t(225) = 4.09^{**}$, $p = 0.00$), introducing learning strategies in the classroom ($t(225) = 3.93^{**}$, $p = 0.00$), and sharing experiences about situations of conflict with others ($t(227) = 3.50^{**}$, $p = 0.00$). Teachers in the intervention group did not differ significantly from the control group regarding their need for integrating students from culturally diverse backgrounds, the need for support to establish routines in the classroom, the need to be observed while teaching for feedback purposes, and the need to reflect on their teaching performance with others. For the teachers in the control group, the lowest-rated statement and highest-rated statement was the same as for the teachers in the intervention group with means ranging from 2.98 to 3.56. Other high-rated statements for the control group included the need to get support for motivating their students (*M* = 3.46) and raise students' self-confidence and ambitions (*M* = 3.41) as well as dealing with work-related stress (*M* = 3.41) and having more opportunities to share best practice with other teachers (*M* = 3.44). Between 127 and 129 novice teachers rated the different statements. All descriptive statistics and *t*-test statistics can be found in Table 44.

3.7 Conclusion

This section has shown that the terminology around disadvantaged schools is very divergent both in research studies and within the seven education systems participating in the NEST project. International research studies indicate that disadvantaged schools are dealing with several challenges, ranging from a lack of both human and physical resources to a larger proportion of challenging students. The countries participating in the NEST project each use different indicators to identify disadvantaged schools. In addition, the way in which schools were selected for participation in the NEST project and the criteria used for the selection were very different in the different education systems. This means that we can expect the disadvantaged schools participating in the NEST project to vary in the level and type of disadvantage. This variation may also affect the challenges and the needs of novice teachers in the different education systems. The baseline data on teacher needs gathered at the first measurement point indicate that there are some differences between the education systems, but they also show many similarities and strong needs overall in all participating education systems. These strong needs reported by the novice teachers working at disadvantaged schools in the seven education systems provide a clear rationale for providing novice teachers with more support. Before exploring what that additional support may entail, the next chapter will review the existing mentoring structures available in the participating education systems.

4 Mentoring for novice teachers

4.1 Literature review on mentoring for novice teachers

Novice teachers worldwide frequently work at schools in challenging situations and feel less confident about their teaching ability (OECD TALIS, 2018). This would seem to indicate a specific need for support for novice teachers in the early years of their teaching career, preferably in the form of a good induction programme that includes mentoring. However, neither induction nor mentoring programmes are available to all novice teachers across the world; 51% of novice teachers do not take part in an official induction programme, and only 22% report having an assigned mentor (OECD TALIS, 2018). This lack of structured mentoring for novice teachers seems to contribute to high attrition rates among teachers in the first five years of their careers. Borman and Dowling (2008) indicated based on their meta-analysis of mentoring research in the United States that many factors affect teacher attrition rates, including the personal characteristics of the teacher, teacher qualifications, school characteristics, and available resources. However, the meta-analysis also showed that providing novice teachers with support networks and mentoring opportunities decreases attrition rates (Borman and Dowling, 2008, p. 397). Therefore, this section will discuss research evidence regarding the different functions and effects of mentoring.

4.1.1 The effects of mentoring on novice teachers

At disadvantaged schools, it is especially important to strengthen teachers' professional development (Hall et al., 2020). Mentoring or coaching (novice) teachers working at disadvantaged schools can be an effective way to increase professional development. Mentoring that focuses on supporting teachers rather than assessing them can contribute to higher levels of teacher satisfaction and a greater sense of fulfilment, thereby increasing self-efficacy and resilience and reducing teacher attrition (Dawson and Shand, 2019, p. 34). Based on their literature review, Hobson et al. (2009) suggested that mentoring produces many benefits for novice teachers in addition to increasing teacher retention, but that mentoring may also have some disadvantages.The main benefits identified by Hobson et al. related to the provision of emotional and psychological support, which reduces novice teachers' sense of isolation and increases their confidence and job satisfaction. On the other hand, if mentors fail to provide the social and psychological support which the novice teacher needs, mentoring can contribute to teacher attrition (Hobson et al., 2009, p. 211). This is in line with findings by Crasborn et al. (2011, pp. 327–328), who posited that the extent to which a mentor is capable of addressing the individual needs of a novice teacher is an important factor in the success of mentoring. While most research studies point towards the many positive effects of mentoring, poor mentoring in which the mentoring style or practice of the mentor does not match or meet the needs of the mentee can also have the opposite effect. This finding, in turn, highlights that good support and training for mentors themselves is a precondition for obtaining the desired positive effects from setting up a mentoring scheme.

4.1.2 Creating good quality mentoring programmes

In creating a good quality mentoring programmes, many aspects must be considered in addition to the most elementary requirements of meeting the needs of the novice teachers and matching the mentoring approach to these needs. Waterman and He (2011) stressed that it is important to view mentoring as a holistic process which not only considers the direct effects of the mentor on the mentee but in which the mentor also takes into consideration the influence of colleagues, administrators, and even friends and

family of the novice teacher. In other words, viewing mentoring as a holistic process means that good mentors must acknowledge the impact of the people surrounding the novice teacher and consider this impact while mentoring. For example, the mentor and mentee can discuss and reflect the positive and negative impacts of such outside influences on the novice teacher's teaching and provide strategies for dealing with them.

Based on a study of German mathematics teachers, Richter et al. (2013, p. 166) suggested that the quality of mentoring rather than its frequency decides its success. They also indicated that a constructivist approach, whereby teachers have their own input, leads to much better outcomes than a transmissive approach. By emphasising the importance of focusing on the actual approach towards mentoring, Richter et al. (2013) corroborated the ideas of Crasborn et al. (2011, pp. 327–328). However, Richter et al. (2013) suggested that a constructivist mentoring style works best for all German mathematics teachers, whereas Crasborn et al. (2011, pp. 327–328) posited that it is important for the mentor to tailor the mentoring approach to the specific needs of individual mentees. That said, both studies clearly indicated that selecting a suitable mentoring approach is a precondition for creating positive effects on novice teachers; adaptivity is thus an important quality indicator of the mentoring provided.

4.2 Existing mentoring structures in the seven education systems

The first part of this section will focus on the formal mentoring structures that are in place in the seven different education systems. These will be linked to the 4A scheme that was introduced in Section 2.1. The second part will examine the results of the first survey completed by novice teachers to determine how many novice teachers participated in an induction programme and received mentoring outside of (i.e. before) the NEST project.

4.2.1 Formal mentoring structures linked to the 4A scheme

The 4A scheme of availability, accessibility, acceptability and adaptability developed by Tomaševski (2001) will be used to analyse the formal mentoring structures currently in place in the seven participating education systems. Information about the mentoring structures was obtained via a written survey completed by members of our Teach For partner organisations in the respective education systems (Austria, Bulgaria, Catalonia, Flanders, Madrid, Romania, and Wallonia).

Regarding the availability of mentoring for novice teachers, the survey showed that in all seven education systems attempts are being made to set up mentoring programmes. Table 10 shows that in Austria, Bulgaria, and Romania, mentoring programmes are set up at national level, in Spain (Catalonia and Madrid) at regional level, and in Belgium (Flanders and Wallonia) both regionally and at school level. Mentoring seems to be available to at least some novice teachers in all education systems.

Table 10: Availability of mentoring programmes in the seven education systems

Level	Austria	Bulgaria	Catalonia	Flanders	Madrid	Romania	Wallonia
National (N) Regional (R) School (S)	N	N	R	R, S	R (attempts)	N	R, S

Table 11: Accessibility of mentoring programmes in the seven education systems

Education system	Indicators of the accessibility of mentoring programmes
	Do all novice teachers have access to mentoring support? [1]
Austria	No
Belgium (Flanders)	No (but induction is available for all)
Belgium (Wallonia)	No (but induction is available for all)
Bulgaria	Yes (in theory)
Romania	Yes
Spain (Catalonia)	Yes (in theory)
Spain (Madrid)	Yes (in theory, but in practice 74% do not have access)
	What percentage of novice teachers is receiving mentoring?[2]
Austria	11%
Belgium (Flanders)	40% (Flemish community of Belgium)
Belgium (Wallonia)	25% (Belgium)
Bulgaria	18%
Romania	21%
Spain (Catalonia)	10% (Spain)
Spain (Madrid)	10% (Spain)
	How are novice teachers selected to receive mentoring?[3]
Austria	No selection; all novice teachers receive mentoring except career changers
Belgium (Flanders)	Induction programme for all
Belgium (Wallonia)	Induction programme for all
Bulgaria	Principal selects novice teachers for mentoring
Romania	No selection; all novice teachers receive mentoring
Spain (Catalonia)	No selection; all novice teachers who pass the competitive teacher examination receive mentoring
Spain (Madrid)	No selection; all novice teachers who pass the competitive teacher examination receive mentoring
	Is mentoring voluntary or compulsory?[4]
Austria	Compulsory
Belgium (Flanders)	Compulsory
Belgium (Wallonia)	Voluntary
Bulgaria	Principal decides
Romania	Compulsory
Spain (Catalonia)	Compulsory
Spain (Madrid)	Compulsory in the public school system

Note: [1]Information received through survey of our Teach For partners; [2]TALIS 2018 (Figure 10, p. 22), figure 10 in the TALIS 2018 report shows the percentage of novice teachers (teachers with maximum 5 years' experience) at lower secondary schools that receive mentoring from a more experienced teacher. The figure in the TALIS report does not differentiate between the Catalonian and Madrid region for Spain and provides figures for the Flemish community of Belgium and Belgium as a whole (but not for Wallonia); [3]Information received through survey of our Teach For partners; [4]Information received through survey of our Teach For partners

Table 11 shows the accessibility of mentoring in the seven education systems participating in the NEST project. In most education systems apart from Bulgaria, a novice teacher should receive mentoring support or participate in an induction programme during the first year of teaching.

It appears that in many of the participating education systems, mentoring is available and accessible to novice teachers only in theory; our survey of Teach For partners suggested that actual practice seems to be a different story. The findings of the TALIS (2018, p. 22) study corroborate the findings from our own survey; TALIS 2018 showed that the percentage of novice teachers in lower secondary education who received mentoring was less than 50 per cent in all five participating countries (Belgium: 25% [although Flanders was higher at 40%]; Romania: 21%; Bulgaria: 18%; Austria: 11%; and Spain: 10%). That said, in Austria, a mentoring programme for all novice teachers apart from teachers who enter teaching via alternative pathways was implemented in 2019. This means that the percentage of novice teachers receiving mentoring in Austria should have increased by now compared to the TALIS 2018 results. The discrepancy between what happens in theory and practice in (almost) all participating education systems impacts significantly on the accessibility of mentoring. Whereas most countries endeavour that mentoring should be available to all novice teachers, in practice many novice teachers do not have access to mentoring. However, this lack of access does not seem to result from not being selected for mentoring via a formal selection process (see Table 11). Receiving mentoring does not affect the contract, promotion, or salary of novice teachers in any of the education systems.

The acceptability of mentoring is measured in terms of mentor selection (see Table 12) and existing professional guidelines or training for the mentors (see Table 13). In almost all participating education systems, mentors are experienced teachers who mentor novice teachers at the same school at which the mentors teach. School management (director or principal) is responsible for the selection of the mentors (see Table 12). In all education systems except Romania, there is no formally regulated application process for becoming a mentor. Only in Austria do all selected mentors receive mentor training. In Flanders and Wallonia, training programmes for mentors are available but not mandatory; and in the other education systems, mentors do not receive any training (see Table 13). The criteria for becoming a mentor vary between the different education systems, but a minimum number of years of teaching experience seems to be a common denominator across the different education systems.

Since there are relatively few formal arrangements for mentoring novice teachers in most education systems, the adaptability of the mentoring being offered is difficult to judge. In most countries, schools seem to play a large part in providing mentoring for their novice teachers, which creates a structure that is suitable for adaptability because there is no rigid prescription for what mentoring should entail. In theory, schools thus have the opportunity to set up mentoring schemes that are tailored to the specific needs of their novice teachers. Schools in disadvantaged areas could focus their mentoring programme on the specific challenges that novice teachers are facing at their school. At the moment, however, many schools do not offer mentoring at all; while the current structures would provide opportunities for adaptability, this still needs to be realised in practice in most participating education systems.

Table 12: Acceptability of mentoring in the seven education systems—selection process

Education system	Indicators of the acceptability of mentoring
	Who selects mentors?
Austria	School principal
Belgium (Flanders)	School administration
Belgium (Wallonia)	School administration
Bulgaria	School principal
Romania	General school inspector
Spain (Catalonia)	School management
Spain (Madrid)	Evaluation commission and school director
	How do teachers apply to become a mentor?
Austria	At a university for pedagogy (Pädagogische Hochschule)
Belgium (Flanders)	Differs per school
Belgium (Wallonia)	Differs per school
Bulgaria	Appointed (i.e. no application)
Romania	Teacher submits file to become a mentor teacher
Spain (Catalonia)	Appointed by head of educational establishment or service (i.e. no application)
Spain (Madrid)	Unclear
	Selection criteria
Austria	Candidate must have completed university teacher education, must have three years' teaching experience, and must be on an indefinite contract
Belgium (Flanders)	Differs per school
Belgium (Wallonia)	Candidate must have a minimum of five years' teaching experience and must hold a certificate in pedagogy
Bulgaria	Candidate must have at least 10 years' teaching experience (in practice sometimes less experience is accepted)
Romania	Candidate must be a tenured teacher, must have a level I didactical qualification, must participate in a continuing education programme, must be rated very good, must have no criminal convictions, must be medically fit
Spain (Catalonia)	Candidate must be a teacher with professional competences
Spain (Madrid)	Candidate must have more than five years' teaching experience

Source: Information in this table is based on the survey of our Teach For partners

Table 13: Acceptability of mentoring in the seven education systems—existing professional guidelines for mentoring

Education system	Indicators of the acceptability of mentoring
	Is there a formal mentor training programme?
Austria	Yes, 30 ECTS
Belgium (Flanders)	No (not for all)
Belgium (Wallonia)	No (not for all)
Bulgaria	No
Romania	No
Spain (Catalonia)	No
Spain (Madrid)	No
	Is there a reduction of working hours to allow for mentoring work? / Do mentors receive additional payment for mentoring?
Austria	No / Yes
Belgium (Flanders)	Yes (school autonomy) / No
Belgium (Wallonia)	Yes, on average 2 hours / No
Bulgaria	No / Minimum 30 Euros
Romania	Yes, 2 hours / Yes
Spain (Catalonia)	No / No
Spain (Madrid)	No / No

Source: Information in this table is based on the survey of our Teach For partners

4.2.2 Baseline data on existing induction programmes and mentoring for novice teachers

One purpose of the first survey for novice teachers was to record the status quo in novice teacher support and mentoring structures in the seven education systems. To this end, we asked novice teachers at the start of the NEST project (i.e. before they had received any NEST mentoring) several questions about what kind of support by way of induction programmes and/or mentoring they had received thus far.

Firstly, we asked whether novice teachers had taken part in any formal or informal induction programme at their current school or at the first school at which they had worked. Figure 13 shows, that a high percentage of novice teachers in most education systems reported not to have received either formal or informal teacher induction at school. Percentages for lack of formal induction range from 84.62% in Austria to 68.14% in Wallonia. Percentages for lack of informal teacher induction range from 83.12% in Madrid to 58.33% in Wallonia. Only in Flanders was the percentage of teachers without teacher induction considerably lower, with 26.58% of novice teachers reporting not having received a formal teacher induction, and 34.18% of novice teachers reporting not having received an informal teacher induction. In Bulgaria, Romania, and the Madrid region of Spain, the percentages of novice teachers reporting that they did not receive either a formal or an informal teacher induction were very similar. For Austria and Wallonia, lack of informal induction was ten percentage points lower than lack of formal induction, while for Flanders and Catalonia it was the other way around. Novice teachers in Austria and Wallonia reported receiving more informal teacher induction, and novice teachers in Flanders and Catalonia reported receiving more formal teacher induction. The novice teachers who reported having received teacher induction most commonly received their induction at the school which they were currently working at. All tables with descriptive statistics can be found in the Appendix (Table 29 and Table 30).

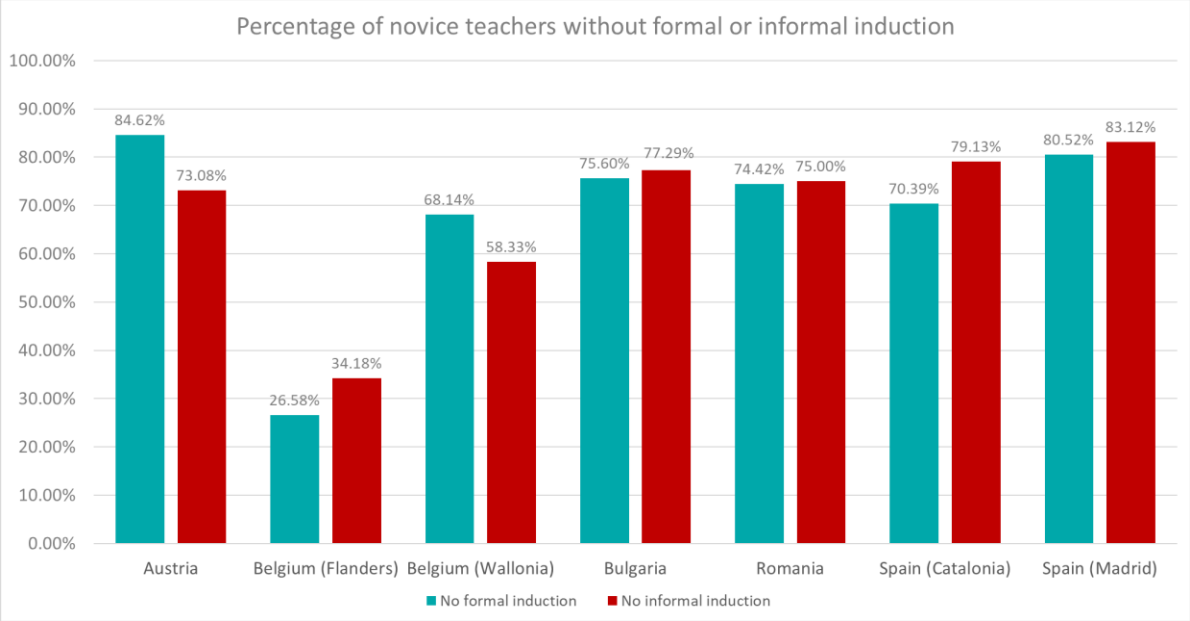

Figure 13: Percentage of novice teachers not receiving induction programmes by education system

We also wanted to know whether novice teachers were supported by a mentor at the time of completing the first survey. Since support from a mentor is especially crucial during the first years of teaching, we only considered novice teachers with three years of teaching experience or less in our analysis.

Figure 14 shows that there is a need for mentor support for novice teachers especially in Austria and Romania. Novice teachers in Austria were teachers entering the profession from alternative pathways who, in contrast to novice teachers hailing from traditional teacher training pathways, were not provided with mentoring.

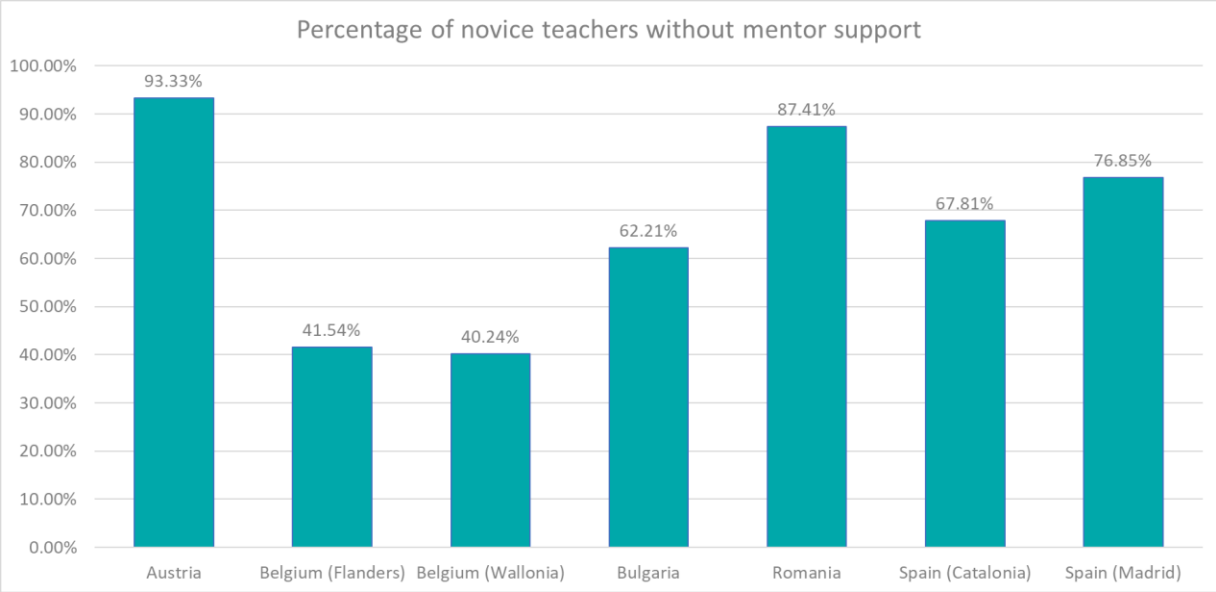

Figure 14: Novice teachers without mentor support by education system

In the Madrid region, more than three quarters of the teachers in our sample did not have a mentor to support them. In Catalonia and Bulgaria, more than 60% of novice teacher did not receive mentoring. While novice teachers in Belgium received the largest amount of mentor support overall, more than 40% of novice teachers reported that they did not have a mentor to support them.

4.2.3 Summary of mentoring structures in the seven education systems

This section has shown that whilst most education systems strive to make mentoring available to all novice teachers, all systems struggle to achieve this goal in practice. The findings from our first questionnaire of novice teachers corroborated the picture of the formal mentoring structures provided by our Teach For partners and the OECD TALIS (2018) report. The findings in this section provide an excellent rationale for the NEST project because we diagnosed a significant lack of mentoring support for novice teachers in all participating education systems.

4.3 Views on mentoring by country (baseline data)

The first survey included questions on novice teachers' and mentors' views on mentoring in general in order to examine to what extent mentoring is accepted and valued in the different education systems. Overall, four statements had to be rated on a scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). One example statement was: 'In my education system, being a mentor is seen as one of the most important parts of professional development for teachers'.

The data showed that novice teachers in the intervention group rated the statements on mentoring a little higher overall than novice teachers in the control group. In other words, novice teachers in the intervention group believed more strongly than novice teachers in the control group that mentoring novice teachers is valued in general. The highest means in the intervention group ranged from 2.62 in Austria to 3.40 in Flanders, and in the control group from 2.28 in Madrid to 3.28 in Flanders. On average, novice teachers agreed or strongly agreed that mentoring is valued and important in their education system. For Bulgaria, Catalonia, and Madrid, the differences in means were tested with two-sided *t*-tests. In Bulgaria and Catalonia, novice teachers in the intervention group rated the statements on the general value of mentoring significantly higher than those in the control group. In Madrid, novice teachers in the intervention group only rated two of the four statements significantly higher than the control group. Intervention group novice teachers agreed significantly more strongly that mentoring is valued in society and that people in their environment highly respect mentors who support novice teachers. However, apart from these differences in means, novice teachers in both groups showed similar patterns of rating the items, i.e. the highest-rated statement in the intervention group was also the highest-rated statement in the control group.

Mentors in the different education systems overall agreed most with the statement that being a mentor is seen as one of the most important parts of teachers' professional development and/or with the statement that in their school district, mentoring novice teachers is seen as a crucial part of starting the teaching career. Especially in Bulgaria, mentors (experts) reported that being a mentor is seen as one of the most important parts of professional development for teachers ($M = 3.39$). In Madrid, agreement with statements regarding the importance and value of mentoring in general was the lowest overall; mentors did not feel that being a mentor is seen as especially important for the professional development of teachers ($M = 1.83$). This perspective was also mirrored by the novice teachers. Compared to all education systems, Bulgarian novice teachers thought that mentors are respected the most, while novice teachers

from the region of Madrid believed that mentors are respected the least. However, regarding this particular statement, the ratings of novice teachers were higher in most education systems than those of the mentors. All descriptive statistics and *t*-test statistics regarding the statements on the value of mentoring in the different education systems can be found in the Appendix (Table 45 to Table 51 for novice teachers, and Table 52 to Table 58 for mentors).

4.4 Mentoring experience and previous mentor training (baseline data)

In order to examine the effects of the adaptive mentor training programme and the mentors' professional development of their mentoring skills, it is necessary to evaluate the intervention group mentors' previous experience with mentoring and to determine to which extent they had previously received mentor training. In the context of the NEST project, it is especially interesting to examine whether any previously received mentor training focused on dealing with the challenges that are common at disadvantaged schools. Following a filter question (answer choices: yes/no) to find out whether mentors had previously received mentor training, we included a question on the possible different points of focus of the previously received mentor training. For this purpose, we designed six statements each describing a challenge on which the previous training might have focused, such as: teaching students with language barriers or emotional and behavioural difficulties; engaging hard-to-reach learners; or involving parents in the learning process of their children. The question was phrased: 'To what extent did your previous workshop(s) or training programme(s) on mentoring focus on supporting novice teachers to…', and the different statements had to be rated on a 4-point Likert scale ranging from 1 (*not at all*) to 4 (*a lot*).

The data showed that in Bulgaria, Romania, and Flanders, the majority of mentors in the intervention group had mentored novice teachers within the past five years. In Wallonia, more than half of the mentors in the intervention group had mentoring experience. In Spain, roughly 40% of the mentors in the intervention group had mentored novice teachers in the past five years. In Austria, only a third of the mentors in the intervention group had mentoring experience (see Figure 15).

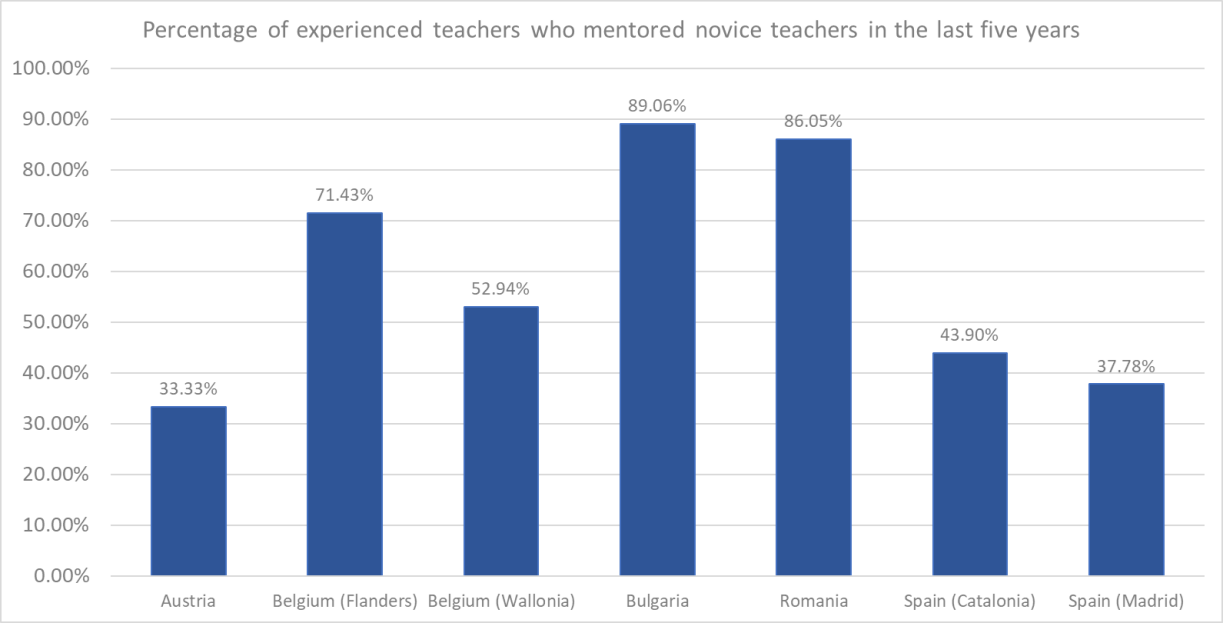

Figure 15: Percentage of mentors with previous mentoring experience by education system

The data further showed that even though mentors already had mentoring experience, mentors in most of the education systems had not received mentor training. This is especially true for Spain and Bulgaria, where over 80% of the mentors in the intervention group stated that they had not received any previous mentor training. In Romania, about half of the mentors in the intervention group had had some form of previous mentor training. In Austria and in Belgium, the majority of mentors in the intervention group stated that they had previously received mentor training (see Figure 16).

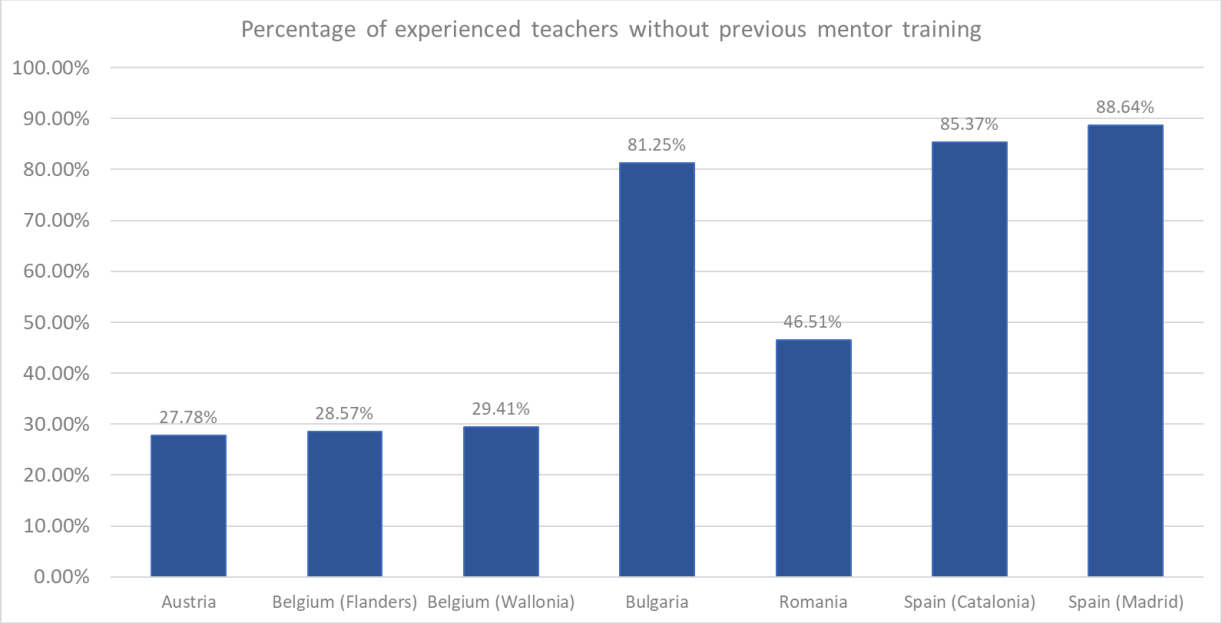

Figure 16: Percentage of mentors without previous mentor training by education system

With regard to the different challenges at disadvantaged schools that previously received mentor training programmes might have focused on, mentors in Belgium stated that on average these challenges had been a focus of their previous mentor training only to some extent or not at all. In Austria and Romania, mentors stated that their previous mentoring had focused on the different challenges teachers commonly face at disadvantaged schools on average to some extent or quite a bit. The strongest reported focus of previous mentor training programmes in both Austria and Romania was on how to support novice teachers to manage a diverse classroom effectively (Austria: *M* = 3.31; Romania: *M* = 2.78). In Austria, mentors also stated that their mentor training had focused on how to support novice teachers with teaching students with language barriers (*M* = 3.0) and with teaching students with emotional and behavioural difficulties (*M* = 3.15). Descriptive statistics can be found in the Appendix (Table 32 and Table 33).

4.5 Novice teachers' attitudes towards mentoring (baseline data)

The data gathered at the first measurement point showed that novice teachers in all education systems had very positive attitudes towards being mentored. On average, novice teachers in all education systems agreed or strongly agreed with all six statements revolving around their expectations of prospective mentoring. Overall, novice teachers in the intervention and the control groups within each education system rated the statements very similarly. With the exception of Flanders, a tendency could be observed for intervention group teachers to express slightly more positive attitudes and expectations than control

group teachers. However, the significance of these differences could be tested only for the samples of Bulgaria, Catalonia, and Madrid. Here, *t*-tests showed that the intervention group had significantly more positive attitudes towards mentoring only in Bulgaria. For the Catalonian sample, significant differences could be found only for one statement: Catalonian novice teachers in the control group were more convinced that mentoring could have an important impact on their professional development than novice teachers in the intervention group. Overall, the patterns of means for novice teachers in all education systems was similar in that items that were rated higher in the intervention group were also rated higher in the control group. All novice teachers agreed most strongly with the following statements: 'I think being mentored can have an important impact on my professional development' and/or 'I think being mentored will help me to improve my teaching'. The highest means in the intervention group ranged from 3.43 in Wallonia to 3.73 in Romania. The highest means in the control group ranged from 3.19 in Bulgaria to 3.60 in Catalonia. Even the lower means in the control group were still higher than the theoretical mean of the scale (2.5 = moderate agreement). All statements, the respective means, and the standard deviations for all education systems as well as the *t*-test statistics for Bulgaria, Catalonia, and Madrid, are displayed in detail in the Appendix (Table 59 to Table 65).

4.5.1 Attitudes towards being mentored by education system—Austria

In Austria, average agreement with the statements on attitudes towards being mentored ranged from 3.00 to 3.46 in both the intervention group and the control group, which means that attitudes towards being mentored were very positive. While the lowest-rated statement was the same for intervention group and control group novice teachers ('I expect my mentor(s) to help me discover the causes for professional problems'), intervention group novice teachers agreed very strongly that their mentors would help them improve their teaching and that being mentored would have a positive impact on their professional development. Control group novice teachers rated the statement 'From my mentor(s) I expect good ideas for my further professional development' the highest. Depending on the statement, between 12 and 13 of the 13 novice teachers in the intervention group answered the question on attitudes towards being mentored. In the control group, all 13 participants rated the different statements. For detailed descriptive statistics, see Table 59 in the Appendix.

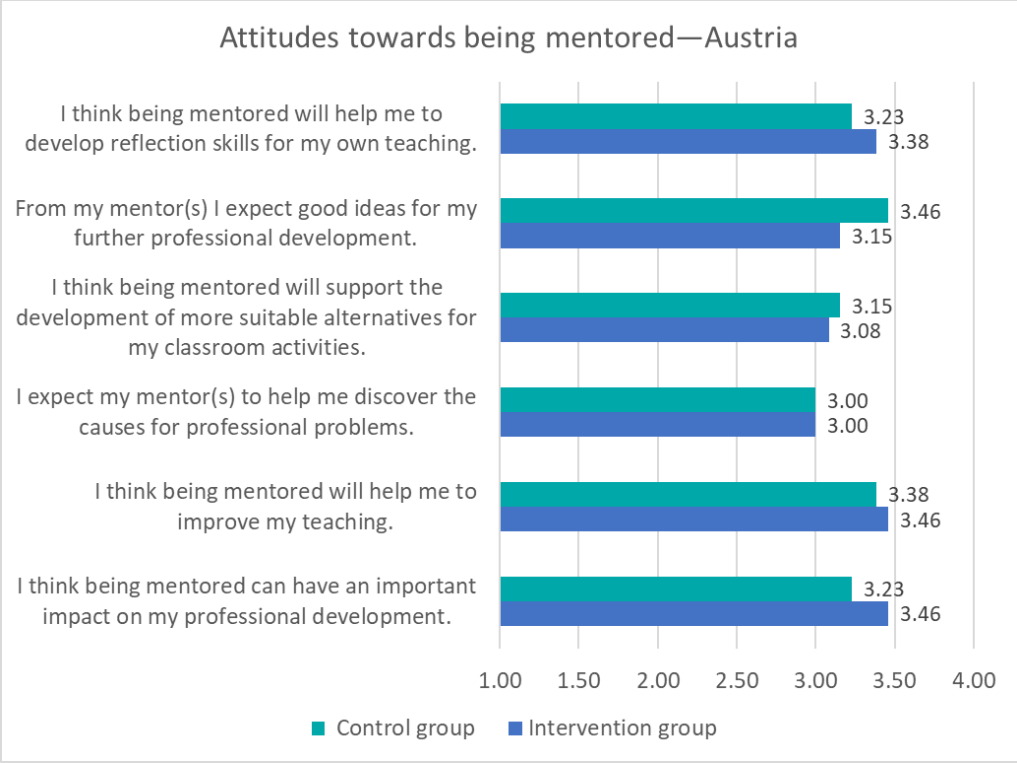

Figure 17: Attitudes towards being mentored by group—Austria

4.5.2 Attitudes towards being mentored by education system—Belgium (Flanders)

In the intervention group in Flanders, average agreement with the statements on attitudes towards being mentored ranged from 3.04 ('From my mentor(s) I expect good ideas for my further professional development') to 3.49 ('I think being mentored can have an important impact on my professional development'). On average, novice teachers in the intervention group also agreed quite strongly with the expectation that being mentored would help them to improve their teaching. Depending on the statement, between 48 and 49 of the 50 novice teachers in the intervention group answered the question on attitudes towards being mentored. For the teachers in the control group, the lowest- and highest-rated statement were the same as for the teachers in the intervention group, and the same applied to the other high-rated statements. The control group expressed very positive attitudes towards being mentored overall, with means ranging from 3.07 to 3.38. In the control group, all 29 participants rated the different statements. Table 60 in the Appendix shows all descriptive statistics for Flanders.

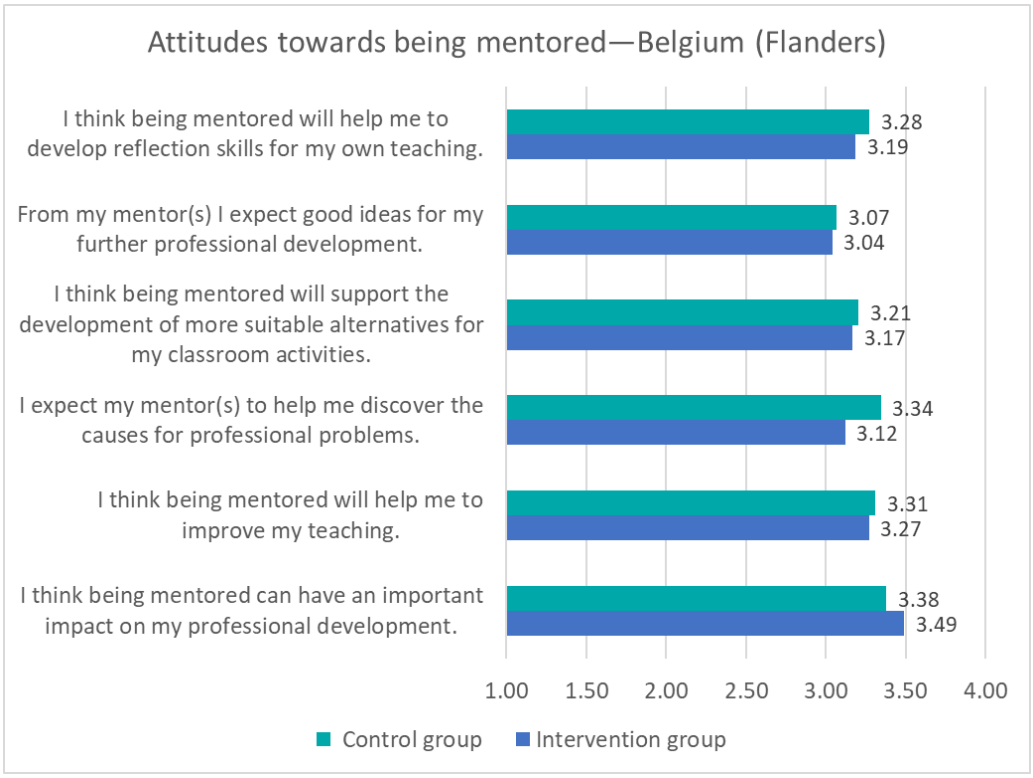

Figure 18: Attitudes towards being mentored by group—Belgium (Flanders)

4.5.3 Attitudes towards being mentored by education system—Belgium (Wallonia)

In the intervention group in Wallonia, average agreement with the statements on attitudes towards being mentored ranged from 3.10 ('I think being mentored will support the development of more suitable alternatives for my classroom activities') to 3.43 ('I think being mentored can have an important impact on my professional development'). On average, novice teachers in the intervention group also agreed quite strongly with the expectation that mentoring would help them to improve their teaching and develop reflection skills for their own teaching. Depending on the statement, between 62 and 63 of the 66 novice teachers in the intervention group answered the question on attitudes towards being mentored. For the teachers in the control group, the highest-rated statement was the same as for the teachers in the intervention group. However, teachers in the control group rated the statement regarding mentors helping them discover the causes for professional problems the lowest (M = 3.04). Like the intervention group, the control group also agreed comparably strongly with the expectation that mentoring would help them improve their teaching and develop reflection skills for their own teaching. Overall, the control group expressed very similar attitudes towards being mentored as the intervention group. Means ranged from 3.04 to 3.47. In the control group, 134 to 137 of the 138 participants rated the different statements. Table 61 in the Appendix shows all descriptive statistics for Wallonia.

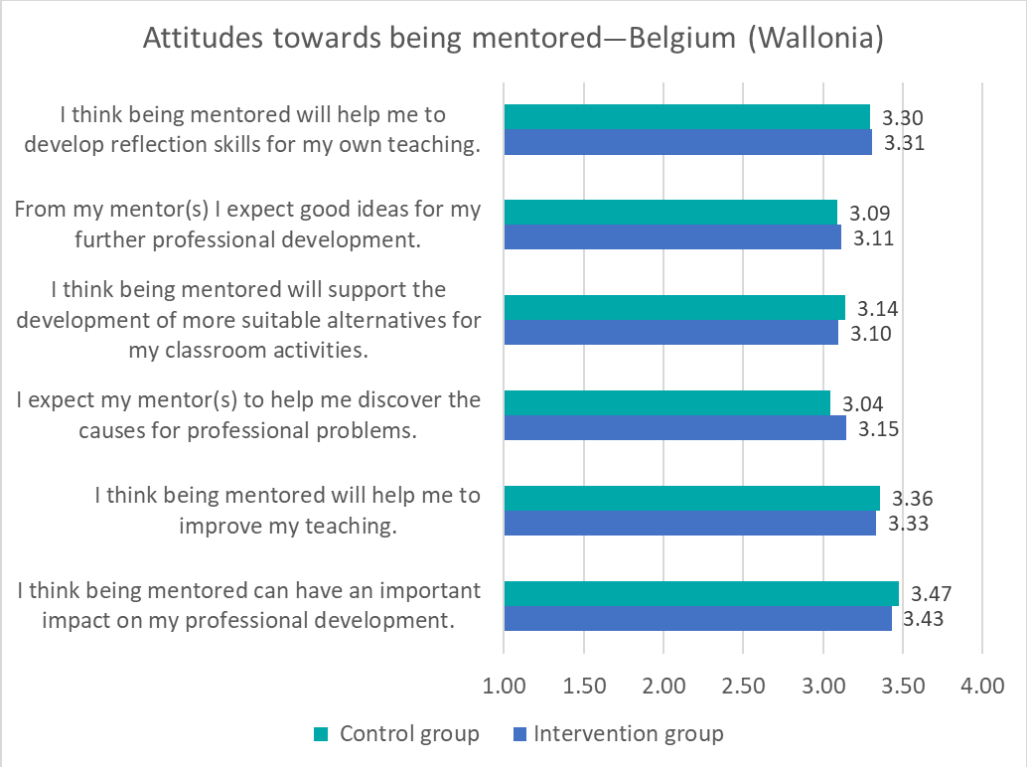

Figure 19: Attitudes towards being mentored by group—Belgium (Wallonia)

4.5.4 Attitudes towards being mentored by education system—Bulgaria

In the intervention group in Bulgaria, average agreement with the statements on attitudes towards being mentored ranged from 3.33 ('I expect my mentor(s) to help me discover the causes for professional problems'; $t(406) = -5.34^{**}$, $p = 0.00$) to 3.47 ('I think being mentored will help me to improve my teaching'; $t(406) = -5.95^{**}$, $p = 0.00$). This range of means showed that the intervention group agreed very strongly with all statements, and the t-tests showed that the intervention group agreed significantly more strongly with the six statements than the control group. The statement which was rated second highest was 'I think being mentored will support the development of more suitable alternatives for my classroom activities' ($t(407) = -5.39^{**}$, $p = 0.00$). Depending on the statement, between 164 and 166 of the 171 novice teachers in the intervention group answered the question on attitudes towards being mentored. On average, teachers in the control group had significantly less positive attitudes towards being mentored than the intervention group teachers. Their means ranged from 2.96 ('I expect my mentor(s) to help me discover the causes for professional problems') to 3.17 ('I think being mentored will help me to develop reflection skills for my own teaching'; $t(405) = -3.99^{**}$, $p = 0.00$). They also agreed strongly with the expectation that mentoring would have an important impact on their professional development. In the control group, 242 to 243 of the 243 participants rated the different statements. All descriptive statistics and *t*-test statistics are reported in Table 62 in the Appendix.

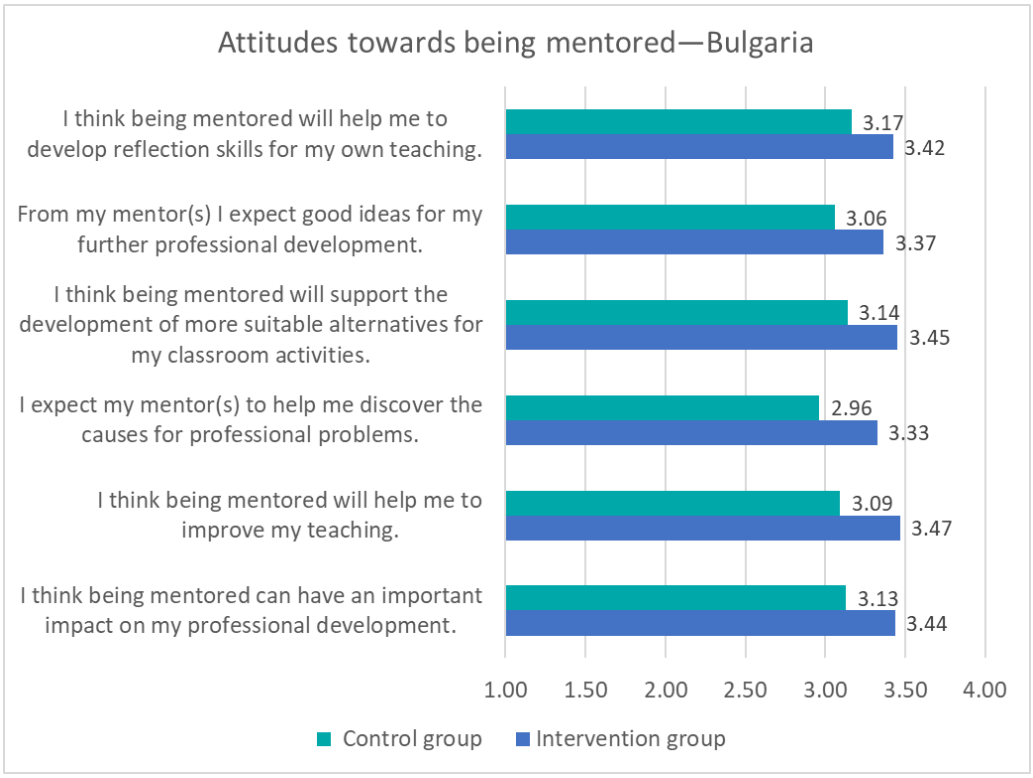

Figure 20: Attitudes towards being mentored by group—Bulgaria

4.5.5 Attitudes towards being mentored by education system—Romania

In the intervention group in Romania, average agreement with the statements on attitudes towards being mentored ranged from 3.53 ('I expect my mentor(s) to help me discover the causes for professional problems') to 3.71 ('I think being mentored can have an important impact on my professional development'). On average, the intervention group also agreed very strongly with the expectation that mentoring would help them improve their teaching. Depending on the statement, between 87 and 89 of the 89 novice teachers in the intervention group answered the question on attitudes towards being mentored. For the teachers in the control group, the highest- and lowest-rated statements were the same as for the teachers in the intervention group. Overall, the control group expressed very similar attitudes towards being mentored as the intervention group, with means ranging from 3.38 to 3.62. In the control group, 81 to 82 of the 83 participants rated the different statements. For all detailed descriptive statistics, see Table 63 in the Appendix.

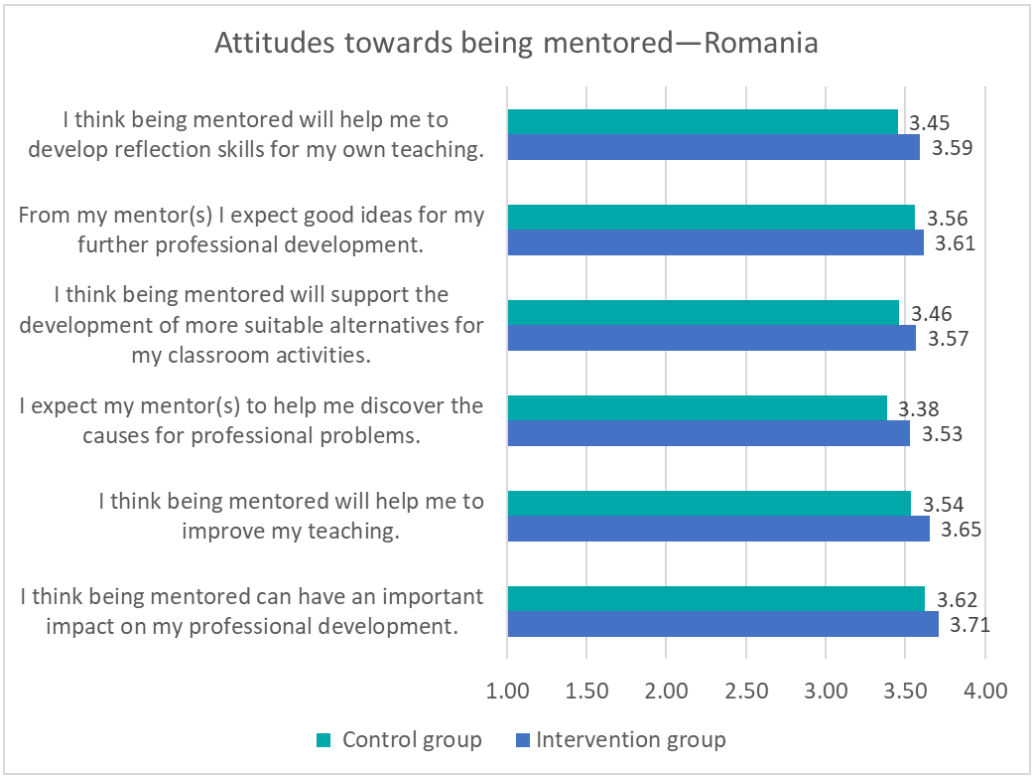

Figure 21: Attitudes towards being mentored by group—Romania

4.5.6 Attitudes towards being mentored by education system—Spain (Catalonia)

In the intervention group in Catalonia, average agreement with the statements on attitudes towards being mentored ranged from 3.43 ('I think being mentored can have an important impact on my professional development'; 'I expect my mentor(s) to help me discover the causes for professional problems') to 3.58 ('From my mentor(s) I expect good ideas for my further professional development'). In general, the intervention group agreed quite strongly with all statements. All 97 novice teachers in the intervention group answered the question on attitudes towards being mentored. For the teachers in the control group, the average agreement with the statements on attitudes towards being mentored ranged from 3.45 ('I think being mentored will support the development of more suitable alternatives for my classroom activities') to 3.60 ('I think being mentored can have an important impact on my professional development'). For this latter statement, the control group's level of agreement was significantly higher than the agreement of the intervention group ($t(204) = 2.23$ **, $p = 0.01$). For all other statements, no significant difference in the average agreement of both groups was found; both groups agreed strongly with all statements. All 109 participants of the control group rated the different statements. All descriptive statistics as well as *t*-test statistics can be found in Table 64.

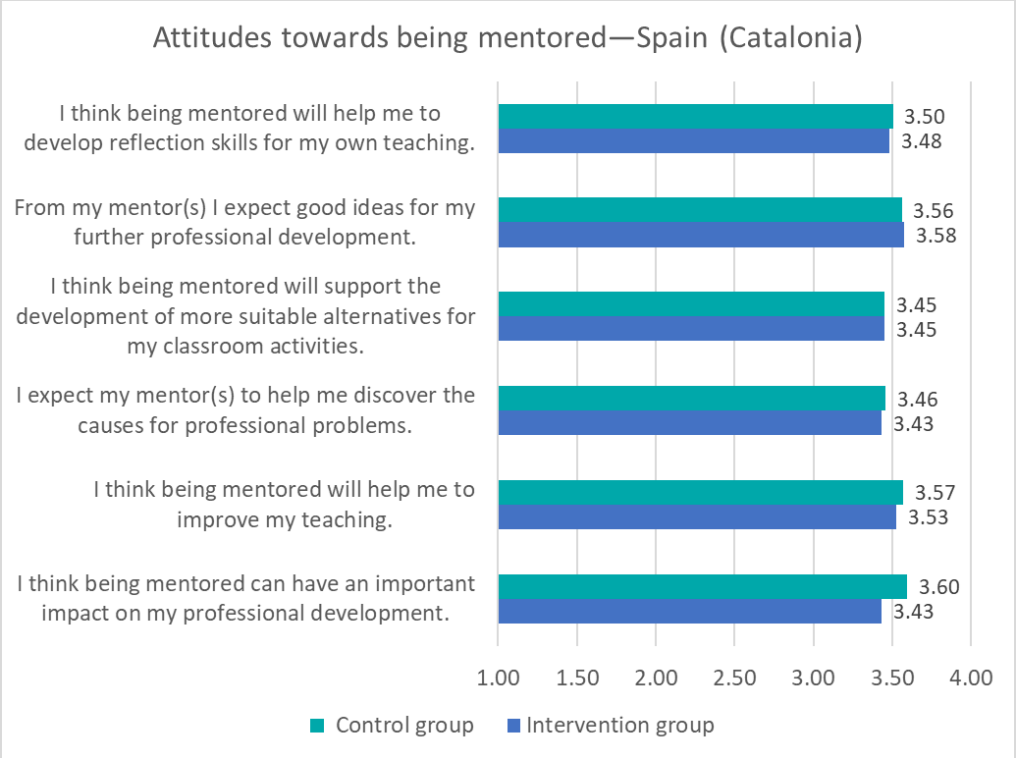

Figure 22: Attitudes towards being mentored by group—Spain (Catalonia)

4.5.7 Attitudes towards being mentored by education system—Spain (Madrid)

In the intervention group in Madrid, average agreement with the statements on attitudes towards being mentored ranged from 3.25 ('I think being mentored can have an important impact on my professional development') to 3.61 ('From my mentor(s) I expect good ideas for my further professional development'). On average, the intervention group also agreed quite strongly with all the other statements, with means ranging from 3.51 to 3.59. Depending on the statement, between 98 and 101 of the 101 novice teachers in the intervention group answered the question on attitudes towards being mentored. For the teachers in the control group, the lowest-rated statement was the same as for the teachers in the intervention group. However, the statement rated highest by teachers in the control group was about thinking that being mentored would help them improve their teaching (M = 3.55). Like the intervention group, they also agreed comparably strongly with the statement 'From my mentor(s) I expect good ideas for my further professional development'. Means in the control group ranged from 3.31 to 3.55. Two-sided t-tests showed that there is no significant difference between intervention and control group regarding their attitudes towards being mentored. In the control group, 127 to 129 of the 129 participants rated the different statements. All descriptive statistics as well as t-test statistics can be found in Table 65.

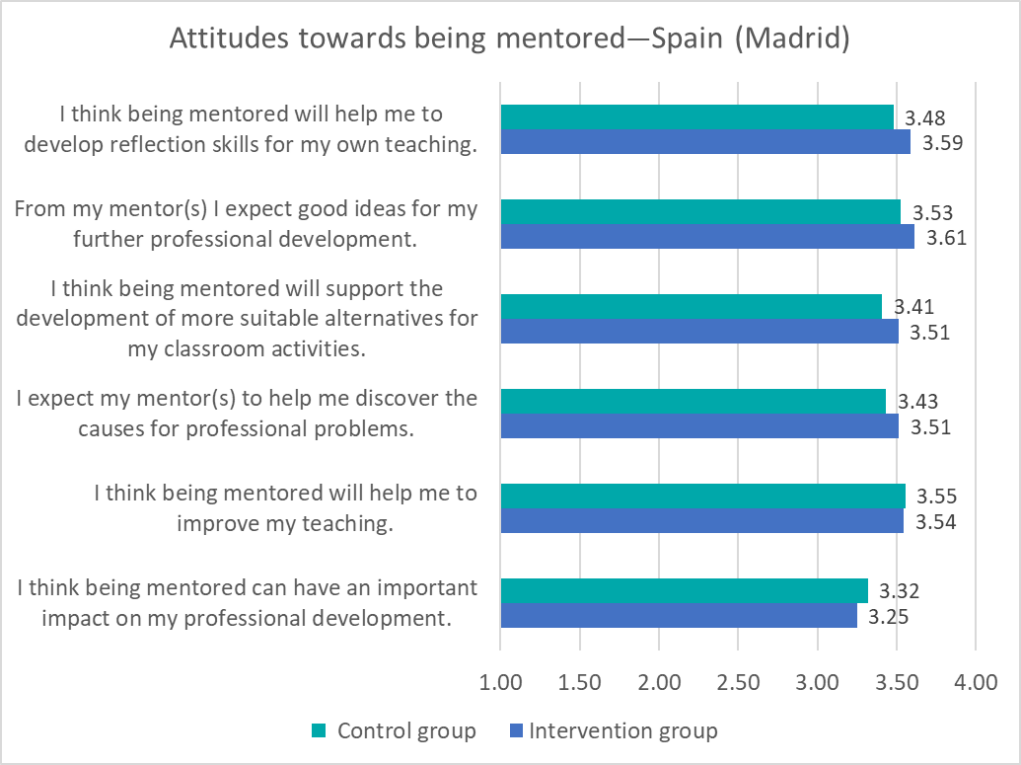

Figure 23: Attitudes towards being mentored by group—Spain (Madrid)

4.6 Conclusion

This chapter has shown that whilst most participating education systems aim for mentoring to be available to all novice teachers, this does not seem to be the case in practice. The results from our first questionnaire revealed that many novice teachers across the different education systems did not participate in an induction programme and/or did not receive any mentoring. On the other hand, the baseline data also indicated that novice teachers had a positive attitude towards being mentored and were aware of having professional needs in their current situation at school. The data offer an empirical grounding for the NEST project. The results show that novice teachers have a need for and show the necessary openness towards what the NEST project is offering, namely a tailored mentor training programme for mentors (Intervention I) which will result in highly adaptive mentoring for novice teachers working at disadvantaged schools (Intervention II). Research evidence also indicates that being adequately supported by a mentor can increase job satisfaction and reduce teacher attrition, especially for novice teachers at disadvantaged schools. This chapter therefore clearly highlights a strong requirement for mentoring for all novice teachers working at disadvantaged schools in the seven education systems participating in the NEST project. To ensure that mentoring will be tailored to the individual and contextual needs of the novice teachers, the NEST training programme for mentors is designed to teach mentors to adapt their mentoring style. The next chapter will show the different ways in which the NEST training programme promotes adaptive mentoring.

5 Adaptivity of mentoring

5.1 What is adaptive mentoring?

The idea behind adaptive mentoring is that different teachers need different types of support. This means that ideally mentoring should be adapted to the specific needs of the teacher in a specific situation. Van Ginkel et al. (2016) considered being adaptive to the individual novice teacher to be a precondition for effective teacher mentoring. Since the NEST mentor training programme and novice teacher mentoring are being implemented in seven education systems, it seemed even more important to focus on adapting both the mentoring for novice teachers and the training programme for the mentors to the specific contexts and needs of novice teachers in the different education systems.

5.1.1 Three concepts of adaptivity

To ensure that the NEST project will promote adaptive mentoring, three concepts of adaptivity have been incorporated into the project: 1) selecting mentors who have the potential to be adaptive; 2) adapting the mentoring style to novice teachers' personality and the task at hand; and 3) adapting the mentoring approach to the specific challenges that the novice teachers face in their disadvantaged school context.

5.1.1.1 Adaptive mentor selection

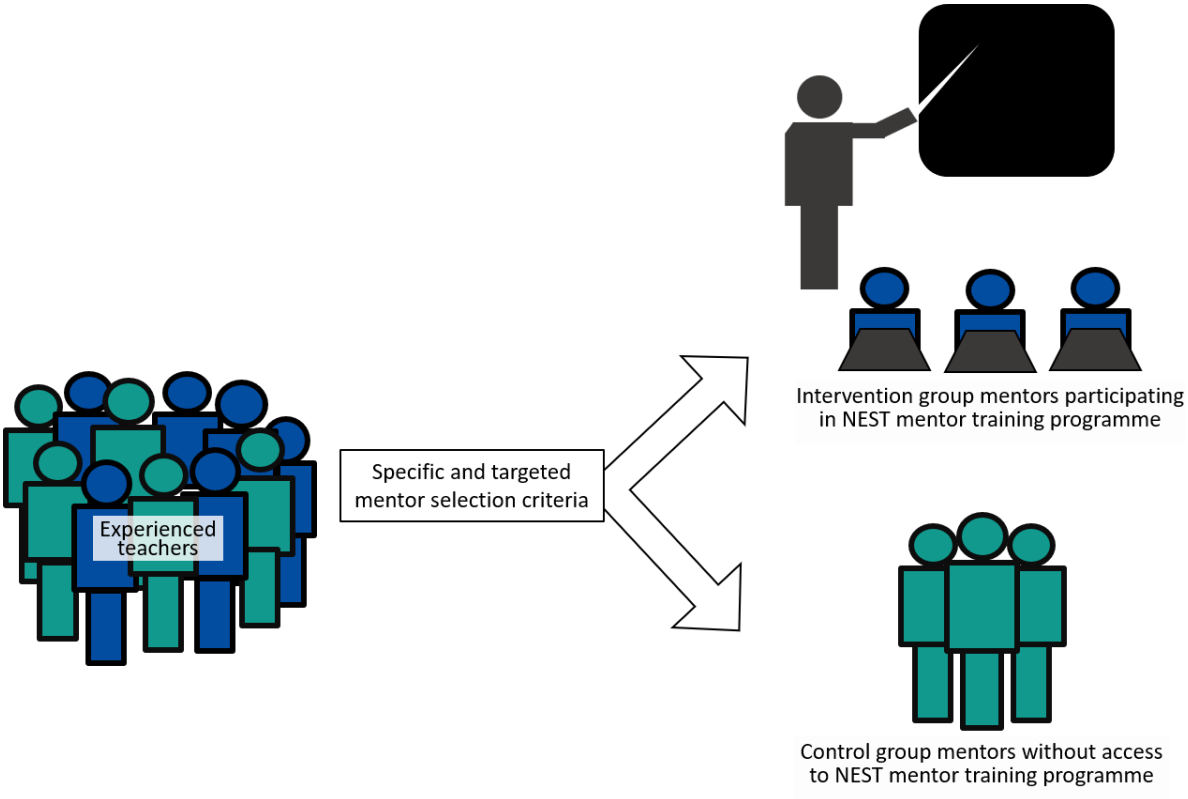

Figure 24: Adaptive mentor selection within the NEST project

For the NEST project, the goal was to select mentors with characteristics that would enable them to become adaptive mentors. Figure 24 shows the selection process that was established to ensure that the mentors participating in the NEST project would be capable of adapting their mentoring style and approach to the specific needs of novice teachers and their disadvantaged school contexts. Examples of some of these criteria include openness to self-reflection, empathy, and respectfulness. Section 5.3.1 will describe the selection criteria for adaptive mentors in greater detail.

5.1.1.2 Adapting the mentoring approach to teacher needs and personality

The second concept of adaptivity relates to the mentoring approach of the mentor. An adaptive mentor will switch between different mentoring approaches depending on the needs of the mentee and the task at hand. Crasborn et al. (2008) indicated that training can teach mentors to increase variety in the mentoring styles and approaches that they are using. As Figure 25 shows, for the NEST project the aim is to teach mentors to reflect on their own personality and school contexts, to analyse the personality and needs of their mentees and their mentees' specific situation, and to choose the most suitable mentoring approach based on the preceding criteria. Section 5.4.4 will describe the NEST mentor training programme and illustrate how mentors will be trained to switch between a facilitative and a directive mentoring approach.

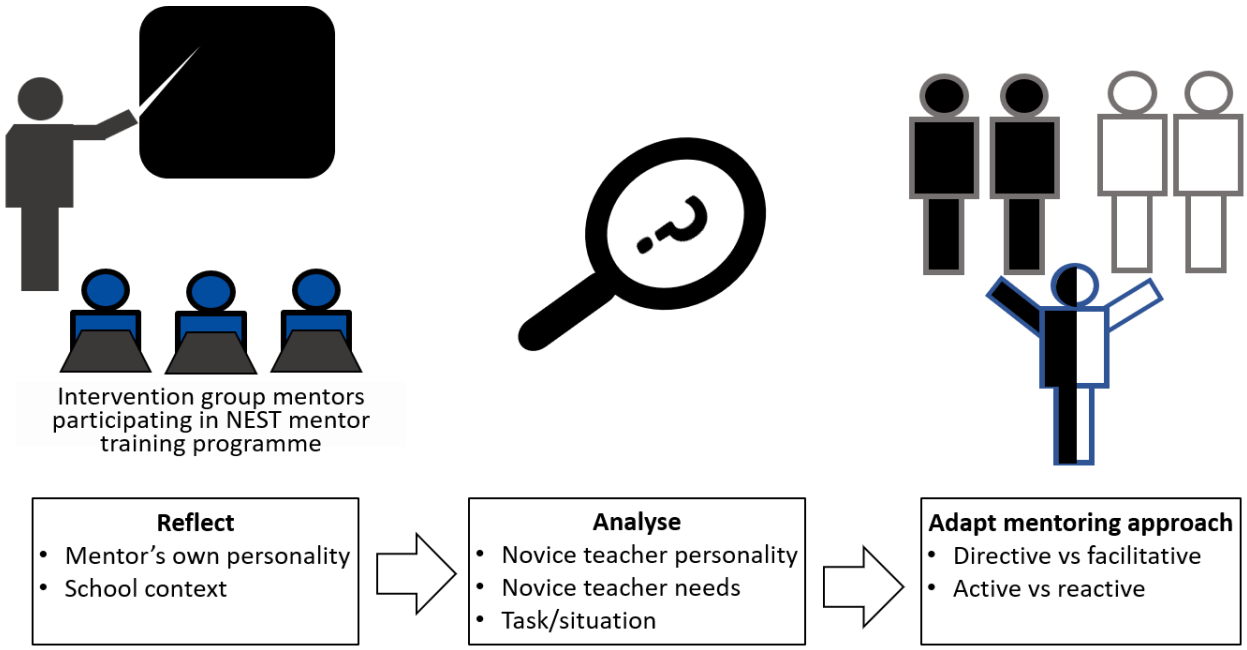

Figure 25: Adapting the mentoring approach

5.1.1.3 Adapting the mentoring approach to the specific challenges of the disadvantaged school context

The third concept of adaptivity stipulates that mentors should adapt their mentoring approach and style to the specific challenges that the novice teachers face within their disadvantaged school contexts. Hall

et al. (2020) suggested that it is especially important to improve the professional development of teachers at disadvantaged schools since this could enhance both teacher quality and teacher retention at disadvantaged schools. It seems vital, therefore, to make mentoring accessible to novice teachers at disadvantaged schools and to ensure that the mentoring they receive is tailored to the context in which they are teaching. In addition, since the NEST project looks at novice teachers at disadvantaged schools in seven education systems across Europe, there are likely to be both similarities and differences between the challenges that the various disadvantaged school contexts bring. The NEST mentor training programme will teach mentors to recognise and analyse the challenges that are specific to the schools at which they are mentoring and to adapt their mentoring approach accordingly.

Some common challenges at disadvantaged schools to which mentors should be able to adapt their mentoring include:

- Students who hail from a multitude of diverse backgrounds
- Students who perform at different academic levels
- A significant proportion of students who speak a language at home that is different to the language of instruction at school
- Students who are difficult to motivate to engage with their education
- Parents who may be difficult to involve in or engage with the education of their child or the school
- Schools whose building and context may pose their own challenges; e.g. resources may be insufficient to provide good materials

5.2 How adaptive is the current mentoring practice? (baseline data)

In order to gain a better understanding of current mentoring practices in the seven participating education systems, we developed several questions. One key question explored to what extent existing mentoring practice was perceived as adaptive by the mentors in our sample. We asked mentors to think about adaptations of mentoring approaches in their education system. Specifically, we developed four statements about adaptivity. Mentors had to assess how often they thought that these adaptations were being implemented by mentors in their education system. Statements had to be rated on a 6-point Likert scale ranging from 1 (*never*) to 6 (*always*). One example statement was: 'Mentors change their approach according to the novice teachers' level of professional development'.

The data from our mentor survey showed that overall, intervention group mentors thought that adaptive practices were implemented often. Mentors in Bulgaria and Wallonia on average thought that adaptive mentoring practices were implemented often or very often. In Bulgaria, three of the four statements had means above 4.30; in Wallonia, three statements had means between 3.8 and 4.3. Romanian mentors rated the statements slightly lower than mentors in Bulgaria and Wallonia but generally thought that adaptive practices were being implemented often. Mentors in Madrid, Catalonia, and Austria assessed the statements the lowest overall. However, they thought that adaptive mentoring practices were implemented sometimes or often, with highest means ranging between 3.4 for Madrid and 3.9 for Austria. One item was reverse-worded and the resulting ratings were lower; this statement was: 'Mentors use the same mentoring approach with all their novice teachers (in order to create the same experience for all)'. Overall, mentors in all education systems thought that this practice was implemented rarely or sometimes. All descriptive statistics about the adaptivity of current mentoring practices can be found in the Appendix (Table 72 to Table 78).

5.3 The adaptivity of the NEST mentor selection

5.3.1 General selection criteria

For the experienced teachers taking part in the NEST project, a set of common selection criteria were defined for mentors of the intervention and control groups. To be eligible for selection, experienced teachers had to be currently working as mentors. Second, they had to work at a disadvantaged school. Third, they should work at the same ISCED level as the novice teachers they would mentor; and fourth, they should have at least five years of teaching experience. An additional fifth criterion for mentors for the control group was that they should work at a different school than the intervention group mentors. This criterion was established to ensure that no professional exchange would take place between mentors of intervention and control groups, thus preventing any spillover effects of the tailored mentor training intervention.

Two steps were taken in order to establish a project-wide strategy for the recruitment and selection of mentors. In a first step, a mentoring framework was developed. This framework specified a mentor profile describing relevant characteristics that a successful mentor should possess. Characteristics were divided into several categories:

- *mandatory criteria* in accordance with the respective education system's regulations (e.g. no criminal history, a certain amount of teaching experience, etc.)
- *essential criteria*, which were developed for the NEST project based on literature research and research on best practice in mentoring; essential criteria include certain mindsets such as openness to self-reflection, empathy, respectfulness, etc.
- *non-essential but nevertheless 'nice to have' criteria* such as certain competencies

Figure 26 shows the selection criteria for both groups.

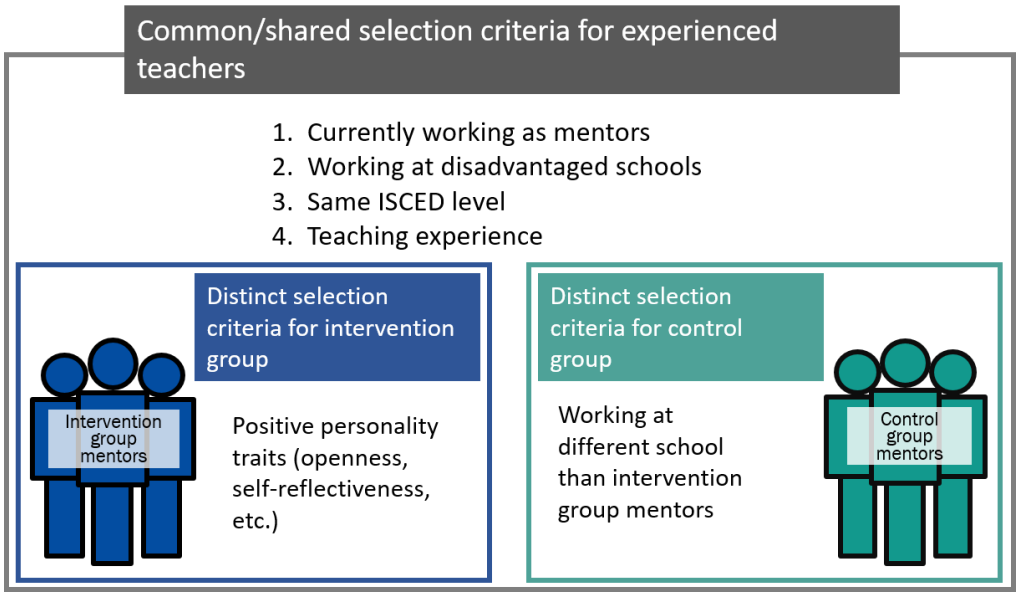

Figure 26: Selection criteria for experienced teachers

In a second step and based on these core characteristics, a recruitment and selection methodology was established. This recruitment and selection methodology as well as the mentoring framework itself were developed by one of the national partner organisations, Teach For Romania. During the development phase, it became obvious that conditions for selection varied between education systems mainly with regard to three parameters: selection management, quality of selection, and cost of selection.

In terms of selection management, in Austria, Catalonia, Madrid, and Romania, recruitment and selection were shared between the Teach For partner organisations (heads of recruitment division) and educational authorities such as ministries, school principals, or school boards. In Bulgaria, recruitment and selection of mentors were the sole responsibility of the teachers' union, whereas in Belgium the task of mentor recruitment and selection fell to the schools.

With regard to the quality of the selection, the number of possible candidates was high enough to implement a formal selection process only in Romania, Madrid, and Bulgaria. The other education systems struggled to recruit the required number of participants. In fact, every mentor who was willing to participate in the project was offered a place in the programme. However, willingness to take part in an international policy experiment can be interpreted as a certain self-selection in itself. Self-selection permits the inference that participants possess at least some of the mandatory mentor profile characteristics, such as openness to personal growth or curiosity.

The cost of selection, or rather the budget for selection, varied between countries. Some countries such as Bulgaria or Romania had budgeted higher costs since an actual selection process occurred, which entailed working hours for the interviewers who assessed possible candidates for the mentor intervention group. Additionally, mentors in the intervention group in Bulgaria receive extra pay as an incentive for participation. Even if this was not part of the selection cost itself, these costs are nevertheless indirectly linked to selection.

In light of the varying conditions within the different education systems, Teach For Romania designed a selection model which allowed for flexibility along the identified parameters (management, quality, cost). Depending on which parameter was prioritised, different selection strategies were suggested. A personal interview was recommended as the most reliable strategy for selecting promising mentors. The least cost-intensive selection process was possible in education systems where mentors were selected by school principals or inspectorates who selected candidates meeting the predefined mentor characteristics. However, to ensure a certain quality of selection, those responsible for selection were provided with a detailed description of the 'ideal' mentor profile as defined in the mentoring framework, listing both the mandatory and the desirable characteristics and mindsets of prospective mentors.

Table 14 gives an overview of the time periods of recruitment and selection as well as the bodies responsible for these tasks. In all education systems, recruitment and selection of mentors were a joint effort by the Teach For partner organisations and their partners from the education sector (education department, ministry of education, teachers' union). In Austria, the responsibilities were divided by group; Teach For Austria was responsible for recruiting and selecting the mentor intervention group, while the Board of Education for Vienna was responsible for recruiting the mentor control group. This was done for practical reasons because the mentor intervention group in Austria consists of Teach For Austria alumni. In terms of timing, Table 14 shows that some education systems started the recruitment process much later than others. In Austria and Romania, the COVID-19 pandemic led to a lot of complications and was the main reason for the late start of the mentor recruitment period. In Bulgaria, the start date of

September 2021 was mostly due to the management and distribution of teachers within the school system. Before September, it is not clear which novice teacher will be at which school. But the pandemic also complicated the process in Bulgaria. In Madrid, Catalonia, and Flanders, recruitment started in June, which led to a timely recruitment and selection of mentors in Spain. In Flanders, however, the recruitment process was not as successful even though it had started quite early. Again, schools in Flanders reported being overwhelmed by the complications and organisational difficulties which the pandemic brought for teaching and learning. Schools were therefore quite hesitant to get involved in the NEST project even if they were genuinely interested in it. Some countries, such as Romania and Bulgaria, were able to set up a formal structured selection process, but most countries did not have a surplus of participants due to the factors described above. Consequently, no true selection could take place in these countries.

Table 14: Overview of NEST mentor recruitment and selection periods by education system

Education system	Group	Body responsible for recruitment and selection	Recruitment period	Selection period
Austria	Intervention	Teach For Austria	20 Oct. 2021 – 25 Oct. 2021	–
	Control	Board of Education for Vienna	01 Oct. 2021 – 15 Oct. 2021	–
Belgium (Flanders)	Intervention	Teach For Belgium with support from the Commission for the Flemish community in Brussels and OCB	09 June 2021 – 18 Oct. 2021	–
	Control			
Belgium (Wallonia)	Intervention	Teach For Belgium with support from FWB, SEGEC, WBE, CPEONS	June 2021 – Nov. 2021	–
	Control			
Bulgaria	Intervention	Teacher union 'Podkrepa' with support from the Ministry of Education and Teach For Bulgaria	13 Sep. 2021 – 27 Sep. 2021	28 Sept 2021 – 05 Oct 2021
Romania	Intervention	Teach For Romania with support from the Ministry of Education	22 Sep. 2021 – 11 Oct. 2021	18 Oct. 2021 - 05 Nov. 2021
	Control			
Spain (Madrid)	Intervention	School principals with support from Madrid Education Department and Empieza por Educar	03 June 2021 – 14 June 2021; webinar in late June; follow-up telephone interviews in September led by Empieza por Educar	25 Sep. 2021 – 12 Oct. 2021
	Control			
Spain (Catalonia)	Intervention	School principals with support from Catalonia Education Department and Empieza por Educar	03 June 2021 – 14 June 2021; webinar in late June; follow-up telephone interviews in September led by Catalonia Education Department	25 Sep. 2021 – 20 Oct. 2021
	Control			

5.3.2 Selection criteria in the different education systems

The following sections describe the recruitment process in the different countries and to what extent the general selection methodology developed by Teach For Romania was adapted to the country-specific context.

5.3.2.1 Mentor recruitment and selection—Austria

In Austria, Teach For Austria was responsible for recruiting and selecting the mentors for the intervention group. Teach For Austria decided to recruit its own alumni for the NEST project. This group of teachers had already gone through a rigorous selection process during the application process for the Teach For Austria programme. All of the selection criteria specified in the general mentor selection methodology for the NEST project are covered in the selection process for the Teach For Austria programme, and no further selection was necessary for the mentor intervention group. Teach For Austria sent emails promoting the NEST project to all alumni working at disadvantaged schools, and everyone who volunteered to participate in the mentor training programme was admitted to the project. The responsibility for recruiting mentors for the control group lay with the Board of Education for Vienna. The plan was to contact all mentors who were participating in the current mentor programme in the city of Vienna and who worked at disadvantaged schools. However, due to the COVID-19 pandemic and structural changes in the placement of teachers during the spring of 2021, recruitment of mentors for the control group proved to be challenging. Even though Teach For Austria and the Board of Education for Vienna communicated on a regular basis, recruiting mentors for the control group took much longer than expected A rigorous selection of mentors did not take place due to the fact that the number of applicants was very low.

5.3.2.2 Mentor recruitment and selection—Belgium (Flanders)

In Flanders, the recruitment of mentors was handled by Teach For Belgium and *Onderwijscentrum Brussel* (OCB), an education centre specialising in Dutch-speaking education in Brussels. On 9 June 2021, the two bodies organised a first meeting with the different school networks in Flanders, informing them of the goals of the NEST project and giving them context information. The heads of the school networks passed the information on to the school leadership teams within their networks. There are many different school networks in Flanders, such as the network for Catholic schools, the network for state schools (schools of the Flemish community), the network for provincial schools, or the network for city schools. Together with OCB, Teach For Belgium prepared a PowerPoint presentation, leaflets, and a promotional video to share with the various school networks. However, by September 2021, only two schools had registered to participate in the NEST project. At this point, Teach For Belgium decided to reach out directly to its own partner schools. Teach For Belgium created a mini website for the NEST project which included a contact form so that interested principals or mentors could get in touch with Teach For Belgium directly. Furthermore, the project was presented at the Teach For Belgium alumni event in September 2021; alumni were asked to promote the NEST project at their schools. A member of Teach For Belgium also visited the partner schools to inform them about the project.

During this recruitment phase, Teach For Belgium and OCB held biweekly meetings to think about new strategies to increase participation in the project. On 20 September 2021, the decision was taken to expand the geographical range of the NEST project to include Ghent and Antwerp in addition to Brussels. Teach For Belgium had strong relationships with the educational centres for Ghent and Antwerp and informed the respective school leadership teams about the NEST project. Furthermore, the decision was

taken to allow different school types, such as primary schools and schools for special education, to participate in the NEST project in order to reach the target numbers of mentors. Recruitment ended on 18 October 2021.

In terms of mentor selection, Teach For Belgium adhered to the mentor characteristics specified in the mentor profile created by Teach For Romania. To be selected in Flanders, mentors had to be experienced teachers who already had mentoring experience. Moreover, they had to work at the same school as their mentees. Other criteria were openness to learning new methods and approaches to mentoring, enthusiasm, and availability to take part in the mandatory training and practice sessions. In some cases, Teach For Belgium conducted telephone interviews in order to determine which mentors would be part of the mentor training programme (intervention group) and which mentors would fit better in the control group. This decision was also often based on school visits and exchanges with the principals and/or email exchanges with the mentors.

5.3.2.3 Mentor recruitment and selection—Bulgaria

In Bulgaria, the mentors recruited to the intervention group are experts who work for the regional departments of education. In their capacity, they are responsible for all teachers in their subject field, not only for novice teachers. Their job is to ensure that teachers teach to a certain standard. Currently their work is mostly administrative; they check the teachers' paperwork, lesson plans, etc., and are mostly perceived as assessors. For the NEST project, these experts will undergo the adaptive mentor training programme to enable them to support novice teachers in their professional development rather than only assess them.

The teachers' union *Podkrepa* held the main responsibility for recruiting all participants for the NEST project, including the mentors. However, the union was supported in its efforts by the Bulgarian Ministry of Education and Teach For Bulgaria. The union sent an official letter to the heads of the regional departments of education which participate in the intervention, explaining the NEST project and asking them to share the letter with their experts. The experts were given a deadline of 27 September 2021 to apply to become an intervention group mentor. The application required submitting a CV, a personal statement outlining the applicant's reasons for seeking to take part in the project, and written answers to five questions designed to explore attributes included in the mentor profile (empathy, reflectiveness, tolerance/openness, positive attitude towards professional development). As an incentive to take part in the two-year NEST project, the ministry pays each expert approximately €1,600 per month in biannual instalments.

It was decided to divide the 28 regional departments of education evenly so that experts from 14 regional departments would take part in the intervention group, and experts of the other 14 regional departments would not take part in any mentor training. Unfortunately, the experts from 14 regional departments who did not receive any training did not want to take part in the survey, so there are no data available for the Bulgarian mentor control group.

For the week-long selection process, the Bulgarian Ministry of Education, the teachers' union, and Teach For Bulgaria team members formed a selection committee. They developed a matrix of different criteria such as basic digital media competences and quality of the answers to the five questions asked in the application. Of the 66 applicants, 64 met the requirements.

5.3.2.4 Mentor recruitment and selection—Romania

Romania is divided into eight development regions, each of which is divided again into eight to twelve counties. For the NEST project, two regions each with twelve counties with a high concentration of disadvantaged schools were targeted. Recruiting and selecting mentors in those target counties was a joint effort by Teach For Romania and the Romanian Ministry of Education. On 22 September 2021, an announcement giving information on the goals and context of the NEST project was published on the homepages of the Romanian Ministry of Education and Teach For Romania. The ministry also sent the announcement to all school inspectorates in the twelve counties, instructing them to send it to the most vulnerable schools. In the same week, links were put on both organisations' homepages enabling interested teachers to answer a number of questions on a registration form in order to apply for the programme. This strategy resulted in 470 applications. Teach For Romania had previously developed a selection tool which was linked to the registration form. The selection tool filtered those applicants with the highest scores (2.9 to 3.0 of a maximal score of 3.0). This left 291 applicants to go through to the next phase of selection, which involved face-to-face interviews. Teach For Romania and the Romanian Ministry of Education created a selection team and developed an interview guideline based on the mentor profile and selection methodology created for the project by Teach For Romania. Each interview lasted approximately 30 minutes and was led by a pair of interviewers, one representative each from Teach For Romania and the Romanian Ministry of Education. Interviews took place between 18 October and 5 November 2021. The interview phase resulted in a pool of 143 suitable mentors with very similar characteristics. In order to place candidates in the intervention or control group, participants' wishes and their available time were considered. The majority of participants self-selected into either the control or the intervention group. Another factor which weighed in the decision was the proximity and/or availability of novice teachers. In Romania, mentors do not work at the same school as the novice teachers they mentor; therefore, for logistical reasons (i.e. long travel distances between schools), some participants could not be part of the intervention group.

5.3.2.5 Mentor recruitment and selection—Spain (Madrid)

In Madrid, the recruitment process was organised by *Empieza por Educar* with support from the Madrid Department of Education and school principals. *Empieza por Educar* created an announcement containing information about the NEST project which was published on the website of the Madrid Department of Education on 3 June 2021. This website is frequently visited by school principals, who were the main target audience for the announcement. *Empieza por Educar* also prepared an email containing information on the NEST project which included forms to enable principals to sign up for a webinar and/or express interest in the project. This email was sent by the Madrid Department of Education to all school principals in the region of Madrid on 14 June 2021.

In late June, *Empieza por Educar* held a webinar for all school principals and other school staff who had signed up for the webinar. Overall, 134 individuals representing 88 schools attended the webinar, which provided additional information about the aims of the NEST project and about the requirements for participation. Subsequent to the webinar, 35 schools completed a form stating their commitment to taking part in the NEST project. After *Empieza por Educar* conducted personal telephone interviews with the principals at those 35 schools, it transpired that half of the schools did not qualify as disadvantaged schools. For a school to be designated as disadvantaged in Madrid, it had to be a state school and the average income in the district of the school had to be lower than the average income for the whole region of Madrid.

In September, when the recruitment of mentors was scheduled to start, some of the schools which did meet the requirement of being disadvantaged withdrew their application, leaving only eight schools. At this point, *Empieza por Educar* decided to approach schools in disadvantaged areas with which they had already worked in the past or with which it had fellows placed, even though some of those schools were not fully classed as state schools; these schools receive public funding but are privately run. Using this strategy, 15 schools in total could be recruited to the NEST project. Principals at these schools were responsible for the selection of mentors. Mentor selection took place in late September and early October 2021. In accordance with the mentor profile for the NEST project, *Empieza por Educar* told principals to select experienced teachers who were highly motivated to take part in the mentor training programme and who would be committed to investing the necessary hours and effort during the two-year programme. Principals were also required to find teachers for the control group who would not receive any training but who would commit to completing two surveys for evaluation purposes.

5.4 The adaptivity of the NEST mentor training programme

5.4.1 The NEST mentor training programme

The *theory of change* and the mentoring framework that were created by Teach For Belgium in consultation with the other partners served as a foundation for the development of the NEST mentor training programme. The NEST mentor training programme was developed by *Empieza por Educar* in consultation with the other partners of the NEST project. In addition, the design of the training programme was based on books on coaching by Elena Aguilar (Aguilar, 2013; 2020; 2021). Prior to implementation, each education system contextualised the mentor training programme so that it would be suitable for use in each individual context.

The NEST mentor training programme is aimed at experienced teachers who work at disadvantaged schools. These experienced teachers, some of whom already work as mentors, receive the NEST mentor training programme so that they can professionalise and improve their approach to mentoring novice teachers at disadvantaged schools. The training programme focuses specifically on mentors and novice teachers at disadvantaged schools to support novice teachers at these schools to cope with the challenges they face. The ultimate goal of the NEST mentor training programme is to achieve educational equity.

5.4.2 Structure of the mentor training programme

While mentors participate in the training programme for two years, most of the content of the training will be delivered in the first year. No new online content will be made available during the second year of the programme, but the content of the first year will remain visible on the online platform. In the second year, mentors get the chance to further professionalise and improve their mentoring by reflecting on and applying what they learned during the first year of mentoring novice teachers.

The programme for each year is divided into three terms. Table 15 provides an overview of the term structure of the training programme in the first year. The second year of the training programme follows the same basic structure; however, there will be no new online content, mentors will be paired with different or new novice teachers, and the observation and feedback cycles will be carried out independently (i.e. without the presence of the NEST tutor).

Table 15: Term structure of the NEST mentor training in the first year

Structure	Term
Training	**Orientation** on site
	Subject matter Online
	Peer-to-peer practice on site
Practice	**Initial meeting** on site at the school
	Observation and feedback cycles on site at the school
	Reflecting with tutors Online
	Mentoring conversations (mentor-mentee) on site
Closing	**Closing** Online

5.4.3 Content of the training

The aim of the training is to introduce adaptive mentoring for novice teachers at disadvantaged schools. There are 5 specific challenges identified:

1. It is difficult to reach every student
2. It is difficult to maintain high expectations for every student
3. There is a high or very high percentage of immigrant students or even refugees
4. It is difficult for families to support students with their learning
5. High percentage of students from culturally diverse and/or discriminated minorities

The training intends to support the experienced teachers in developing an adaptive mentoring style that is suitable to support novice teachers in dealing with these challenges.

The training consists of five online modules (see Table 16). In these online modules, the mentors will learn specific techniques they can use to support the novice teachers at the disadvantaged schools.

Table 16: The five modules of the NEST mentor training programme

Term 1	Module 1	What is mentoring and why do we mentor I?
	Module 2	Why we mentor II and tools
Term 2	Module 3	Coaching questions I
	Module 4	Coaching questions and techniques II
Term 3	Module 5	Coaching questions and techniques III

The practical part of the training programme allows the trainee mentors to put into practice the techniques which they learned in the online modules with their own novice teacher mentees. The trainee mentors' level of independence will increase during the course of the training programme. During the observation and feedback cycles in the first year, tutors will be present but steadily reduce their role and involvement. In the second year, tutors will no longer be present during the observation and feedback sessions, but will still have a reflection session with trainee mentors afterwards. Each term ends with an online meeting during which the NEST tutors and trainee mentors reflect on the professional growth and development that the NEST trainee mentors have achieved.

Further information on the content of the training programme can be found in the description of the five modules provided by the Spanish partners of *Empieza por Educar.*

5.4.4 Adaptivity within the NEST training programme

The first concept of adaptivity is covered by the selection process for mentors for the NEST project. The training programme, therefore, focuses on teaching the experienced teachers/mentors to adapt their mentoring style to the novice teachers' requirements, i.e. the task/situation and the context of the disadvantaged schools. The NEST training programme thus covers the second and third type of adaptivity.

5.4.4.1 Adapting mentoring to the requirements of the novice teacher and task at hand (second concept of adaptivity)

The second concept of adaptivity focuses on the specific needs of individual mentees. To incorporate the second concept of adaptivity, mentors will learn to differentiate between a directive (confronting, informative, and descriptive) and a facilitative (cathartic, catalytic, and supportive) mentoring approach based on the model by John Heron (2001). The training programme provides tips for when to use a certain mentoring approach rather than another. To support the mentors in putting these different mentoring approaches into practice, the training programme also includes multiple exercises in which the mentor has to choose a suitable mentoring approach according to the given situation. In addition, the NEST toolbox that is provided to all the mentors in the NEST project consists of tools in the different coaching methods. This toolbox could also support the mentors by indicating how to use different coaching styles in practice. One of the tools gives examples of both facilitative and directive statements and questions for use in practice. After learning about these approaches in theory, mentors have the chance to adapt their mentoring style in practice in mentoring conversations and observation and feedback cycles.

5.4.4.2 Adapting mentoring to the disadvantaged school context (third concept of adaptivity)

The third concept of adaptivity focuses on the school context in which the novice teachers work. Mentoring styles and approaches should not only be adapted to the novice teacher and the task at hand, but also to the challenges that arise from teaching at a disadvantaged school. The NEST toolbox includes a tool to help mentors to establish the specific challenges faced by novice teachers that are related to working at a disadvantaged school. This tool is called 'A reflection guide on six challenges of vulnerable schools'. This tool not only enables the mentor to assess the challenges that are present at the mentees' school, but it also provides concrete strategies for dealing with these challenges. Therefore, the NEST training programme does not just teach mentors to reflect on the challenges that are present at the schools where they are mentoring but also equips mentors with strategies for addressing these challenges with their mentees.

5.5 How was the training programme adapted to the context of the education systems?

This section is not about adapting mentoring to the disadvantaged school context, but about adaptations that had to be made to the training for it to work in seven different education systems across Europe. As mentioned before, the training is developed by *Empieza por Educar* in consultation with the other partners in the NEST project.

5.5.1 Examples of adaptations made to the training programme in the education systems

Empieza por Educar is based in Spain, so this partner had the Spanish context in mind when developing the training. This meant that it was possible to follow the curriculum of the training programme exactly both in Catalonia and the Madrid region. However, in Austria and Romania, the kick-off-meeting was held as an online event rather than as a face-to-face event due to the COVID-19 situation at the time. In addition, in Austria the start of the training programme was delayed, which meant that mentors in Austria had two instead of three observation and feedback cycles and the modules were divided over two rather than three terms. Finally, in Austria all mentors have only one mentee. Austrian mentors started at autonomy level 3 because they are Teach For Austria alumni, which means that most of them had already had practice of tutoring/mentoring during the Teach For Austria summer-institute where they conducted classroom visits and coaching conversations with new fellows. In Bulgaria, neither the digital resources nor the online platform were used as an active tool. The reason for this was that the level of digital literacy among the Bulgarian mentors was not very high; mentors preferred to go over the resources together and then to receive the resources physically. Flanders kept the learning objectives of the NEST training programme and provided almost all of the content, but the order was changed. In addition, it was decided to skip the portfolio task that is included in the training, to give the mentors more freedom in the way they reflect on their mentoring.

The examples of the changes made to the NEST mentor training programme indicate that it was possible to implement the training successfully in seven different education systems with relatively minor adaptations. This means that if the NEST project is successful overall, it would likely be quite easy to implement the training programme with only minor adaptations in other European education systems.

5.1 Conclusion

This chapter has focused on the initial implementation of adaptive mentoring in the NEST project. Since the NEST project is an international project, it was always likely that adaptations to the specific circumstances in different education systems would be necessary. Additionally, and more generally speaking, the literature review presented in this chapter suggests that mentoring is more successful when it is adapted to the individual needs of the mentee both in terms of mentoring approach and content. Our baseline data revealed that the mentors participating in the NEST project feel that the existing mentoring practice in their education system is already quite adaptive. This is a positive finding because it means that the mentors participating in the project are already familiar to some extent with adaptive mentoring. The NEST mentor training programme therefore aligns with the trainee mentors' existing knowledge, a fact which potentially increases the learning effect of the NEST mentor training programme.

6 Final Conclusion

The NEST project is a multilevel Erasmus+ policy experiment co-funded by the European Commission. The goal of the NEST project is to develop an adaptive mentor training programme aimed at improving the mentoring given to novice teachers working at disadvantaged schools. The mentor training programme is designed for maximum effectiveness, and it should be possible to implement it in several European education systems with the goal of increasing teacher retention at disadvantaged schools. The focus on teachers at disadvantaged schools is important since it is more difficult to attract teachers to disadvantaged schools, and teacher turnover and attrition are also higher (Allen et al., 2018; Hall et al., 2020; Borman and Dowling, 2008). In combination with the findings of the literature review by Ingersoll and Strong that mentoring generally has a positive impact on teacher commitment and retention, instructional practices of teachers, and student achievement (2011, p. 201), this means that a good quality mentoring programme for novice teachers at disadvantaged schools can have a really positive impact.

In order to develop a mentor training programme that would produce effective mentoring for novice teachers working in disadvantaged school contexts, it was first of all necessary to research and describe the different ways in which education systems identify and classify levels of disadvantage. The outcome of this exercise reveals divergent terminology around disadvantaged schools both in research studies and within the seven education systems participating in the NEST project. International research studies indicate that disadvantaged schools are dealing with several challenges, ranging from a lack of both human and physical resources to a larger proportion of challenging students compared to non-disadvantaged schools. The countries participating in the NEST project all use different indicators to determine which schools are disadvantaged. In addition, the process for selecting schools for participation in the NEST project and the criteria being used for the selection itself were very different across the different education systems. This means that some degree of variation in the level and type of disadvantage can be expected among the schools participating in the project. Further, it might be expected that this variation affects the challenges and the needs of novice teachers in the different education systems. Indeed, baseline data regarding current teachers' needs at their school indicated that there are some differences between the education systems. However, the data also showed many similarities, and teachers in all participating education systems reported strong support needs overall. The strong needs reported by novice teachers working at disadvantaged schools provide a clear rationale for more targeted high-quality support.

The level and type mentoring provided by the NEST project would seem to be even more imperative since our report has shown that despite the best endeavours of the seven participating education systems, mentoring does not appear to be available to all novice teachers at disadvantaged schools in practice. The results from our first questionnaire revealed that many novice teachers across the different education systems did not participate in an induction programme and/or did not receive any mentoring. At the same time, the baseline data also indicated that the surveyed novice teachers had a positive attitude towards being mentored and were quite aware of having specific professional needs in their current situation at school. This provides an empirical grounding for the NEST project. Our results to date show that novice teachers have a need for and show the necessary openness to benefit from what the NEST project offers, i.e. a twofold set of interventions by way of first, a tailored mentor training programme for mentors, and second, the resulting adaptive mentoring offered to novice teachers working at disadvantaged schools.

Adaptivity is a key requirement for the NEST project because the project focuses on seven different European education systems. Therefore, three concepts of adaptivity were included in the NEST project: 1) selecting mentors who have the potential to be adaptive, 2) teaching mentors to adapt their mentoring approach to the needs of the individual mentee, and 3) adapting mentoring for novice teachers to the specific challenges of the disadvantaged school context. The NEST mentor training programme focuses on supporting mentors in implementing adaptive mentoring practices. The literature discussed on this topic suggests that mentoring is more successful when it is individually adapted to the mentee's requirements, both in terms of mentoring approach and content. As discussed above, our data showed that the trainee NEST mentors viewed the existing mentoring practices in their education systems as already being relatively adaptive. We consider this a positive finding, as we can expect the mentors participating in the project to be somewhat familiar with adaptive mentoring. This familiarity can lead to a better alignment of the training programme with the existing knowledge of the mentors and could thus increase the learning effect of the training.

The results of the upcoming surveys will reveal how effective the NEST mentor training programme is, but the expectation is that the focus on structural adaptivity and individual adaptations to the context of the different education systems will lead to the implementation of good quality mentoring for novice teachers at disadvantaged schools. If this is indeed the case, the NEST mentor training programme and the adaptive mentoring resulting from it will prove to be a good scalable solution for the lack of mentoring for novice teachers in many European education systems.

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8 Appendix

Table 17: Gender by group

Group	Gender	Absolute frequency	Relative frequency
Mentors	Female	208	80.31%
	Male	50	19.31%
	NA	1	0.39%
	Total	259	100%
Novice Teacher Intervention	Female	439	74.66%
	Male	146	24.83%
	Other	3	0.51%
	Total	588	100%
Novice Teacher Control	Female	536	72.04%
	Male	204	27.42%
	Other	3	0.4%
	NA	1	0.13%
	Total	744	100%

Table 18: Mentors' gender by education system

Education system	Gender	Absolute frequency	Relative frequency
Austria	Female	16	88.89%
	Male	2	11.11%
	Total	18	100%
Belgium (Flanders)	Female	9	64.29%
	Male	5	35.71%
	Total	14	100%
Belgium (Wallonia)	Female	25	73.53%
	Male	9	26.47%
	Total	34	100%
Bulgaria	Female	54	84.38%
	Male	10	15.63%
	Total	64	100%
Romania	Female	41	95.35%
	Male	2	4.65%
	Total	43	100%
Spain (Catalonia)	Female	32	78.05%
	Male	8	19.51%
	NA	1	2.44%
	Total	41	100%
Spain (Madrid)	Female	31	68.89%
	Male	14	31.11%
	Total	45	100%

Table 19: Novice teachers' gender by education system and group

Education system	Gender	Novice teacher intervention group		Novice teacher control group	
		Absolute frequency	Relative frequency	Absolute frequency	Relative frequency
Austria	Female	8	61.54%	9	69.23%
	Male	5	38.46%	4	30.77%
	Total	13	100%	13	100%
Belgium (Flanders)	Female	29	58.0%	21	72.41%
	Male	21	42.0%	8	27.59%
	Total	50	100%	29	100%
Belgium (Wallonia)	Female	49	74.24%	91	65.94%
	Male	17	25.76%	45	32.61%
	Other	0	0.0%	1	0.72%
	NA	0	0.0%	1	0.72%
	Total	66	100%	34	100%
Bulgaria	Female	137	80.12%	190	78.19%
	Male	33	19.30%	53	21.81%
	Other	1	0.58%	0	0.0%
	Total	171	100%	243	100%
Romania	Female	82	92.13%	74	89.16%
	Male	6	6.74%	9	10.84%
	Other	1	1.12%	0	0.0%
	Total	89	100%	83	100%
Spain (Catalonia)	Female	70	72.16%	59	54.13%
	Male	27	27.84%	50	45.87%
	Total	97	100%	109	100%
Spain (Madrid)	Female	64	62.75%	92	71.32%
	Male	37	36.27%	35	27.13%
	Other	1	0.98%	2	1.55%
	Total	102	100%	129	100%

Table 20: Age by group

Variable	Group	*N*	*M*	*SD*	*Mdn*	Range
Age	Mentors	257	46.22	8.49	47	26–64
	Novice teacher intervention group	587	32.43	847	30	20–60
	Novice teacher control group	743	33.06	8.16	31	20–64

Table 21: Age by education system and group

Variable	Education system	Group	*N*	*M*	*SD*	*Mdn*	Range
Age	Austria	Mentors	18	32.83	4.33	32.5	27–43
		Novice teacher intervention group	13	33.31	7.25	33	24–48
		Novice teacher control group	13	31.92	8.34	29	23–51
	Belgium (Flanders)	Mentors	14	45.64	10.48	47	26–60
		Novice teacher intervention group	50	31.96	9.46	28.5	21–57
		Novice teacher control group	29	31.24	9.5	28	20–63
	Belgium (Wallonia)	Mentors	34	46.71	9.77	46.5	29–63
		Novice teacher intervention group	66	31.56	10.6	27	21–60
		Novice teacher control group	138	29.8	8.17	27	21–61
	Bulgaria	Mentors	63	50.06	8.08	52	32–64
		Novice teacher intervention group	171	34.15	7.48	33	21–54
		Novice teacher control group	243	33.23	6.94	32	23–52
	Romania	Mentors	43	45.47	5.43	46	32–56
		Novice teacher intervention group	89	27.92	7.64	25	20–51
		Novice teacher control group	82	32.56	9.16	30.5	20–56
	Spain (Catalonia)	Mentors	40	45.95	7.85	46	31–61
		Novice teacher intervention group	97	31.65	7.51	29	22–55
		Novice teacher control group	109	35.16	8.92	32	23–64
	Spain (Madrid)	Mentors	45	47.02	6.14	48	33–57
		Novice teacher intervention group	101	34.95	8.12	33	23–57
		Novice teacher control group	129	35.27	7.48	33	25–56

Table 22:Novice teachers' working experience by group—Austria

Items	Intervention group				Control group			
	M	*SD*	*Mdn*	Range	*M*	*SD*	*Mdn*	Range
Year(s) working as a teacher at this school	1.88	1.55	1.5	0–5	2.08	1.12	2	1–4
Year(s) working as a teacher in total	3.88	2.75	3	0–9	3.38	4.13	2	1–16
Year(s) working at schools in disadvantaged areas	1.5	2.0	0.5	0–5	1.75	1.06	2	0–4
Year(s) working in other education roles, not as a teacher	0.5	0.93	0	0–2	1.25	1.76	0.5	0–5
N_{min}	8				12			

Table 23: Novice teachers' working experience by group—Belgium (Flanders)

Items	Intervention group				Control group			
	M	*SD*	*Mdn*	Range	*M*	*SD*	*Mdn*	Range
Year(s) working as a teacher at this school	0.94	0.96	1	0–3	2.08	1.12	1	0–2
Year(s) working as a teacher in total	2.37	3.8	1	0–20	3.38	4.13	1	0–6
Year(s) working at schools in disadvantaged areas	1.24	3.13	0	0–19	1.75	1.06	0	0–4
Year(s) working in other education roles, not as a teacher	1.93	5.28	0	0–22	1.25	1.76	0	0–6
N_{min}	45				27			

Table 24: Novice teachers' working experience by group—Belgium (Wallonia)

Items	Intervention group				Control group			
	M	*SD*	*Mdn*	Range	*M*	*SD*	*Mdn*	Range
Year(s) working as a teacher at this school	0.98	0.97	1	0–4	0.74	0.91	1	0–4
Year(s) working as a teacher in total	2.37	3.8	1	0–7	3.38	4.13	1	0–18
Year(s) working at schools in disadvantaged areas	1.24	3.13	0	0–4	1.75	1.06	0	0–9
Year(s) working in other education roles, not as a teacher	1.93	5.28	0	0–10	1.25	1.76	0	0–25
N_{min}	57				129			

Table 25: Novice teachers' working experience by group— Bulgaria

Items	Intervention group				Control group			
	M	*SD*	*Mdn*	Range	*M*	*SD*	*Mdn*	Range
Year(s) working as a teacher at this school	1.73	1.4	2	0–6	2.18	1.4	2	0–7
Year(s) working as a teacher in total	2.1	1.67	2	0–10	2.81	2.77	3	0–31
Year(s) working at schools in disadvantaged areas	0.58	1.04	0	0–4	0.65	1.33	0	0–9
Year(s) working in other education roles, not as a teacher	0.89	2.46	0	0–13	1.4	3.9	0	0–27
N_{min}	120				212			

Table 26: Novice teachers' working experience by group—Romania

Items	Intervention group				Control group			
	M	*SD*	*Mdn*	Range	*M*	*SD*	*Mdn*	Range
Year(s) working as a teacher at this school	1.25	1.75	1	0–11	1.71	2.4	1	0–15
Year(s) working as a teacher in total	2.2	3.61	1	0–30	2.99	4.27	2	0–30
Year(s) working at schools in disadvantaged areas	1.27	1.7	1	0–8	1.56	2.5	1	0–14
Year(s) working in other education roles, not as a teacher	0.9	2.64	0	0–15	2.49	5.03	0	0–24
N_{min}	70				69			

Table 27: Novice teachers' working experience by group—Spain (Catalonia)

Items	Intervention group				Control group			
	M	*SD*	*Mdn*	Range	*M*	*SD*	*Mdn*	Range
Year(s) working as a teacher at this school	1.41	1.24	1	0–11	0.99	0.94	1	0–5
Year(s) working as a teacher in total	2.87	2.16	3	0–30	2.72	3.01	2	0–15
Year(s) working at schools in disadvantaged areas	0.98	1.97	0	0–8	1.12	0.97	1	0–5
Year(s) working in other education roles, not as a teacher	3.58	3.77	3	0–15	3.84	5.19	2	0–25
N_{min}	78				95			

Table 28:Novice teachers' working experience by group—Spain (Madrid)

Items	Intervention group				Control group			
	M	*SD*	*Mdn*	Range	*M*	*SD*	*Mdn*	Range
Year(s) working as a teacher at this school	0.83	1.16	0	0–5	1.68	1.93	1	0–18
Year(s) working as a teacher in total	4.06	4.63	3	0–24	4.69	3.49	4	0–23
Year(s) working at schools in disadvantaged areas	1.29	2.61	0	0–14	1.27	1.69	1	0–8
Year(s) working in other education roles, not as a teacher	2.65	4.14	0	0–20	1.97	4.19	0	0–30
N_{min}	88				116			

Table 29: Participation of novice teachers in formal induction programme by education system

Education system	Formal induction	Absolute frequency	Relative frequency
Austria	No	22	84.62%
	Yes, during my first employment	2	7.69%
	Yes, at this school	2	7.69%
	Total	26	100%
Belgium (Flanders)	No	21	26.58%
	Yes, during my first employment	11	13.92%
	Yes, at this school	47	59.49%
	Total	79	100%
Belgium (Wallonia)	No	139	68.14%
	Yes, during my first employment	12	5.88%
	Yes, at this school	53	25.98%
	Total	204	100%
Bulgaria	No	313	75.6%
	Yes, during my first employment	24	5.8%
	Yes, at this school	77	18.6%
	Total	414	100%
Romania	No	128	74.42%
	Yes, during my first employment	22	12.79%
	Yes, at this school	22	12.79%
	Total	172	100%
Spain (Catalonia)	No	145	70.39%
	Yes, during my first employment	29	14.08%
	Yes, at this school	32	15.53%
	Total	206	100%
Spain (Madrid)	No	186	80.52%
	Yes, during my first employment	30	12.99%
	Yes, at this school	15	6.49%
	Total	231	100%

Table 30: Participation of novice teachers in informal induction programme by education system

Education system	Informal induction	Absolute frequency	Relative frequency
Austria	No	19	73.08%
	Yes, during my first employment	1	3.85%
	Yes, at this school	6	23.08%
	Total	26	100%
Belgium (Flanders)	No	27	34.18%
	Yes, during my first employment	10	12.66%
	Yes, at this school	42	53.16%
	Total	79	100%
Belgium (Wallonia)	No	119	58.33%
	Yes, during my first employment	25	12.25%
	Yes, at this school	60	29.41%
	Total	204	100%
Bulgaria	No	320	77.29%
	Yes, during my first employment	19	4.59%
	Yes, at this school	75	18.12%
	Total	414	100%
Romania	No	129	75%
	Yes, during my first employment	19	11.05%
	Yes, at this school	24	13.95%
	Total	172	100%
Spain (Catalonia)	No	163	79.13%
	Yes, during my first employment	19	9.22%
	Yes, at this school	24	11.65%
	Total	206	100%
Spain (Madrid)	No	192	83.12%
	Yes, during my first employment	26	11.26%
	Yes, at this school	13	5.63%
	Total	231	100%

Table 31: Mentor experience overall

Mentor experience (past five years)	Frequency	Per cent
Yes	163	62.93%
No	96	37.07%
Total	259	100%

Table 32: Mentor experience (intervention group) by education system

Education system	Mentor experience (past five years)	Frequency	Per cent
Austria	Yes	6	33.33%
	No	12	66.67%
	Total	18	100%
Belgium (Flanders)	Yes	10	71.43%
	No	4	28.57%
	Total	14	100%
Belgium (Wallonia)	Yes	18	52.94%
	No	16	47.06%
	Total	34	100%
Bulgaria	Yes	57	89.06%
	No	7	10.94%
	Total	64	100%
Romania	Yes	37	86.05%
	No	6	13.95%
	Total	43	100%
Spain (Catalonia)	Yes	18	43.9%
	No	23	56.1%
	Total	41	100%
Spain (Madrid)	Yes	17	37.78%
	No	28	62.22%
	Total	45	100%

Table 33: Mentors' previous mentor training (intervention group) by education system

Education System	Previous mentor training	Freq.	Percent
Austria	no, none	5	27.78%
	yes, up to one day	5	27.78%
	yes, up to five days	2	11.11%
	yes, up to ten days	2	11.11%
	yes, more than 10 days	4	22.22%
	Total	18	100%
Belgium (Flanders)	no, none	4	28.57%
	yes, up to one day	1	7.14%
	yes, up to five days	6	42.86%
	yes, up to ten days	2	14.29%
	yes, more than 10 days	1	7.14%
	Total	14	100%
Belgium (Wallonia)	no, none	10	29.41%
	yes, up to one day	9	26.47%
	yes, up to five days	9	26.47%
	yes, up to ten days	3	8.82%
	yes, more than 10 days	3	8.82%
	Total	34	100%
Bulgaria	no, none	52	81.25%
	yes, up to one day	7	10.94%
	yes, up to five days	2	3.13%
	yes, up to ten days	1	1.56%
	yes, more than 10 days	2	3.13%
	Total	64	100%
Romania	no, none	20	46.51%
	yes, up to one day	2	4.65%
	yes, up to five days	8	18.6%
	yes, up to ten days	3	6.98%
	yes, more than 10 days	10	23.26%
	Total	43	100%
Spain (Catalonia)	no, none	35	85.37%
	yes, up to one day	2	4.88%
	yes, up to five days	0	0%
	yes, up to ten days	0	0%
	yes, more than 10 days	4	9.76%
	Total	41	100%
Spain (Madrid)	no, none	39	88.64%
	yes, up to one day	3	6.82%
	yes, up to five days	1	2.27%
	yes, up to ten days	1	2.27%
	yes, more than 10 days	0	0%
	Total	44	100%

Table 34: Focus of previous mentor training programmes—Austria (intervention group mentors)

Items	*M*	*SD*
...teach students with learning difficulties	2.54	0.52
...teach students with language barriers	3.00	0.41
...teach students with emotional and behavioural difficulties	3.15	0.69
...involve parents in the learning process of their children	2.69	0.75
...manage a diverse classroom effectively	3.31	0.63
...engage hard-to-reach learners	2.77	0.73
N_{min}	13	

Table 35: Focus of previous mentor training programmes—Belgium (Flanders) (intervention group mentors)

Items	*M*	*SD*
...teach students with learning difficulties	1.4	0.70
...teach students with language barriers	1.4	0.84
...teach students with emotional and behavioural difficulties	1.8	0.92
...involve parents in the learning process of their children	1.5	0.71
...manage a diverse classroom effectively	1.8	0.92
...engage hard-to-reach learners	2.0	0.82
N_{min}	10	

Table 36: Focus of previous mentor training programmes—Belgium (Wallonia) (intervention group mentors)

Items	*M*	*SD*
...teach students with learning difficulties	1.63	0.82
...teach students with language barriers	1.50	0.88
...teach students with emotional and behavioural difficulties	1.96	0.91
...involve parents in the learning process of their children	1.58	0.83
...manage a diverse classroom effectively	2.17	1.13
...engage hard-to-reach learners	1.75	0.99
N_{min}	24	

Table 37: Focus of previous mentor training programmes—Romania (intervention group mentors)

Items	*M*	*SD*
...teach students with learning difficulties	2.17	0.98
...teach students with language barriers	1.83	0.94
...teach students with emotional and behavioural difficulties	2.30	0.88
...involve parents in the learning process of their children	2.39	0.99
...manage a diverse classroom effectively	2.78	0.85
...engage hard-to-reach learners	2.35	0.78
N_{min}	23	

Table 38:Teacher needs—Austria

Items	Intervention group		Control group	
	M	*SD*	*M*	*SD*
I would like more support regarding relationship building with hard-to-reach learners.	2.67	0.78	2.38	0.96
I would like more strategies on how to raise self-confidence and ambitions in students.	2.83	0.58	2.77	0.83
I would like more examples for culturally sensitive teaching.	2.83	0.83	2.77	0.73
I would like more information on how to integrate students from diverse cultural backgrounds.	2.83	0.94	2.85	0.69
I would like more examples on how to improve students' language competences.	2.67	0.98	3.15	0.80
I would like more support in dealing with work-related stress.	2.50	1.00	2.69	0.85
I would like more information about strategies to reflect about my work as a teacher.	3.50	0.52	2.38	0.77
I would like more opportunities to share best practice with other teachers.	3.08	0.67	2.85	0.80
I would like more support on how to motivate my students.	3.33	0.49	2.62	0.65
I would like more information on how I can introduce learning strategies in the classroom.	3.17	0.39	2.62	0.77
I would like more support on how to establish routines in my classroom.	3.17	0.83	2.31	0.75
I would like more opportunities to observe others while teaching.	2.83	0.72	2.62	0.77
I would like to be observed more often while teaching and get feedback.	2.83	0.72	2.46	0.78
I would like more opportunities to reflect on my teaching performance with others.	2.92	0.51	2.62	0.65
I would like more opportunities to share experiences about situations of conflict with others.	3.25	0.62	3.08	0.76
I would like more information on how to interact with parents in a constructive way.	2.75	0.75	2.77	0.83
N_{min}	12		13	

Table 39: Teacher needs—Belgium (Flanders)

Items	Intervention group		Control group	
	M	*SD*	*M*	*SD*
I would like more support regarding relationship building with hard-to-reach learners.	2.74	0.75	2.54	0.69
I would like more strategies on how to raise self-confidence and ambitions in students.	2.84	0.71	2.82	0.67
I would like more examples for culturally sensitive teaching.	2.63	0.70	2.78	0.80
I would like more information on how to integrate students from diverse cultural backgrounds.	2.57	0.82	2.93	0.66
I would like more examples on how to improve students' language competences.	3.08	0.73	3.24	0.69
I would like more support in dealing with work-related stress.	2.76	0.90	2.86	0.97
I would like more information about strategies to reflect about my work as a teacher.	2.78	0.65	3.11	0.74
I would like more opportunities to share best practice with other teachers.	3.02	0.66	3.21	0.63
I would like more support on how to motivate my students.	2.94	0.73	3.00	0.62
I would like more information on how I can introduce learning strategies in the classroom.	2.81	0.68	3.14	0.59
I would like more support on how to establish routines in my classroom.	2.69	0.75	3.04	0.79
I would like more opportunities to observe others while teaching.	2.83	0.83	3.11	0.64
I would like to be observed more often while teaching and get feedback.	2.46	0.71	2.41	0.84
I would like more opportunities to reflect on my teaching performance with others.	2.60	0.64	2.76	0.66
I would like more opportunities to share experiences about situations of conflict with others.	2.89	0.67	2.93	0.68
I would like more information on how to interact with parents in a constructive way.	2.79	0.72	3.07	0.62
N_{min}	47		25	

Table 40: Teacher needs—Belgium (Wallonia)

Items	Intervention group		Control group	
	M	*SD*	*M*	*SD*
I would like more support regarding relationship building with hard-to-reach learners.	2.79	0.79	2.67	0.78
I would like more strategies on how to raise self-confidence and ambitions in students.	3.05	0.55	2.94	0.68
I would like more examples for culturally sensitive teaching.	2.71	0.71	2.77	0.77
I would like more information on how to integrate students from diverse cultural backgrounds.	2.83	0.68	2.87	0.74
I would like more examples on how to improve students' language competences.	2.71	0.87	2.80	0.87
I would like more support in dealing with work-related stress.	3.08	0.83	2.81	0.95
I would like more information about strategies to reflect about my work as a teacher.	2.83	0.79	2.94	0.73
I would like more opportunities to share best practice with other teachers.	3.09	0.77	3.14	0.76
I would like more support on how to motivate my students.	2.91	0.73	2.79	0.71
I would like more information on how I can introduce learning strategies in the classroom.	2.88	0.72	2.92	0.64
I would like more support on how to establish routines in my classroom.	2.73	0.67	2.61	0.76
I would like more opportunities to observe others while teaching.	2.88	0.86	2.84	0.89
I would like to be observed more often while teaching and get feedback.	2.14	0.87	2.20	0.87
I would like more opportunities to reflect on my teaching performance with others.	2.83	0.71	2.92	0.78
I would like more opportunities to share experiences about situations of conflict with others.	2.94	0.71	2.96	0.74
I would like more information on how to interact with parents in a constructive way.	2.89	0.86	2.91	0.82
N_{min}	63		131	

Table 41: Teacher needs—Bulgaria

Items	Intervention group		Control group		*t-Test statistics*
	M	SD	M	SD	
I would like more support regarding relationship building with hard-to-reach learners.	3.10	0.60	2.70	0.78	*t*(399)=-5.55**, *p*=0.00
I would like more strategies on how to raise self-confidence and ambitions in students.	3.23	0.57	3.01	0.68	*t*(397)=-3.36**, *p*=0.00
I would like more examples for culturally sensitive teaching.	3.13	0.61	2.93	0.67	*t*(395)=-3.04**, *p*=0.00
I would like more information on how to integrate students from diverse cultural backgrounds.	3.26	0.60	2.93	0.72	*t*(397)=-4.79**, *p*=0.00
I would like more examples on how to improve students' language competences.	3.25	0.58	3.00	0.68	*t*(397)=-3.74**, *p*=0.00
I would like more support in dealing with work-related stress.	3.23	0.69	3.08	0.81	*t*(395)=-2.03*, *p*=0.04
I would like more information about strategies to reflect about my work as a teacher.	3.21	0.56	3.05	0.65	*t*(394)=-2.37**, *p*=0.02
I would like more opportunities to share best practice with other teachers.	3.24	0.59	3.20	0.64	NS
I would like more support on how to motivate my students.	3.27	0.61	2.93	0.69	*t*(391)=-5.06**, *p*=0.00
I would like more information on how I can introduce learning strategies in the classroom.	3.22	0.60	3.00	0.64	*t*(389)=-3.43**, *p*=0.00
I would like more support on how to establish routines in my classroom.	3.07	0.66	2.82	0.77	*t*(390)= -3.41**, *p*=0.00
I would like more opportunities to observe others while teaching.	3.05	0.63	2.97	0.71	NS
I would like to be observed more often while teaching and get feedback.	2.56	0.78	2.58	0.73	NS
I would like more opportunities to reflect on my teaching performance with others.	2.83	0.73	2.82	0.66	NS
I would like more opportunities to share experiences about situations of conflict with others.	3.16	0.59	3.02	0.65	*t*(388)=-2.11*, *p*=0.04
I would like more information on how to interact with parents in a constructive way.	3.13	0.64	2.95	0.67	*t*(387)=-2.68**, *p*=0.01
N_{min}	147		236		389

Table 42: Teacher needs—Romania

Items	Intervention group		Control group	
	M	*SD*	*M*	*SD*
I would like more support regarding relationship building with hard-to-reach learners.	3.36	0.59	3.15	0.65
I would like more strategies on how to raise self-confidence and ambitions in students.	3.49	0.50	3.32	0.54
I would like more examples for culturally sensitive teaching.	3.25	0.63	3.20	0.51
I would like more information on how to integrate students from diverse cultural backgrounds.	3.33	0.50	3.23	0.53
I would like more examples on how to improve students' language competences.	3.37	0.55	3.34	0.55
I would like more support in dealing with work-related stress.	3.47	0.61	3.28	0.72
I would like more information about strategies to reflect about my work as a teacher.	3.39	0.51	3.32	0.52
I would like more opportunities to share best practice with other teachers.	3.50	0.50	3.38	0.54
I would like more support on how to motivate my students.	3.41	0.52	3.22	0.57
I would like more information on how I can introduce learning strategies in the classroom.	3.47	0.55	3.33	0.53
I would like more support on how to establish routines in my classroom.	3.36	0.55	3.04	0.62
I would like more opportunities to observe others while teaching.	3.29	0.67	3.18	0.60
I would like to be observed more often while teaching and get feedback.	2.86	0.76	2.90	0.64
I would like more opportunities to reflect on my teaching performance with others.	3.15	0.55	3.13	0.59
I would like more opportunities to share experiences about situations of conflict with others.	3.20	0.57	3.13	0.55
I would like more information on how to interact with parents in a constructive way.	3.36	0.55	3.23	0.48
N_{min}	81		77	

Table 43: Teacher needs—Spain (Catalonia)

Items	Intervention group		Control group		*t-Test statistics*
	M	*SD*	*M*	*SD*	
I would like more support regarding relationship building with hard-to-reach learners.	3.03	0.70	3.22	0.71	$t(203)= 1.91^*$, $p=0.03$
I would like more strategies on how to raise self-confidence and ambitions in students.	3.12	0.71	3.24	0.65	$t(203)= 1.91^*$, $p=0.03$
I would like more examples for culturally sensitive teaching.	3.07	0.51	3.28	0.65	$t(203)= 2.46^{**}$, $p=0.00$
I would like more information on how to integrate students from diverse cultural backgrounds.	3.14	0.57	3.32	0.68	$t(202)= 2.13^*$, $p=0.03$
I would like more examples on how to improve students' language competences.	3.23	0.70	3.29	0.61	NS
I would like more support in dealing with work-related stress.	3.10	0.76	3.21	0.79	NS
I would like more information about strategies to reflect about my work as a teacher.	3.19	0.57	3.24	0.61	NS
I would like more opportunities to share best practice with other teachers.	3.34	0.58	3.39	0.65	NS
I would like more support on how to motivate my students.	3.25	0.54	3.29	0.66	NS
I would like more information on how I can introduce learning strategies in the classroom.	3.34	0.56	3.30	0.59	NS
I would like more support on how to establish routines in my classroom.	3.16	0.61	3.13	0.63	NS
I would like more opportunities to observe others while teaching.	3.15	0.68	3.33	0.72	NS
I would like to be observed more often while teaching and get feedback.	2.82	0.70	2.95	0.64	NS
I would like more opportunities to reflect on my teaching performance with others.	3.18	0.56	3.18	0.59	NS
I would like more opportunities to share experiences about situations of conflict with others.	3.36	0.62	3.34	0.64	NS
I would like more information on how to interact with parents in a constructive way.	3.22	0.66	3.21	0.65	NS
N_{min}	95		108		204

Table 44: Teacher needs—Spain (Madrid)

Items	Intervention group		Control group		*t-test statistics*
	M	*SD*	*M*	*SD*	
I would like more support regarding relationship building with hard-to-reach learners.	3.08	0.56	3.25	0.79	*t*(227)= 1.83*, *p*=0.04
I would like more strategies on how to raise self-confidence and ambitions in students.	3.17	0.53	3.41	0.65	*t*(227)= 3.09**, *p*=0.00
I would like more examples for culturally sensitive teaching.	3.10	0.52	3.27	0.72	*t*(224)= 1.94*, p=0.03
I would like more information on how to integrate students from diverse cultural backgrounds.	3.14	0.57	3.30	0.72	NS
I would like more examples on how to improve students' language competences.	3.10	0.58	3.33	0.70	*t*(226)= 2.63**, *p*=0.01
I would like more support in dealing with work-related stress.	3.13	0.65	3.41	0.74	*t*(226)= 3.05**, *p*=0.00
I would like more information about strategies to reflect about my work as a teacher.	3.11	0.51	3.27	0.66	*t*(228)= 2.04*, *p*=0.04
I would like more opportunities to share best practice with other teachers.	3.23	0.55	3.44	0.61	*t*(228)= 2.76**, *p*=0.01
I would like more support on how to motivate my students.	3.23	0.55	3.46	0.60	*t*(225)= 2.93**, *p*=0.00
I would like more information on how I can introduce learning strategies in the classroom.	3.28	0.53	3.56	0.53	*t*(225)= 3.93**, *p*=0.00
I would like more support on how to establish routines in my classroom.	3.09	0.64	3.21	0.74	NS
I would like more opportunities to observe others while teaching.	3.17	0.57	3.38	0.68	*t*(225)= 2.40**, p=0.02
I would like to be observed more often while teaching and get feedback.	2.96	0.62	2.98	0.80	NS
I would like more opportunities to reflect on my teaching performance with others.	3.13	0.46	3.23	0.59	NS
I would like more opportunities to share experiences about situations of conflict with others.	3.13	0.54	3.41	0.64	*t*(227)= 3.50**, *p*=0.00
I would like more information on how to interact with parents in a constructive way.	3.07	0.56	3.39	0.62	*t*(225)= 4.09**, *p*=0.00
N_{min}	99		127		226

Table 45: General views on the value of mentoring (novice teachers' perspective)—Austria

Items	Intervention group		Control group	
	M	*SD*	*M*	*SD*
In my school district, mentoring novice teachers is seen as a crucial part of starting the teaching career.	2.46	1.13	2.54	0.66
In my education system, being a mentor is seen as one of the most important parts of professional development for teachers.	2.23	0.83	1.85	0.90
In my environment, people highly respect mentors who support novice teachers.	2.62	1.19	2.54	0.97
I think that mentoring novice teachers is valued in society.	2.62	1.19	2.38	0.87
N_{min}	13		13	

Table 46: General views on the value of mentoring (novice teachers' perspective)—Belgium (Flanders)

Items	Intervention group		Control group	
	M	*SD*	*M*	*SD*
In my school district, mentoring novice teachers is seen as a crucial part of starting the teaching career.	3.40	0.61	3.28	0.80
In my education system, being a mentor is seen as one of the most important parts of professional development for teachers.	2.86	0.61	2.86	0.83
In my environment, people highly respect mentors who support novice teachers.	2.84	0.62	2.76	0.74
I think that mentoring novice teachers is valued in society.	2.90	0.84	2.76	0.83
N_{min}	50		29	

Table 47: General views on the value of mentoring (novice teachers' perspective)—Belgium (Wallonia)

Items	Intervention group		Control group	
	M	*SD*	*M*	*SD*
In my school district, mentoring novice teachers is seen as a crucial part of starting the teaching career.	2.97	0.90	2.81	1.02
In my education system, being a mentor is seen as one of the most important parts of professional development for teachers.	2.60	0.90	2.53	0.94
In my environment, people highly respect mentors who support novice teachers.	2.76	0.80	2.85	0.87
I think that mentoring novice teachers is valued in society.	2.14	0.82	2.18	0.87
N_{min}	62		133	

Table 48: General views on the value of mentoring (novice teachers' perspective)—Bulgaria

Items	Intervention group		Control group		*t-test statistics*
	M	*SD*	*M*	*SD*	
In my school district, mentoring novice teachers is seen as a crucial part of starting the teaching career.	3.30	0.81	3.04	0.78	$t(405)=-3.26^{**}$, $p=0.00$
In my education system, being a mentor is seen as one of the most important parts of professional development for teachers.	3.13	0.83	2.97	0.80	$t(402)=-2.04^{*}$, $p=0.04$
In my environment, people highly respect mentors who support novice teachers.	3.31	0.80	3.11	0.75	$t(404)=-2.56^{**}$, $p=0.01$
I think that mentoring novice teachers is valued in society.	3.03	0.92	2.78	0.84	$t(403)=-2.89^{**}$, $p=0.00$
N_{min}	164		240		

Table 49: General views on the value of mentoring (novice teachers' perspective)—Romania

Items	Intervention group		Control group	
	M	*SD*	*M*	*SD*
In my school district, mentoring novice teachers is seen as a crucial part of starting the teaching career.	2.61	0.90	2.52	0.91
In my education system, being a mentor is seen as one of the most important parts of professional development for teachers.	2.75	0.76	2.63	0.88
In my environment, people highly respect mentors who support novice teachers.	2.90	0.78	2.83	0.90
I think that mentoring novice teachers is valued in society.	3.06	0.68	2.84	0.88
N_{min}	89		81	

Table 50: General views on the value of mentoring (novice teachers' perspective)—Spain (Catalonia)

Items	Intervention group		Control group		*t-test statistics*
	M	*SD*	*M*	*SD*	
In my school district, mentoring novice teachers is seen as a crucial part of starting the teaching career.	2.52	0.75	2.41	0.84	NS
In my education system, being a mentor is seen as one of the most important parts of professional development for teachers.	2.31	0.78	2.19	0.75	NS
In my environment, people highly respect mentors who support novice teachers.	2.67	0.71	2.30	0.88	$t(199)=-3.25^{**}$, $p=0.00$
I think that mentoring novice teachers is valued in society.	2.30	0.86	1.95	0.73	$t(199)=-3.11^{**}$, $p=0.00$
N_{min}	92		108		

Table 51: General views on the value of mentoring (novice teachers' perspective)—Spain (Madrid)

Items	Intervention group		Control group		*t-test statistics*
	M	*SD*	*M*	*SD*	
In my school district, mentoring novice teachers is seen as a crucial part of starting the teaching career.	2.30	0.90	1.84	0.92	$t(227)=-3.73^{**}$, $p=0.00$
In my education system, being a mentor is seen as one of the most important parts of professional development for teachers.	2.11	0.86	1.66	0.79	$t(226)=-4.07^{**}$, $p=0.00$
In my environment, people highly respect mentors who support novice teachers.	2.92	0.72	2.28	0.90	$t(226)=-5.77^{**}$, $p=0.01$
I think that mentoring novice teachers is valued in society.	2.23	0.81	1.74	0.78	$t(227)=-4.57^{**}$, $p=0.00$
N_{min}	100		128		

Table 52: General views on the value of mentoring (mentors' perspective)—Austria

Items	*M*	*SD*
In my environment, people highly respect me because I am a mentor for novice teachers.	2.94	0.92
In my school district, mentoring novice teachers is seen as a crucial part of the start of the teaching career of novice teachers.	2.38	0.91
In my education system, being a mentor is seen as one of the most important parts of professional development for teachers.	2.12	0.74
I think that mentoring novice teachers is valued in society.	2.65	1.07
N_{min}	32	

Table 53: General views on the value of mentoring (mentors' perspective)— Belgium (Flanders)

Items	*M*	*SD*
In my environment, people highly respect me because I am a mentor for novice teachers.	2.77	0.65
In my school district, mentoring novice teachers is seen as a crucial part of the start of the teaching career of novice teachers.	3.17	0.75
In my education system, being a mentor is seen as one of the most important parts of professional development for teachers.	2.60	0.69
I think that mentoring novice teachers is valued in society.	2.89	0.63
N_{min}	35	

Table 54: General views on the value of mentoring (mentors' perspective)—Belgium (Wallonia)

Items	*M*	*SD*
In my environment, people highly respect me because I am a mentor for novice teachers.	2.35	0.85
In my school district, mentoring novice teachers is seen as a crucial part of the start of the teaching career of novice teachers.	2.98	0.73
In my education system, being a mentor is seen as one of the most important parts of professional development for teachers.	2.32	0.72
I think that mentoring novice teachers is valued in society.	1.91	0.65
N_{min}	94	

Table 55: General views on the value of mentoring (mentors' perspective)—Bulgaria

Items	*M*	*SD*
In my environment, people highly respect me because I am a mentor for novice teachers.	2.73	0.99
In my school district, mentoring novice teachers is seen as a crucial part of the start of the teaching career of novice teachers.	3.33	0.84
In my education system, being a mentor is seen as one of the most important parts of professional development for teachers.	3.39	0.73
I think that mentoring novice teachers is valued in society.	3.19	0.75
N_{min}	63	

Table 56: General views on the value of mentoring (mentors' perspective)—Romania

Items	*M*	*SD*
In my environment, people highly respect me because I am a mentor for novice teachers.	2.95	0.74
In my school district, mentoring novice teachers is seen as a crucial part of the start of the teaching career of novice teachers.	3.02	0.73
In my education system, being a mentor is seen as one of the most important parts of professional development for teachers.	2.56	0.79
I think that mentoring novice teachers is valued in society.	2.81	0.71
N_{min}	115	

Table 57: General views on the value of mentoring (mentors' perspective)—Spain (Catalonia)

Items	*M*	*SD*
In my environment, people highly respect me because I am a mentor for novice teachers.	2.57	0.73
In my school district, mentoring novice teachers is seen as a crucial part of the start of the teaching career of novice teachers.	2.66	0.86
In my education system, being a mentor is seen as one of the most important parts of professional development for teachers.	2.38	0.80
I think that mentoring novice teachers is valued in society.	2.34	0.67
N_{min}	63	

Table 58: General views on the value of mentoring (mentors' perspective)—Spain (Madrid)

Items	*M*	*SD*
In my environment, people highly respect me because I am a mentor for novice teachers.	2.24	0.76
In my school district, mentoring novice teachers is seen as a crucial part of the start of the teaching career of novice teachers.	2.17	0.90
In my education system, being a mentor is seen as one of the most important parts of professional development for teachers.	1.83	0.70
I think that mentoring novice teachers is valued in society.	1.95	0.66
N_{min}	82	

Table 59: Attitudes towards being mentored—Austria

Items	Intervention group		Control group	
	M	*SD*	*M*	*SD*
I think being mentored can have an important impact on my professional development.	3.46	0.52	3.23	0.60
I think being mentored will help me to improve my teaching.	3.46	0.52	3.38	0.51
I expect my mentor(s) to help me discover the causes for professional problems.	3.00	0.41	3.00	0.58
I think being mentored will support the development of more suitable alternatives for my classroom activities.	3.08	0.29	3.15	0.69
From my mentor(s) I expect good ideas for my further professional development.	3.15	0.55	3.46	0.52
I think being mentored will help me to develop reflection skills for my own teaching.	3.38	0.65	3.23	0.60
N_{min}	12		13	

Table 60: Attitudes towards being mentored—Belgium (Flanders)

Items	Intervention group		Control group	
	M	*SD*	*M*	*SD*
I think being mentored can have an important impact on my professional development.	3.49	0.50	3.38	0.51
I think being mentored will help me to improve my teaching.	3.27	0.58	3.31	0.69
I expect my mentor(s) to help me discover the causes for professional problems.	3.12	0.61	3.34	0.48
I think being mentored will support the development of more suitable alternatives for my classroom activities.	3.17	0.52	3.21	0.73
From my mentor(s) I expect good ideas for my further professional development.	3.04	0.58	3.07	0.66
I think being mentored will help me to develop reflection skills for my own teaching.	3.19	0.58	3.28	0.56
N_{min}	48		29	

Table 61: Attitudes towards being mentored—Belgium (Wallonia)

Items	Intervention group		Control group	
	M	*SD*	*M*	*SD*
I think being mentored can have an important impact on my professional development.	3.43	0.67	3.47	0.58
I think being mentored will help me to improve my teaching.	3.33	0.67	3.36	0.63
I expect my mentor(s) to help me discover the causes for professional problems.	3.15	0.72	3.04	0.67
I think being mentored will support the development of more suitable alternatives for my classroom activities.	3.10	0.65	3.14	0.61
From my mentor(s) I expect good ideas for my further professional development.	3.11	0.66	3.09	0.64
I think being mentored will help me to develop reflection skills for my own teaching.	3.31	0.62	3.30	0.66
N_{min}	62		134	

Table 62: Attitudes towards being mentored—Bulgaria

Items	Intervention group		Control group		*t-test statistics*
	M	*SD*	*M*	*SD*	
I think being mentored can have an important impact on my professional development.	3.44	0.58	3.13	0.66	$t(406)=-4.96^{**}$, $p=0.00$
I think being mentored will help me to improve my teaching.	3.47	0.53	3.09	0.69	$t(406)=-5.95^{**}$, $p=0.00$
I expect my mentor(s) to help me discover the causes for professional problems.	3.33	0.59	2.96	0.75	$t(406)=-5.34^{**}$, $p=0.00$
I think being mentored will support the development of more suitable alternatives for my classroom activities.	3.45	0.56	3.14	0.62	$t(407)=-5.39^{**}$, $p=0.00$
From my mentor(s) I expect good ideas for my further professional development.	3.37	0.54	3.06	0.66	$t(405)=-5.13^{**}$, $p=0.00$
I think being mentored will help me to develop reflection skills for my own teaching.	3.42	0.58	3.17	0.72	$t(405)=-3.99^{**}$, $p=0.00$
N_{min}	164		242		

Table 63: Attitudes towards being mentored—Romania

Items	Intervention group		Control group	
	M	*SD*	*M*	*SD*
I think being mentored can have an important impact on my professional development.	3.71	0.45	3.62	0.50
I think being mentored will help me to improve my teaching.	3.65	0.46	3.54	0.57
I expect my mentor(s) to help me discover the causes for professional problems.	3.53	0.50	3.38	0.66
I think being mentored will support the development of more suitable alternatives for my classroom activities.	3.57	0.53	3.46	0.50
From my mentor(s) I expect good ideas for my further professional development.	3.61	0.49	3.56	0.50
I think being mentored will help me to develop reflection skills for my own teaching.	3.59	0.58	3.45	0.56
N_{min}	87		81	

Table 64: Attitudes towards being mentored—Spain (Catalonia)

Items	Intervention group		Control group		*t-test statistics*
	M	*SD*	*M*	*SD*	
I think being mentored can have an important impact on my professional development.	3.43	0.54	3.60	0.51	$t(204)=2.23$ **, $p=0.01$
I think being mentored will help me to improve my teaching.	3.53	0.50	3.57	0.53	NS
I expect my mentor(s) to help me discover the causes for professional problems.	3.43	0.58	3.46	0.55	NS
I think being mentored will support the development of more suitable alternatives for my classroom activities.	3.45	0.52	3.45	0.55	NS
From my mentor(s) I expect good ideas for my further professional development.	3.58	0.50	3.56	0.52	NS
I think being mentored will help me to develop reflection skills for my own teaching.	3.48	0.52	3.50	0.55	NS
N_{min}	97		109		

Table 65: Attitudes towards being mentored—Spain (Madrid)

Items	Intervention group		Control group		*t-test statistics*
	M	*SD*	*M*	*SD*	
I think being mentored can have an important impact on my professional development.	3.25	0.59	3.32	0.68	NS
I think being mentored will help me to improve my teaching.	3.54	0.54	3.55	0.57	NS
I expect my mentor(s) to help me discover the causes for professional problems.	3.51	0.54	3.43	0.58	NS
I think being mentored will support the development of more suitable alternatives for my classroom activities.	3.51	0.56	3.41	0.60	NS
From my mentor(s) I expect good ideas for my further professional development.	3.61	0.49	3.53	0.55	NS
I think being mentored will help me to develop reflection skills for my own teaching.	3.59	0.51	3.48	0.62	NS
N_{min}	98		127		

Table 66: Mentors' views on the general adaptivity of mentoring—Austria

Items	Intervention group	
	M	*SD*
Mentors change their approach according to the novice teacher's level of professional development.	3.53	1.33
Mentors change their mentoring approach according to the social situation in the classroom.	3.94	1.34
Mentors use the same mentoring approach with all their novice teachers (in order to create the same experience for all).	2.47	1.07
Mentors use different mentoring approaches for novice teachers with different personalities.	3.76	1.20
N_{min}	17	

Table 67: Mentors' views on the general adaptivity of mentoring—Belgium (Flanders)

Items	Intervention group	
	M	*SD*
Mentors change their approach according to the novice teacher's level of professional development.	4.21	1.63
Mentors change their mentoring approach according to the social situation in the classroom.	3.29	1.82
Mentors use the same mentoring approach with all their novice teachers (in order to create the same experience for all).	2.79	1.53
Mentors use different mentoring approaches for novice teachers with different personalities.	3.71	1.54
N_{min}	14	

Table 68: Mentors' views on the general adaptivity of mentoring—Belgium (Wallonia)

Items	Intervention group	
	M	*SD*
Mentors change their approach according to the novice teacher's level of professional development.	3.81	1.28
Mentors change their mentoring approach according to the social situation in the classroom.	4.28	1.22
Mentors use the same mentoring approach with all their novice teachers (in order to create the same experience for all).	3.06	1.52
Mentors use different mentoring approaches for novice teachers with different personalities.	4.00	1.32
N_{min}	32	

Table 69: Mentors' views on the general adaptivity of mentoring—Bulgaria

Items	Intervention group	
	M	*SD*
Mentors change their approach according to the novice teacher's level of professional development.	4.35	1.17
Mentors change their mentoring approach according to the social situation in the classroom.	4.32	1.15
Mentors use the same mentoring approach with all their novice teachers (in order to create the same experience for all).	2.44	1.30
Mentors use different mentoring approaches for novice teachers with different personalities.	4.36	1.30
N_{min}	63	

Table 70: Mentors' views on the general adaptivity of mentoring—Romania

Items	Intervention group	
	M	*SD*
Mentors change their approach according to the novice teacher's level of professional development.	3.77	1.49
Mentors change their mentoring approach according to the social situation in the classroom.	3.65	1.40
Mentors use the same mentoring approach with all their novice teachers (in order to create the same experience for all).	3.21	1.42
Mentors use different mentoring approaches for novice teachers with different personalities.	3.93	1.55
N_{min}	43	

Table 71: Mentors' views on the general adaptivity of mentoring—Spain (Catalonia)

Items	Intervention group	
	M	*SD*
Mentors change their approach according to the novice teacher's level of professional development.	3.08	1.15
Mentors change their mentoring approach according to the social situation in the classroom.	3.56	1.39
Mentors use the same mentoring approach with all their novice teachers (in order to create the same experience for all).	2.67	1.13
Mentors use different mentoring approaches for novice teachers with different personalities.	3.33	1.42
N_{min}	38	

Table 72 : Mentors' views on the general adaptivity of mentoring—Spain (Madrid)

Items	Intervention group	
	M	*SD*
Mentors change their approach according to the novice teacher's level of professional development.	2.98	1.44
Mentors change their mentoring approach according to the social situation in the classroom.	3.37	1.61
Mentors use the same mentoring approach with all their novice teachers (in order to create the same experience for all).	2.79	1.18
Mentors use different mentoring approaches for novice teachers with different personalities.	2.95	1.40
N_{min}	41	