# What are the competences needed to be a cooperating teacher in French-speaking Belgium? Analysis of the results of a large-scale survey of professionals

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## Abstract

In French-speaking Belgium, the current reform of initial teacher training plans notably to improve the training of cooperating teachers, considering that they need specific training in the supervision of trainees to ensure their crucial role in the preparation of future teachers. In this context, a questionnaire was administered to 854 volunteer cooperating teachers. One of the purposes of this questionnaire was to allow them to self-assess their level of mastery of the tasks inherent to their function, which were included in a proposal of reference framework. This article analyzes the responses provided in order to test the structure of the six-competences reference framework proposed on the basis of a literature review. It also aims to compare the degree of mastery reported by different subgroups of respondents (e.g., cooperating teachers who have received training in supervising future teachers versus those who have not) to determine whether certain characteristics may be associated with a higher or lower degree of reported mastery. The results highlight four relevant dimensions of the role of cooperating teachers that have been documented in the scientific literature. They allow to formulate ways to improve the training of cooperating teachers.

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# 1. Introduction: the necessity of training cooperating teachers

To better prepare future teachers for an increasingly complex profession, industrialized countries have lengthened and professionalized their teacher preparation programs (Desbiens, Spallanzani & Borges, 2013), notably via a competence-based approach (Bourdoncle & Lessard, 2003). This approach values experiential learning and the reflective practice of pre-service teachers, with the aim of improving their understanding of professional action and better articulating theory and practice (Desbiens et al., 2013).

In this context, work-study training and internships aim to enable "the pre-service teacher to acquire the professional know-how that is based on the theory-practice articulation" (Deprit, März & Van Nieuwenhoven, 2019, p. 222) and to "lessen the shock of confrontation with everyday reality (OECD, 2005)" (Desbiens, Borges & Spallanzani, 2012, p. 2).

Moreover, it is with a view to professionalization that a major part of initial teacher preparation is entrusted to cooperating teachers (Derobertmasure, Dehon & Demeuse, 2011). Indeed, the legislators of various education systems (e.g. French speaking Belgium (called Fédération Wallonie Bruxelles (FWB)), 2001), students (Koerner, O'Connell Rust & Baumgartner, 2002) and a large number of researchers (e.g. Clarke, Triggs & Nielsen, 2014; Derobertmasure et al., 2011; Glenn, 2006; Pellerin, Portelance, Vivegnis & Boisvert, 2021) agree on the crucial role of cooperating teachers in the preparation of pre-service teachers.

As part of their role, cooperating teachers must perform complex tasks (Pellerin et al., 2021; Portelance, Gervais, Lessard & Beaulieu, 2008; Wexler, 2019) that are different from those they already perform as teachers (Boudreau, 2009). Gareis and Grant (2014) further state that "not all effective teachers are necessarily effective cooperating teachers" (p. 78). Vandercleyen (2012) also points out that a great deal of research highlights that the accompaniment role exercised by the cooperating teachers is "specific" and "unnatural" (s.p.). For example, cooperating teachers must be able to explain their own practices (i.e., describe and justify them), something they do not do on a daily basis (Gervais & Correa Molina, 2005). Given the specific skills required of cooperating teachers, the question of their preparation arises. On this subject, Gareis and Grant (2014) mention several studies that have highlighted the effectiveness of training programs on the competences (e.g. giving relevant feedback) of cooperating teachers.

But the preparation offered to cooperating teachers varies widely from one educational system to another. For example, in the Swiss canton where André, Zinguinian and Golay (2019) conducted their study, the majority of cooperating teachers undergo specific preparation (10 ECTS credits) for this function. In Quebec, "since 1994, at the request of the Ministry of Education, Quebec universities have been responsible for the preparation of teachers who receive trainees" (Portelance et al., 2008, p. 7). However, in this education system, such preparation is not compulsory (Vandercleyen, 2021). Moreover, "no prescription or legal framework exists as to the nature and content of these preparations" (Vandercleyen, 2021, p. 1). In French-speaking Belgium (Fédération Wallonie-Bruxelles (FWB)), although researchers have been making recommendations on this subject for over 30 years (e.g. De Landsheere, 1990), cooperating teachers are not required to undergo any specific preparation to supervise pre-service teachers (Maes, Colognesi & Van Niewenhoven, 2019; Schillings, André & Noël, 2020). Furthermore, "the accompaniment of pre-service by cooperating teachers is guided by few prescriptions (Dejaegher, Watelet, Depluvrez, Noël & Schillings, 2019; Van Nieuwenhoven, & Colognesi, 2015) and expectations in terms of gestures and postures are not officially defined" (Schillings et al., 2020, p.17).

The reform of initial teacher preparation currently underway in the French-speaking part of Belgium (Fédération Wallonie-Bruxelles) proposes to improve the preparation of cooperating teachers through the introduction of a 10 ECTS-credit certificate in internship supervision, with

the aim of preparing cooperating teachers to "interact with a student and to observe, analyze and evaluate elements of professional teaching practice with a view to advising and helping to readjust these practices" (FWB, 2019a, p. 35).

In order to contribute to the reflection on this training, and in particular to fill the gap in the reference framework in terms of the competences expected at the end of a cooperating teachers' preparation, Baco, Derobertmasure and Bocquillon (2021a) have proposed a competence reference framework of six competences for the training of cooperating teachers (RECOMS in the following). The development and content of the RECOMS are presented in the following section.

The research from which this article stems aims to identify the degree of proficiency declared (Lapointe, 1995; Renard and Derobertmasure, 2019) by French-speaking Belgian cooperating teachers on the basis of a questionnaire constructed from the RECOMS. To be eligible to take part in the survey, participants had to be teachers in the French-speaking part of Belgium (in pre-school, primary or secondary education) and have supervised at least one active internship for a pre-service teacher in the last five years. Over 850 cooperating teachers responded to the survey. A descriptive analysis of the responses (Baco, Bocquillon, Derobertmasure & Demeuse, 2021b) showed in particular that the degree of proficiency declared by cooperating teachers was higher for certain skills (e.g.: interacting with the trainee by establishing a relationship of trust with him or her) than for others (e.g.: developing the trainee's reflective practice). The three research questions addressed in this article are:

- Which dimensions structure the cooperating teachers' declared level of proficiency?

- Do the dimensions that emerge from the cooperating teachers' answers to the questionnaire correspond to the RECOMS competences?

- Is the level of proficiency declared by cooperating teachers significantly different according to their length of service (as a teacher), the number of trainees they have supervised and/or whether or not they have undergone training to supervise trainees?

The following section presents the theoretical framework of the research and RECOMS. Next, the survey methodology is detailed. Finally, based on the presentation of the results, a discussion and conclusion are proposed.

## 2. Theoretical framework: Which competences for cooperating teachers?

Competence is a polysemous concept documented in the field of education (Demeuse, Duroisin, Soetewey & Derobertmasure, 2015; Demeuse & Strauven, 2013; Jonnaert, 2013). The competence-based approach is used to frame professional teacher preparation in Belgium as in other educational systems (e.g. France, Quebec) (Baco et al., 2021a). Also, in this article, as in RECOMS, in reference to the legislator[1] (FWB, 2013), a competence is defined as a :

> assessable ability of an individual to mobilize, combine, transpose and apply individual or collective resources in a particular context and at a given time; by resources, we mean in particular knowledge, know-how, experience, aptitudes, interpersonal skills and attitudes (FWB, 2013, p. 12).

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[1] Defined with reference to the decree defining initial teacher preparation (FWB, 2019a), itself based on the definition from the decree defining the higher education "landscape" (FWB, 2013).

The function of cooperating teachers has been conceptualized in various ways. For example, recently, Ellis, Alonzo and Nguyen (2020) identified 7 aspects (domains) characteristic of a good cooperating teacher (e.g., facilitating the pre-service's learning) based on a literature review. Colognesi, Van Nieuwenhoven, Runtz-Christian, Lebel and Bélair (2019a) identified 5 "postures " (e.g. organizer, co-constructor) that a cooperating teacher can take and 12 actions (e.g. showing, reassuring, reformulating...) mobilized by them. These twelve actions are divided into three categories (Direction, Relation and Reflection). According to this model, in order to support the trainee, depending on the trainee's context and needs, the cooperating teacher can give direction to the trainee, foster a good relationship between them and the pre-service, and encourage their reflection. Other researchers (Portelance et al., 2008; Rey, Kahn, Donnay, Dejean & Charlier, 2001) have conceptualized the role of the cooperating teacher based on the notion of competence, which is also proposed by RECOMS.

RECOMS was written in several stages. Firstly, the authors reviewed the literature on the training needs of cooperating teachers and the skills they need to perform their role, not limiting themselves to a single theoretical framework. They also consulted, in addition to the scientific literature, competence reference frameworks for the preparation of cooperating teachers and training programs for this function offered in different educational systems (e.g. Childre & Van Rie, 2015; Derobertmasure et al., 2011; Portelance et al., 2008; Rey et al., 2001). This work was carried out until information saturation was reached (Guillemette, 2006; Glaser & Strauss, 1967). The authors then synthesized their literature review into a proposal for a competence reference framework (Demeuse & Strauven, 2013). RECOMS is both a competence reference framework in the sense that it lists the competences expected of a cooperating teacher at the end of their preparation (Postiaux, Bouillard & Romainville, 2010), and a training reference framework in that it relates competences to the organization of a preparation, by breaking down each of the competences into knowledge, know-how and interpersonal skills that can be mobilized in context. The rest of this text presents the 6 competences that compose RECOMS, an overview of which is given in Figure 1 (along with some of the links between them).

**F**igure 1

*6 competences of the competence reference framework and some links between them (adapted from Baco et al., 2021a)*
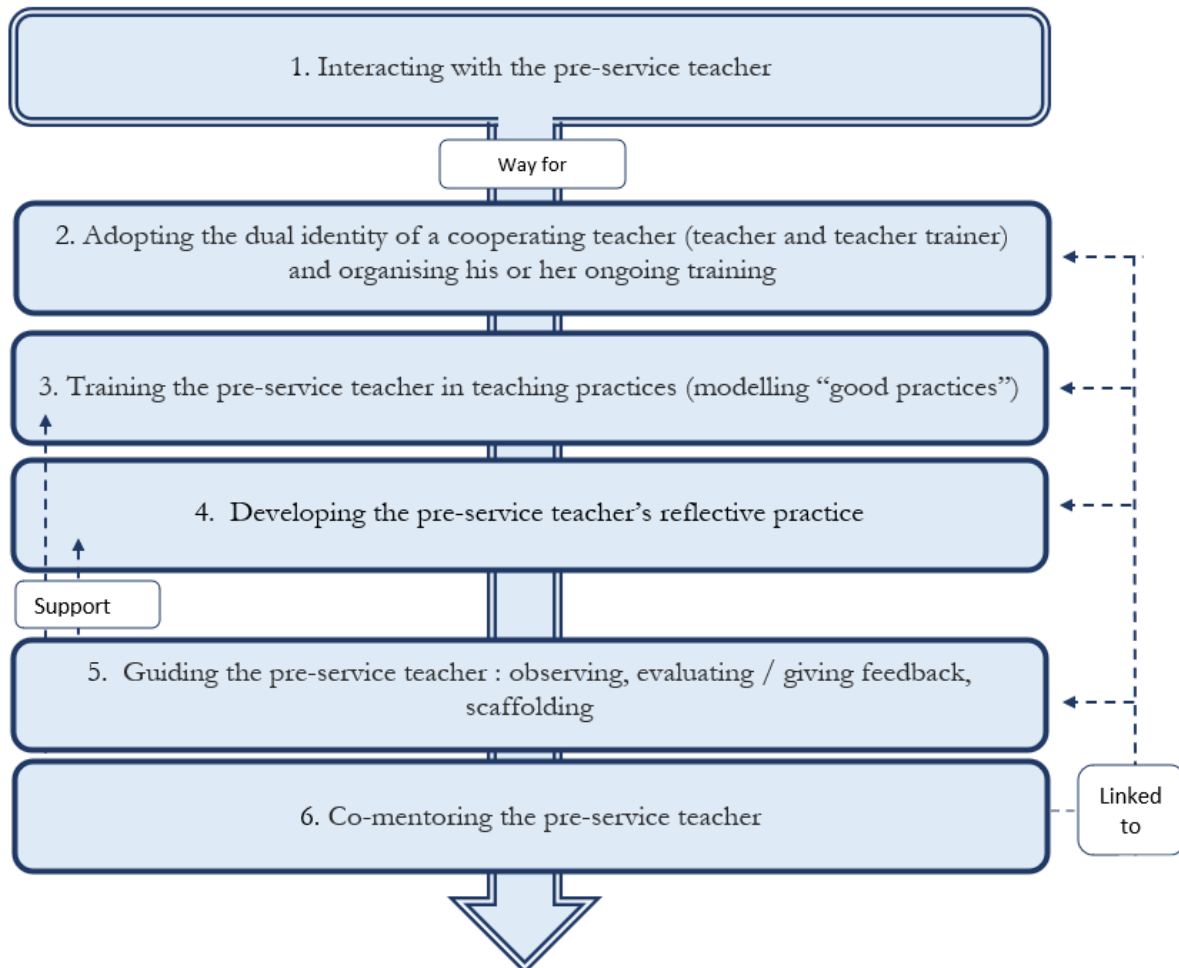


The first RECOMS competence is entitled "interacting with the pre-service teacher". The quality of the relationship within the cooperating teacher and the pre-service teacher is a key point noted in the scientific literature (Colognesi, Parmentier & Van Nieuwenhoven, 2019b; Portelance et al., 2008), as well as in the decree defining initial teacher preparation (FWB, 2019a). According to Vandercleyen (2010), referring to Herbert and Worthy (2001), the ability of cooperating teachers to manage their own emotions and those of the trainee is an important element in the success of an internship. According to Colognesi et al. (2019a), "the relationship is therefore like a 'backdrop', a prerequisite for any accompaniment..." (p. 7). As accompaniment is a poorly defined (Paul, 2009) and polysemous concept (Dupriez & Cattonar, 2018; Paul, 2009; Van Nieuwenhoven & Colognesi, 2013), Paul (2009) proposes a "minimal definition of any form of accompaniment [...]: being with and going towards, based on a symbolic value, that of sharing" (p. 95). All RECOMS competences are designed to operationalize the cooperating teachers' accompaniment of the trainee. In RECOMS, the "Interacting..." competence is considered a "meta-competence", i.e. a competence that is exercised on or with other competences, and which constitutes a means of developing the other competences presented below.

The competence of "adopting the dual identity of a cooperating teacher" is a form of self-relationship that cooperating teachers need to maintain. It refers to the need for them to see themselves as teacher trainers. Indeed, as they have not "been inducted as teacher trainers [...] they feel neither the legitimacy nor the competence to do so" (Rey & Kahn, 2001, p. 14). This lack of internalization of the teacher trainer dimension leads to a paradox whereby, while cooperating teachers believe that the practicum field is indispensable to preparation, a large proportion of them do not emphasize the trainee's "developmental" aspect, but consider that "...the trainee is 'good or not good', as if in the end they were no longer learning: either they know or they or she do not" (Rey & Kahn, 2001, p. 14). As trainers, cooperating teachers can take on different roles (e.g. "coach" (Matsko et al., 2018), "role model", "mentor" (Glenn, 2006)) and different postures (e.g. co-constructor, facilitator (Colognesi et al., 2019a)) that are not equivalent, but need to be mobilized according to the situations (Baco et al., 2021a; Colognesi et al., 2019a).

The competence "to train the pre-service in teaching practices..." emphasizes the importance of the cooperating teacher modeling professional practices for the pre-service teacher (e.g. Childre & Van Rie, 2015; Colognesi et al., 2019a; Christensen, 2021; Glenn, 2006; Korthagen, Loughran & Russell, 2006). The modeling promoted in RECOMS is of the "cognitive" type, meaning that cooperating teachers do not simply show without explaining, but discuss with the pre-service, before or after modeling, the competence and "'pedagogical considerations, questions, feelings, and motives" surrounding the practices they are modeling (Bashan & Holsblat, 2012, p. 208)" (Christensen, 2021, p. 5). This links theory and practice (Bashan & Holsblat, 2012; Christensen, 2021) and is a key element in the socialization of the pre-service teacher as a professional (Christensen, 2021).

The competence "to develop the reflective practice of the pre-service teacher" refers to the ability of the cooperating teacher to support the development of the pre-service teacher's reflective practice, despite the filter of emotions (Chaliès & Raymond, 2008). It requires the cooperating teachers to be "both capable of explaining their own pedagogical practices to the pre-service teacher, and at the same time helping the latter to make explicit their actions, thoughts and decisions" (Vandercleyen, 2010, p. 23). The concept of reflective practice is polysemous, and many models of reflective practice exist. To operationalize this notion, Dubois, Bocquillon, Romanus & Derobertmasure (2019) have developed a transprofessional model of reflective practice based on different models of reflective practice. Thus, a professional can take a reflective look at their practice by mobilizing different reflective processes (e.g.: describing one's practice, justifying one's practice...). Bocquillon, Derobertmasure & Demeuse (2019) complete this proposal by specifying that a teacher can mobilize reflective processes from different sources of information (their perceptions, pedagogical literature...).

The competence "guiding the pre-service teacher: observing, evaluating / giving feedback, supporting" supports the two competences described above. Glaymann (2014) points out that, in order to provide "good" support, the cooperating teachers must be able to provide feedback during regular interviews and take stock of the objectives and learning to be acquired. However, according to Gervais and Correa Molina (2005), referring to Martin (2002), cooperating teachers offer " few feedbacks on pre-service teachers' practices" (p. 412). What's more, they "seem to have difficulty in varying the nature and substance of their feedback according to the stage and level of the student teacher's development over the course of the practicum" (Clarke et al., 2014, p. 20). In contrast to the competence "Training the pre-service teacher...", this competence focuses on providing assistance following the pre-service teacher's performance and/or preparation, whereas the

competence "Training the pre-service teacher..." focuses on presenting professional practices without this necessarily being carried out following the pre-service teacher's performance and/or preparation. This may in fact be achieved, in part, during observation internships.

The competence to "Co-mentoring the pre-service teacher" is linked to various competences already mentioned. It is by cooperating with supervisors (as a reminder, colleagues from the training institution) and by having a good knowledge of initial preparation programs that cooperating teachers can better define themselves as teacher trainers, etc. Nevertheless, cooperation between cooperating teachers and supervisors is not self-evident. According to Portelance, Caron and Murray-Dugré (2019), a cultural difference exists between the preparation institution, whose "university culture is associated in particular with theoretical knowledge and research activities, with the development and dissemination of knowledge" (p. 87)[2], and the school environment, which "questions the relevance of theoretical knowledge" (p. 88). This type of difficulty is also encountered in French-speaking Belgium, as indicated by AEQES (Agence pour l'Evaluation de la Qualité de l'Enseignement Supérieur - Agency for Quality Assessment in Higher Education) (2014) in its evaluation of pedagogical preparations: "in some cases, communication difficulties would be linked to problems of recognition of the field practices of certain cooperating teachers by the supervisors of the pedagogical section" (p. 60). Yet Childre and Van Rie (2015), referring to Dooley (1998), indicate that when pre-service teachers encounter practices that conflict with the methods advocated in the preparation institution's courses, they find it difficult to reconcile the different perspectives, which has a negative impact on the development of effective practices.

## 3. Methodology

### 3.1 Participants and sample representativeness

The sample is composed of 854 volunteer cooperating teachers meeting the inclusion criteria mentioned in the introduction. As there is no statistical reference for the population of cooperating teachers, the sample is compared with the population of French-speaking Belgian teachers (Tables 1 and 2). In general, while this distribution appears satisfactory, the gender distribution of the teachers in the sample is closer to that of ordinary pre-school teachers than to that of ordinary secondary school teachers, which can be explained by the fact that primary school teachers are over-represented and secondary school teachers are under-represented in the sample. This difference in representation within the sample can no doubt in turn be explained by the greater volume of internships for pre-service teachers in pre-school and primary education than in secondary education (Baco et al., 2021b). The average age of the teachers in the sample is close to that of the general teaching population. In terms of length of service, young teachers (0 to 9 years' experience) are less represented in the sample than in the population as a whole, which probably indicates, even if nothing requires it, that school heads appoint few young teachers as cooperating teachers.

Other aspects of the sample (e.g. distribution according to the provinces in which the teachers work, etc.) are also presented in a previous publication (Baco et al., 2021b).

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[2] This cultural difference between institutions is perhaps more pronounced in Quebec, where all teachers are university-trained, than in other education systems such as French-speaking Belgium, where some teachers are not university-trained, but attend higher education institutions (called Hautes Écoles) with a more directly professional vocation and a greater distance from basic research.

**Table 1**

*Comparison of sample and population in terms of gender and average age*

|  |  | Sample (N = 854) | Population of French-speaking Belgian teachers in compulsory education in full-time equivalents (FWB, 2020) |
|---|---|---|---|
| Gender | Female | 86 % | Between 64% women in ordinary secondary education and 97% women in ordinary pre-school education |
|  | Male | 14 % |  |
| Average age |  | 43,8 years (σ = 9) | Between 41 years (ordinary primary) and 43.2 years (ordinary secondary) |

**Table 2**

*Distribution of teachers in the sample and in the population according to length of service as a teacher, experience as a cooperating teacher and whether or not they have undergone training.*

|  |  | Sample (N = 854) | Population of French-speaking Belgian teachers in compulsory education in full-time equivalents (N = 84,231) (FWB, 2019b) |
|---|---|---|---|
| length of service as a teacher(in years) | 0 – 9 | 112 (13%) | 29 343 (35%) |
|  | 10 – 19 | 273 (32%) | 26 976 (32%) |
|  | 20 – 29 | 300 (35%) | 18 352 (22%) |
|  | 30 – 39 | 165 (19%) | 9 432 (11%) |
|  | 40 et plus | 4 (<1%) | 128 (<1%) |
| Experience as cooperating teachers (number of pre-service teachers supervised) | 1 à 4 | 212 (25%) | No available information |
|  | 5 à 10 | 267 (31%) |  |
|  | More than 10 | 364 (43%) |  |
|  | I don't know | 11 (1%) |  |
| Cooperating teacher's training | Yes | 93 (11 %) |  |
|  | No | 762 (89%) |  |

## 3.2 The self-assessment questionnaire

The questionnaire was based on the "conceptanalysis" of needs (Lapointe, 1983; 1995; Renard and Derobertmasure, 2019), which ultimately makes it possible to identify and prioritize the preparation needs of a population. In this method, participants are asked to position themselves for a set of items via a Likert scale to declare their current level of proficiency and the one they should ideally have to carry out a function. For reasons of volume, this article deals only with the current level of proficiency declared by cooperating teachers. Further work will complement the present study.

The part of the questionnaire enabling participants to self-assess their degree of proficiency in various tasks inherent to the job of cooperating teachers (fully available in appendix 1[3]) comprises 22 items (operationalized on the basis of the six RECOMS competences (example: appendix 2)).

The number of items for each competence varies from one competence to another (see Appendix 1), with some competences requiring more items in order to be understood. This distribution is consistent with the model of Colognesi and colleagues (2019a). Indeed, the questionnaire contains fewer items for the competence "Interacting", which can be compared with the practice category "Relating" in the model by Colognesi and colleagues (2019a), which has two practices. Similarly, there are more items operationalizing the competence dealing with reflective practice, just as more practices are associated with the "Reflection" category (Colognesi et al., 2019a) than with the other categories. Each of these items was introduced by the question: "When supervising a pre-service teacher, what is your level of proficiency in each of the following competences?".

For self-assessment purposes, teachers were asked to rate themselves on a 6-point Likert scale for each item (no proficiency / very poor proficiency / poor proficiency / good proficiency / very good proficiency / excellent proficiency).

A first version of the questionnaire was tested with 9 cooperating teachers of very diverse characteristics (age, teaching level of their students, province where they work). Following their feedback and analysis of their answers, the questionnaire was adapted before being administered to the participants.

## 3.3 Data collection and processing

The questionnaire was administered online, via Microsoft Forms, in early 2021 (it was closed three months later). Participants were able to complete the survey anonymously, unless they wished to pass on their contact details to the research team (notably to be contacted again at a later date). To complete the questionnaire, cooperating teachers had to declare their level of proficiency for all items. All 854 cooperating teachers completed the questionnaire in full, so there are no missing data.

In the present article, following data cleaning and a descriptive analysis (Baco et al., 2021b), data processing was carried out in several stages. Firstly, in order to find out how the cooperating teachers' declared level of competence is organized, and whether it breaks down into different dimensions similar to the RECOMS competences or not, a principal component factor analysis with and without Varimax rotation (De Stercke, & Temperman, 2021) was carried out. Secondly, to obtain a score for each individual and for each dimension that takes into account the factor structure, factor scores (Sylvia & Hutchison, 1985) were generated with SPSS® software (regression method (Di Stefano et al., 2009)). These scores form a new variable for each dimension (Di Stefano, Zhu & Mindrila, 2009). These factor scores are standardized scores (mean = 0; standard deviation = 1) and are used instead of the original variables to perform analyses of variance (Odum, 2011) between subgroups of cooperating teachers. Third, to ascertain the strength of the relationship between teachers' length of service and their reported level of proficiency as cooperating teachers, taking into account the factor structure of the responses, linear regressions between the cooperating teachers' length of service as a teacher (in years) and the factor scores for each of the dimensions were run. To identify any differences in reported proficiency levels between

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[3] Appendix 1 also shows the correspondence between the items and the acronyms used to designate them in the article.

subgroups of respondents, one-factor analyses of variance (ANOVA) (Mills & Gay, 2019) were performed. These make it possible to identify any differences in means between the factor scores (quantitative variable) of respondents divided into different subgroups (e.g. having or not having undergone pre-service teacher preparation).

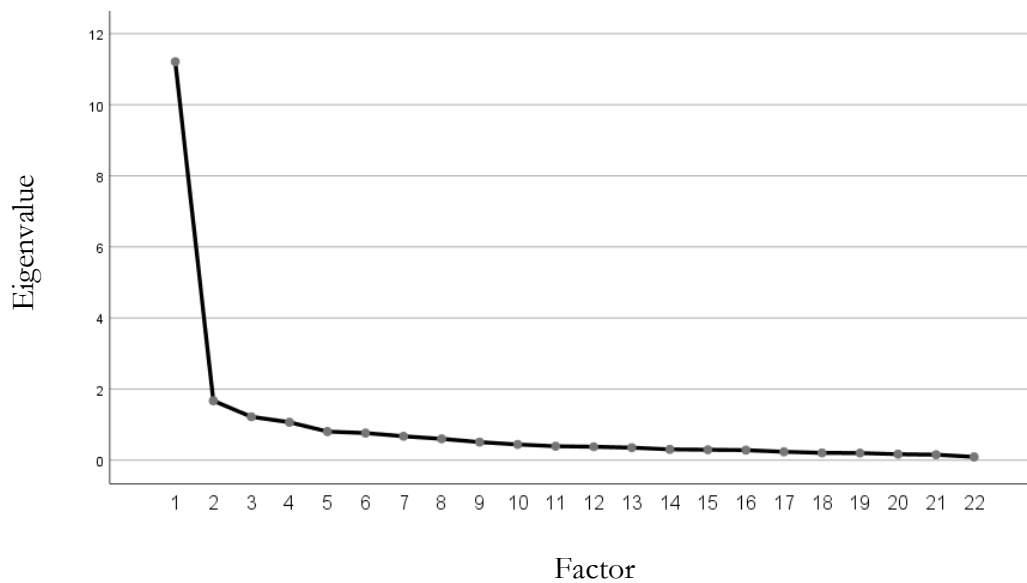# 4. Results: the 4 dimensions of declared proficiency and identification of sub-groups who feel more competent

## 4.1 Structure of declared proficiency level

### 4.1.1 Items assessing the same construct

To assess the internal consistency of the questionnaire as a whole, a Cronbach's alpha and a McDonald's Omega were calculated. Given the characteristics of the survey, McDonald's Omega has few a priori advantages over Cronbach's alpha, as we are using items with the same format (identical Likert scale) and the calculated Cronbach's alpha is positive. However, McDonald's Omega is preferable for assessing sensitivity in the event of item deletion (Béland, Cousineau & Loye, 2017). We therefore propose both indices as food for thought. Cronbach's alpha and McDonald's Omega calculated with JASP software on all 22 items are strong and very similar ($\alpha$= 0.953; $\omega$ = 0.954) (Hartley & MacLean, 2006). They are also not very sensitive to the deletion of any of the questionnaire items (see Appendix 3). This indicates that the items are highly correlated with each other, and that none of them assesses a completely distinct aspect (De Stercke & Temperman, 2021). Therefore, they all have their place in the analyses that follow.

### 4.1.2 Outline of response structure: a major dimension to be clarified

In order to test whether the level of proficiency declared by cooperating teachers can be broken down into 6 "competences" as in RECOMS or in some other way, a principal component analysis was carried out. As Bartlett's sphericity index was significant (p <0.001) and the Kaiser-Meyer-Olkin (KMO) index of 0.93 was greater than 0.60, the principal component analysis could be carried out (Beaulieu, Chochard, Dubeau, Jutras-Dupont & Plante, 2021). The KMO index highlights that "latent factors explain all the correlations between items" (Beaulieu et al., 2021, p. 182). As shown in Figure 2, the unrotated principal component analysis suggests that the first factor alone explains 51% of the variance, indicating the presence of an important common dimension "cooperating teachers". Three other factors have an eigenvalue greater than 1. Together, these 4 factors explain 69% of the total variance. In order to refine the dimensions of the factorial analysis, and possibly approximate the dimensions represented by the six RECOMS competences, a principal component analysis with orthogonal Varimax rotation was performed.

**Figure 2**

*Eigenvalue plot for principal components*



### 4.1.3 Model stabilization: the 4 dimensions of cooperating teachers' declared proficiency level

As shown in Table 3, the principal component factor analysis performed with Varimax rotation and Kaiser normalization extracted 4 components with eigenvalues greater than 1 (Streiner, 1994).

Items were grouped using the same procedure as Beaulieu and colleagues (2021):

> the grouping procedure for each factor is based on items with a saturation greater than or
>
> equal to 0.40 and on their theoretical value in relation to a given factor. Thus, all items
>
> with a saturation greater than or equal to 0.40 in a single dimension were retained (p. 182).

Five items have a saturation greater than 0.40 on two dimensions. An examination based on the level of saturation and what they could contribute to the coherence of the theoretical model was carried out to decide in which dimension they should be retained.

**Table 3**

*Component matrix of principal component factor analysis with Varimax rotation*

|  | Composantes | | | |
|---|---|---|---|---|
|  | 1 | 2 | 3 | 4 |
| Modelling_supervisor | ,453 |  |  | ,520 |
| Justify_context | ,601 |  | ,517 |  |
| Justify_pedagogical | ,785 |  |  |  |
| Justify_ethics | ,706 |  |  |  |
| Argument_choice | ,731 |  |  |  |
| Identify_differences | ,666 |  |  |  |
| Analyse_process | ,515 |  | ,421 |  |
| Analyse_sources | ,660 |  |  |  |
| Observe_performance |  | ,799 |  |  |
| Observe_preparations |  | ,860 |  |  |
| Evaluate_performance |  | ,833 |  |  |
| Evaluate_preparations |  | ,836 |  |  |
| Interact |  |  | ,801 |  |
| Manage_progression |  |  | ,591 | ,404 |
| Adapt_expectations |  |  | ,528 |  |
| Manage_classroom |  |  | ,599 |  |
| Manage_learning |  |  | ,560 |  |
| Support_performance |  |  | ,586 |  |
| Support_preparations |  | ,474 | ,429 |  |
| Develop_process |  |  |  | ,738 |
| Develop_sources |  |  |  | ,768 |
| Develop_despite_emotions |  |  |  | ,746 |

The factors thus obtained have been named: "Co-mentoring and analysis of one's own practices" (factor 1); "Observing and evaluating" (factor 2); "Adapting, supporting and training in teaching practices" (factor 3); "Developing the pre-service teacher's reflective practice" (factor 4). These 4 factors explain 69% of the total variance. Following the Varimax rotation, "Co-mentoring and analysis of one's own practices" accounts for 19% of the variance; "Observing and evaluating" 18% of the variance; "Adapting, supporting and training in teaching practices" 16% of the variance; "Developing the pre-service teacher's reflective practice" 16% of the variance.

The principal component analysis reveals 4 coherent dimensions based on the responses of cooperating teachers to the 22 questionnaire items, enabling them to self-assess their degree of

proficiency. These 4 dimensions structure the cooperating teachers' assessment of their ability to supervise pre-service teachers. They are not strictly similar to the 6 RECOMS[4] competences, but they are relevant to the role of cooperating teachers.

The " Co-mentoring and analyzing one's own practices " dimension corresponds to the analysis of the trainee's own practices and to the co-mentoring that they implement with the trainer from the preparation institution. The "Observing and evaluating" dimension involves observing and evaluating the pre-service teacher's performance and preparations, since the most objective observation possible is essential for a valid evaluation. The "Adapting, supporting and training in teaching practices" dimension covers the formative/supportive relationship between the cooperating teacher and the pre-service teacher. More specifically, this dimension includes items dealing with the interaction between the cooperating teacher and the pre-service teacher, the ability of the cooperating teacher to adapt to the pre-service teacher, but also to demonstrate teaching practices and to help the pre-service teacher with classroom performance and preparation. Finally, the dimension "Developing the pre-service teacher's reflective practice" focuses on the help given by the cooperating teacher to develop the pre-service teacher's reflective practice, which can be implemented in different ways (i.e. via different reflective processes), drawing on different sources of information and despite the filter of emotions. The similarities and differences between this model obtained via principal component factor analysis with Varimax rotation and RECOMS are commented on in the discussion section of the article.

## 4.2 What characteristics of cooperating teachers are associated with a greater sense of proficiency?

### 4.2.1 Small but significant differences according to the length of service as a teacher

Linear regressions and analyses of variance (ANOVA) calculated simultaneously with SPSS® Software (Bryman & Cramer, 2004; Holmes & Rinaman, 2014) between cooperating teachers' experience as a teacher (in years, quantitative variable) and the factor scores calculated for each of the 4 dimensions (quantitative variable) indicate a very small proportion of variance explained ($R^2$) by the length of service, i.e. around 1% (Huguier & Boëlle, 2013; Mills & Gay, 2019). As an $R^2$ close to zero may simply express that the relationship between the two variables is not linear, but of a different form, the scatterplots (appendix 4) were analyzed (Bressoux, 2008). Their analysis supports the lack of relationship between the two variables. Minimal differences linked to the length of service are, however, significant ($p < 0.05$) for 3 of the 4 factors: "Co-mentoring and analysis of one's own practices" ($R^2 = 0.002$; F= 1.643; ddl= 1; p=0.20); "Observing and evaluating" ($R^2 = 0.014$; F= 12.253; ddl=1; $p < 0.001$) ; "Adapting, supporting and training in teaching practices" ($R^2 = 0.08$; F= 6,702; ddl= 1; $p < 0.05$); "Develop the pre-service teacher's reflective practice" ($R^2 = 0.002$; F=9,261; ddl=1; $p < 0.05$). In other words, length of service as a teacher only slightly predicts the degree of proficiency declared by cooperating teachers with regard to the 4 dimensions of their function highlighted by principal component factor analysis, but these differences are significant. These results are supported by the analysis of residual distributions. Normal probability plots (Q-Q graphs) (see Appendix 5) tend to reasonably validate the normality hypothesis (Bressoux, 2008).

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[4]  The unequal number of items for each of the six competences can no doubt partly explain the different factor structure.

## 4.2.2 Some significant differences according to experience as a cooperating teacher

As shown in Table 4, there is an increase in the average factor scores of cooperating teachers as a function of the number of pre-service teachers supervised (divided into 3 groups) for the 3 factors: "Co-mentoring and analysis of one's own practices"; "Adapting, supporting and training in teaching practices" and "Developing the pre-service teacher's reflective practice". For example, for the first factor, the average of cooperating teachers who supervised 1 to 4 pre-service teachers was between the 53rd and 54th percentile rank, while the average of cooperating teachers who supervised 10 or more pre-service teachers was between the 58th and 59th percentile ranks.

To identify any significant differences in declared proficiency levels between cooperating teachers divided into three sub-groups according to the number of pre-service teachers they have supervised, one-factor ANOVAs[5] (see Table 4) were carried out. Overall, the differences were significant for the first factor ($p<0.001$) and the 4th factor ($p=0.027$). However, this analysis needs to be refined to determine whether differences are observed between all groups or only between certain groups. The Bonferroni test (appendix 7) is used to identify between which groups the differences are significant. This indicates that differences are significant ($p<0.05$) only between the group of cooperating teachers who supervised "1 to 4 pre-service teachers" and those who supervised "5 to 10 pre-service teachers" ($p<0.01$) or "10 or more pre-service teachers" ($p<0.001$) for the first dimension, and between the group of cooperating teachers who supervised "1 to 4 pre-service teachers" and those who supervised "more than 10 pre-service teachers" ($p<0.05$) for the fourth dimension.

**Table 4**

*Averages, for each factor, of respondents divided into 3 sub-groups according to the number of pre-service teachers supervised*

| Number of pre-service teachers supervised | "Co-mentoring and analysis of one's own practices" | "Observing and evaluating" | "Adapting, supporting and training in teaching practices" | "Developing the pre-service teacher's reflective practice" |
|---|---|---|---|---|
| 1 to 4 supervised pre-service teachers (N= 212) | $\bar{x} = -0,26$ <br> $\sigma = 1,17$ | $\bar{x} = 0,07$ <br> $\sigma = 1,03$ | $\bar{x} = -0,12$ <br> $\sigma = 1,01$ | $\bar{x} = -0,18$ <br> $\sigma = 1,11$ |
| 5 to 10 supervised pre-service teachers (N= 267) | $\bar{x} = 0,03$ <br> $\sigma = 0,95$ | $\bar{x} = -0,02$ <br> $\sigma = 1,00$ | $\bar{x} = 0,01$ <br> $\sigma = 0,99$ | $\bar{x} = 0,04$ <br> $\sigma = 0,94$ |
| 10 or more pre-service teachers (N= 364) | $\bar{x} = 0,14$ <br> $\sigma = 0,92$ | $\bar{x} = -0,01$ <br> $\sigma = 0,96$ | $\bar{x} = 0,07$ <br> $\sigma = 1,01$ | $\bar{x} = 0,07$ <br> $\sigma = 0,98$ |
| Sig. | F= 8,036 ; ddl= 3 ; p < 0,001[6] | F= 1,292; ddl= 3 ; p=0,276 | F= 1,885; ddl= 3 ; p=0,131 | F= 3,077; ddl= 3 ; p=0,027 |

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[5] These are justified, as the variances of the variables are not significantly different (see Levene's tests in Appendix 6) (Bryman & Cramer, 2004).

[6] Shaded boxes show differences that are significant ($p<0.05$).

### 4.2.3 Modest but significant differences depending on whether or not pre-service teacher preparation was taken for 3 of the 4 dimensions

As shown in Table 5, analyses of variance (ANOVA[7]) indicate that cooperating teachers who have undergone pre-service teacher training have significantly higher averages than untrained teachers for the factors "Co-mentoring and analysis of one's own practices", "Observing and evaluating" and "Developing the pre-service teacher's reflective practice". For example, for the first factor, the average of untrained cooperating teachers is between the 53rd and 54th percentile, while that of trained cooperating teachers is between the 59th and 60th percentile.

**Tableau 5**

*Averages, for each factor, of respondents divided into 2 sub-groups according to whether or not they have attended a training course.*

|  | "Co-mentoring and analysis of one's own practices" | "Observing and evaluating" | "Adapting, supporting and training in teaching practices" | "Developing the pre-service teacher's reflective practice" |
|---|---|---|---|---|
| Cooperating teachers who have not attended training (N= 761) | $\bar{x}$ = -0,27 <br> σ = 1,02 | $\bar{x}$ = -0,27 <br> σ = 1,01 | $\bar{x}$ = 0,00 <br> σ = 1,00 | $\bar{x}$ = -0,03 <br> σ = 0,98 |
| Cooperating teachers who have attended a training (N= 93) | $\bar{x}$ = 0,22 <br> σ = 0,83 | $\bar{x}$ = 0,22 <br> σ = 0,90 | $\bar{x}$ = 0,00 <br> σ = 0,98 | $\bar{x}$ = 0,21 <br> σ = 1,07 |
| Sig. | F= 5,018 ; ddl= 1 ; p=0,025 | F= 5,034; ddl= 1 ; p=0,025 | F= 0,02 ; ddl= 1 ; p=0,964 | F= 4,688; ddl= 1 ; p=0,031 |

Among cooperating teachers who have undergone training, the question arises as to whether the number of pre-service teachers they have supervised is linked to a higher declared level of proficiency. Table 6 shows the averages of cooperating teachers who have undergone preparation depending on the number of pre-service teachers supervised. A non-parametric Kruskal-Wallis test (chosen because the number of cooperating teachers per sub-group is small) indicates that the means of cooperating teachers who have undergone preparation are not significantly different, for each of the dimensions, according to the number of pre-service teachers supervised.

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[7] These are justified, as the variances of the variables are not significantly different (see Levene's tests in Appendix 6) (Bryman & Cramer, 2004).

**Table 6**

*Average number of cooperating teachers having undergone training depending on the number of pre-service teachers supervised*

| Number of pre-service teachers supervised | "Co-mentoring and analysis of one's own practices" | "Observing and evaluating" | "Adapting, supporting and training in teaching practices" | "Developing the pre-service teacher's reflective practice" |
|---|---|---|---|---|
| 1 to 4 supervised pre-service teachers (N= 10) | $\bar{x} = 0{,}33$ <br> $\sigma = 1{,}13$ | $\bar{x} = 0{,}33$ <br> $\sigma = 0{,}56$ | $\bar{x} = -0{,}72$ <br> $\sigma = 0{,}93$ | $\bar{x} = -0{,}26$ <br> $\sigma = 1{,}11$ |
| 5 to 10 supervised pre-service teachers (N= 15) | $\bar{x} = -0{,}21$ <br> $\sigma = 0{,}57$ | $\bar{x} = 0{,}07$ <br> $\sigma = 1{,}07$ | $\bar{x} = 0{,}05$ <br> $\sigma = 1{,}04$ | $\bar{x} = 0{,}25$ <br> $\sigma = 1{,}08$ |
| 10 or more pre-service teachers (N= 67) | $\bar{x} = 0{,}22$ <br> $\sigma = 0{,}83$ | $\bar{x} = 0{,}22$ <br> $\sigma = 0{,}90$ | $\bar{x} = 0{,}00$ <br> $\sigma = 0{,}97$ | $\bar{x} = 0{,}21$ <br> $\sigma = 1{,}06$ |
| Sig. | $p = 0{,}065$ | $p = 0{,}664$ | $p = 0{,}147$ | $p = 0{,}729$ |

In this section, we have identified the 4-dimensional structure of cooperating teachers' proficiency. Significant differences in reported proficiency between certain subgroups of cooperating teachers have also been identified. The following section discusses these results.

## 5. Discussion

As shown in Figure 3, the analysis of the responses from the 854 cooperating teachers has enabled us to identify four dimensions that structure their declared level of proficiency. These 4 dimensions have been named: "Co-mentoring and analysis of one's own practices», "Adapting, supporting and training in teaching practices", "Observing and evaluating" and "Developing the pre-service teacher's reflective practice".

**Figure 3**

*The 4 dimensions of cooperating teachers' proficiency level*



The "Adapting, supporting and training in teaching practices" dimension focuses on the support/accompaniment relationship between the pre-service teacher and the cooperating teacher, which can take on different postures depending on the pre-service teacher's needs (Colognesi et al., 2019a). More specifically, it encompasses several resources from different RECOMS competences whose common point is to enable the training supervisor to support and accompany the pre-service teacher: the ability to communicate with the pre-service teacher (RECOMS competence no. 1), to jointly manage the progress of students and the pre-service teacher, to adapt their expectations according to the pre-service teacher's progress along the preparation path (competence no. 2), to help the pre-service teacher (competence no. 5) and to model classroom management and learning management practices (competenc no. 3). This modeling of practices can, moreover, be a modality of the assistance provided by the cooperating teacher, as proposed in the model by Colognesi and colleagues (2019a). It is also relevant to the various authors who point out, for example, that practice modeling is a need of pre-service teachers (Richardson, Yost, Conway, Magagnosc & Mellor, 2019).

The "Developing the pre-service teacher's reflective practice" dimension focuses on the pre-service teacher's ability to support the pre-service teacher's reflective practice, which corresponds in part to the resources of the RECOMS competence of the same name. In concrete terms, resources linked to the cooperating teacher's ability to take a reflective look at their own practice are present in the "Co-mentoring and analysis of one's own practices" dimension, while resources linked to the cooperating teacher's ability to develop the pre-service teacher's reflective practice are present in

the "Developing the pre-service teacher's reflective practice" dimension. However, from a theoretical point of view, these two types of resources were grouped together in RECOMS competence no. 4. This distinction between resources for the cooperating teacher's reflective practice and resources for developing the pre-service teacher's reflective practice makes sense, especially as cooperating teachers find it more difficult to develop the pre-service teacher's reflective practice than to analyze their own practice (Baco et al., 2021b).

The "Observing and evaluating" dimension focuses on the observation and evaluation of the pre-service teacher, corresponding to part of the RECOMS competence "Guiding the pre-service teacher: observing, evaluating / giving feedback, scaffolding". This dimension fits in well with the fact that cooperating teachers must be able to provide an "active and systematic" assessment (Portelance, 2009, p. 33). A valid evaluation must be based on objective observations (Portelance et al., 2008).

The "Co-mentoring and analysis of one's own practices" dimension relates both to the trainee's ability to analyze their own practice on the basis of different reflective processes and sources of information (which corresponds to certain resources in the RECOMS reflective practice competence) and to their ability to collaborate with the supervisor of the preparation institution (RECOMS "Co-mentoring the pre-service teacher" competence). Clearly, the ability to collaborate and make shared decisions with the supervisor, particularly at the pedagogical level, is therefore associated with the fact that the training supervisor has a good vision of their own practice and is able to discuss it with the supervisor. This is all the more important given that collaboration between cooperating teachers and supervisors is not necessarily self-evident (Portelance & Caron, 2021) and can be tarnished by differences of opinion between the various parties involved. Pre-service teachers can find themselves in difficulty when they encounter practices that conflict with those proposed in the training institution's courses (Childre & Van Rie, 2015), or when they perceive unexplained and unassumed dissonances.

## 5.2 "Natural" evolution is not to be preferred to training

The four dimensions identified also provide a framework for comparing, on a broad scale, the degree of proficiency declared by different sub-groups of cooperating teachers. With regard to the length of service, analyses of factor scores showed that length of service as a teacher only slightly predicted (less than 1% of variance explained) the degree of proficiency declared by cooperating teachers on the four dimensions of the model. This is in line with the literature that emphasizes that the role of cooperating teacher is specific and different from that of a teacher (e.g. Childre & Van Rie, 2015; Gervais & Correa Molina, 2005; Vandercleyen, 2012; 2021). The criterion of length of service therefore does not appear to be a relevant criterion for identifying cooperating teachers who would be better suited to this role. This calls into question the provision of mentors with a certain number of years' experience to accompany young graduate teachers (FWB, 2017). In view of the results, this function could perhaps also be offered to less experienced but trained teachers.

A priori, one might expect that teachers with more experience as cooperating teachers (i.e. having supervised a greater number of pre-service teachers) would feel more competent. The results indicate that there are significant differences between the scores of cooperating teachers who have supervised few pre-service teachers (0 to 4 pre-service teachers) and those who have supervised more than 10 pre-service teachers. However, these differences are small and concern two out of four dimensions: we cannot therefore conclude, in general, that supervising a certain number of pre-service teachers makes them feel more competent. These results indicate that there is little

evidence of "natural" improvement through teachers' experience as cooperating teachers, and that another avenue, such as preparation, needs to be considered. Of course, as this is a self-assessment, it cannot be ruled out that cooperating teachers with greater experience may also be more critical of their own practices, given equal competence.

On the other hand, cooperating teachers who had undergone training felt modestly more competent in three of the four dimensions than did untrained teachers. The importance of training is also supported by the fact that there are no significant differences between the scores of trained cooperating teachers who have supervised few pre-service teachers and the scores of trained cooperating teachers who have supervised many pre-service teachers. This also supports the previous finding that a natural evolution of cooperating teachers through experience is little observed in our study, and concurs with various authors who put forward that preparation for supervision can be effective (Clarke et al., 2014; Ambrosetti, Knight & Dekkers, 2014) and that training programs should be evaluated and perfected (Guskey, 2000).

However, while it is important to take into account the feeling of competence, particularly with a view to training, this study should be supplemented by the observation of actual practices (Aeby & De Pietro, 2003 ; Bocquillon, 2020; Bressoux, Bru, Altet & Leconte-Lambert, 1999; Ben-Peretz & Rumney, 1991), as there may be a gap between declared and actual practices (Bressoux, 2001; Bru, 2002; Clanet & Talbot, 2012; Good & Brophy, 2008). Nevertheless, this observation is particularly complex due to the very nature of the internship supervision situation and the risk of modifying this dyadic relationship.

# 6. Conclusion and perspectives: the need for relevant, effective preparation for cooperating teachers based on field experience and research

There is some consensus on the importance of cooperating teachers in the preparation of pre-service teachers. This role requires the professional to perform tasks different from those they perform as a teacher (Boudreau, 2009). A previous study (Baco et al., 2021b) showed that cooperating teachers do not claim to be proficient in all the tasks inherent in their role. In French-speaking Belgium, preparation for cooperating teachers is largely lacking (Maes et al., 2019). The reform of initial teacher training currently underway aims to introduce a 10 ECTS-credit certificate in internship supervision, without however proposing a competence reference framework common to the various training institutions and making it compulsory.

Based on a proposal of a competence reference framework for cooperating teachers by (RECOMS) (Baco et al., 2021a), a questionnaire was developed to enable cooperating teachers to self-assess various tasks inherent to their role. Based on the responses of 854 cooperating teachers to the 22 items in the questionnaire, a principal component factor analysis revealed four dimensions of proficiency: "Co-mentoring and analysis of one's own practices"; "Observating and evaluating"; "Adaptating, supporting and training in teaching practices"; "Developing the pre-service teacher's reflective practice". Strictly speaking, these four dimensions do not correspond to the six RECOMS competences, but they do highlight important dimensions of the cooperating teachers' function, which have been documented in the literature. It would be useful to take these dimensions into account when structuring training programs to develop RECOMS competences. These dimensions could also form the basis of a new competence reference framework for preparation. However,

their proximity to RECOMS tends to underline the latter's relevance to the preparation of cooperating teachers.

This study also shows that cooperating teachers who have undergone training in the supervision of pre-service teachers have a significantly higher level of proficiency than untrained teachers in 3 of the 4 dimensions of the model. This declared degree of proficiency seems to have little to do with the cooperating teachers' length of service as teachers, and there was little difference between cooperating teachers according to the number of pre-service teachers they supervised. These observations underline that preparation in coaching is necessary to develop the competences of cooperating teachers (e.g. Lafferty, 2018) and that the effectiveness of current training programs could most likely be further improved. To this end, the effectiveness of training programs (Guskey, 2000; 2002; 2012; Richard, Carignan, Gauthier & Bissonnette, 2017) on the effective development of cooperating teachers' and pre-service teachers' competences, as well as on the learning of the students who are the ultimate beneficiaries, could be assessed.

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# 8. Appendices

## 8.1 Appendix 1: Correspondence table between self-assessment questionnaire items for cooperating teachers and RECOMS competences

| Questionnaire items | RECOMS competences (Baco et al., 2021) |
|---|---|
| Interacting positively with the trainee, including establishing a relationship of trust with the trainee. [F3_Interact] | 1. Interacting with the PST |
| Managing the trainee's progress (by meeting the trainee's learning needs) while managing the students' progress (by meeting the students' learning needs). [F3_Manage_progression] | 2. Adopting the dual identity of a CT (teacher and teacher trainer) and organising his or her ongoing training |
| Adapting your own expectations and the tasks asked of the trainee according to his or her progress in the training course (e.g. do not ask the trainee to differentiate learning optimally if he or she is unfamiliar with this concept). [F3_Adapt_expectations] | 2. Adopting the dual identity of a CT (teacher and teacher trainer) and organising his or her ongoing training |
| Showing and explaining to the trainee how to implement teaching practices essential for good classroom management (e.g. managing the classroom atmosphere). [F3_Manage_classroom] | 3. Training the PST in teaching practices (modelling "good practices") |
| Showing and explaining to the trainee how to implement teaching practices essential for good management of learning (e.g. managing students' learning difficulties). [F3_Manage_learning] | 3. Training the PST in teaching practices (modelling "good practices") |
| Showing and explaining to the trainee how to implement teaching practices essential for classroom management and learning management chosen with the supervisor of the training institution. [F1_Modelling_supervisor] | 6. Co-mentoring the PST |
| Justifying the choice of your own teaching practices (e.g. having students work in groups) based on the context (e.g. number of students in the class). [F1_Justify_context] | 4. Developing the PST's reflective practice |
| Justifying the choice of your own teaching practices (e.g. making students work in groups) on the basis of pedagogical and/or scientific arguments (e.g. in connection with a reading, a conference, etc.) [F1_Justify_pedagogical] | 4. Developing the PST's reflective practice |
| Justifying the choice of your own teaching practices (e.g. making students work in groups) | 4. Developing the PST's reflective practice |

| | |
|---|---|
| on the basis of ethical arguments (e.g. according to the objectives assigned to the school, such as "interpersonal skills "). [F1_Justify_ethics] | |
| Arguing the choice of your own teaching practices in discussions with the supervisor of the training institution. [F1_Argument_choice] | 6. Co-mentoring the PST |
| Identifying the differences between your own point of view and that of the supervisor of the training institution in order to discuss them with the supervisor but also with the trainee. [F1_Identify_differences] | 6. Co-mentoring the PST |
| Analysing your own teaching practices in different ways (e.g. describing your practices, evaluating them, proposing alternatives, etc.). [F1_Analyse_process] | 4. Developing the PST's reflective practice |
| Analysing your own teaching practices from different sources of information (your perceptions, colleagues' opinions, pedagogical literature, scientific research results, etc.). [F1_Analyse_sources] | 4. Developing the PST's reflective practice |
| Develop the trainee's ability to analyse, in different ways (describe practices, evaluate them, propose alternatives, etc.), the teaching practices that he/she (the trainee) implements. [F4_Develop_process] | 4. Developing the PST's reflective practice |
| Developing the trainee's ability to analyse, from different sources (the trainee's perceptions, your opinions, scientific research results, etc.), the teaching practices he/she (the trainee) implements. [F4_Develop_sources] | 4. Developing the PST's reflective practice |
| Developing the trainee's ability to analyse, despite his/her (and possibly your) emotions, the teaching practices he/she (the trainee) implements. [F4_Develop_despite_emotions] | 4. Developing the PST's reflective practice |
| Objectively observing a series of behaviours of the trainee during classroom performances using an observation grid (e.g. checklist). [F2_Observe_performance] | 5. Guiding the PST: observing, evaluating / giving feedback, scaffolding |
| Objectively observing the trainee's written lesson preparations using an observation grid (e.g. checklist). [F2_Observe_preparations] | 5. Guiding the PST: observing, evaluating / giving feedback, scaffolding |
| Evaluating the trainee's classroom performance by completing a criterion-referenced grid based on objective observations. [F2_Evaluate_performance] | 5. Guiding the PST: observing, evaluating / giving feedback, scaffolding |

| Evaluating the trainee's written lesson preparations by completing a criterion-referenced grid based on objective observations. [F2_Evaluate_preparations] | 5. Guiding the PST: observing, evaluating / giving feedback, scaffolding |
|---|---|
| Providing assistance (e.g. advice, suggestions for improvement, etc.) to the trainee about his/her classroom performance? [F3_Support_performance] | 5. Guiding the PST: observing, evaluating / giving feedback, scaffolding |
| Providing assistance (e.g. advice, suggestions for improvement, etc.) to the trainee regarding his/her written lesson preparations? [F3_Support_preparations] | 5. Guiding the PST: observing, evaluating / giving feedback, scaffolding |

## 8.2 Appendix 2 : Correspondence table between "guiding" competence resources and the questionnaire items based on them (Baco et al., 2021a, p. 6)

| Competence reference framework resources (Baco et al., 2021, p. 12) | Questionnaire items |
|---|---|
| *"Observing the PST's planning as objectively as possible in order to complete an evaluation grid (e.g., a criterion grid) provided by the training institution."* | Objectively observing the trainee's written lesson preparations using an observation grid (e.g., checklist). |
| | Evaluating the trainee's written lesson preparations by completing a criterion-referenced grid based on objective observations. [F2_Evaluate_preparations] |
| *"Observing as objectively as possible a series of behaviours (indicators) of the PST during classroom performances in order to complete an evaluation grid (e.g., a criterion grid) provided by the training institution."* | Objectively observing a series of behaviours of the trainee during classroom performances using an observation grid (e.g., checklist). |
| | Evaluating the trainee's classroom performance by completing a criterion-referenced grid based on objective observations. [F2_Evaluate_performance] |
| *"Providing scaffolding and fading according to the trainee's progress (Vierset et al., 2015)."* | Providing assistance (e.g., advice, suggestions for improvement, etc.) to the trainee about his/her classroom performance? |
| | Providing assistance (e.g. advice, suggestions for improvement, etc.) to the trainee regarding his/her written lesson preparations? [F3_Support_preparations] |

## 8.3 Appendix 3: Table showing McDonald's Omega and Cronbach's Alpha if an item is dropped

| Items | McDonald's ω | Cronbach's α |
|---|---|---|
| F3_Interact | 0.954 | 0.954 |
| F3_Manage_progression | 0.952 | 0.951 |
| F3_Adapt_expectations | 0.953 | 0.952 |
| F3_Manage_classroom | 0.952 | 0.951 |
| F3_Manage_learning | 0.952 | 0.951 |
| F1_Modelling_supervisor | 0.952 | 0.951 |
| F1_Justify_context | 0.952 | 0.951 |
| F1_Justify_pedagogical | 0.952 | 0.951 |
| F1_Justify_ethics | 0.952 | 0.951 |
| F1_Argument_choice | 0.952 | 0.951 |
| F1_Identify_differences | 0.952 | 0.951 |
| F1_Analyse_process | 0.951 | 0.950 |
| F1_Analyse_sources | 0.951 | 0.950 |
| F4_Develop_process | 0.951 | 0.950 |
| F4_Develop_sources | 0.951 | 0.950 |
| F4_Develop_despite_emotions | 0.951 | 0.951 |
| F2_Observe_performance | 0.952 | 0.951 |
| F2_Observe_preparations | 0.952 | 0.951 |
| F2_Evaluate_performance | 0.952 | 0.951 |
| F2_Evaluate_preparations | 0.952 | 0.951 |
| F3_Support_performance | 0.952 | 0.951 |
| F3_Support_preparations | 0.952 | 0.951 |

## 8.4 Appendix 4: Scatterplots between teachers' length of service (years) and their factor scores for each dimension.
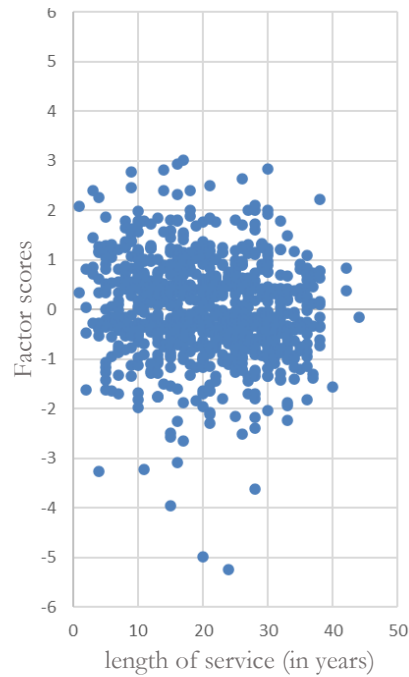
**Table 1**

Scatterplot between teachers' length of service (in years) and their factor scores for the dimension "Co-supervision and analysis of own practices".
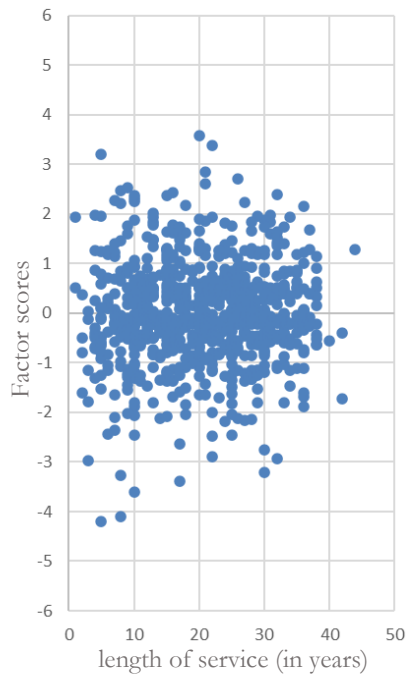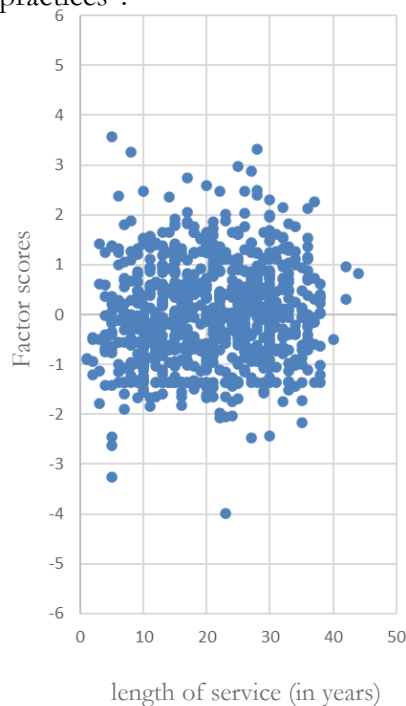


**Table 2**

Scatterplot between teachers' length of service (in years) and their factor scores for the dimension "Observing and evaluating".
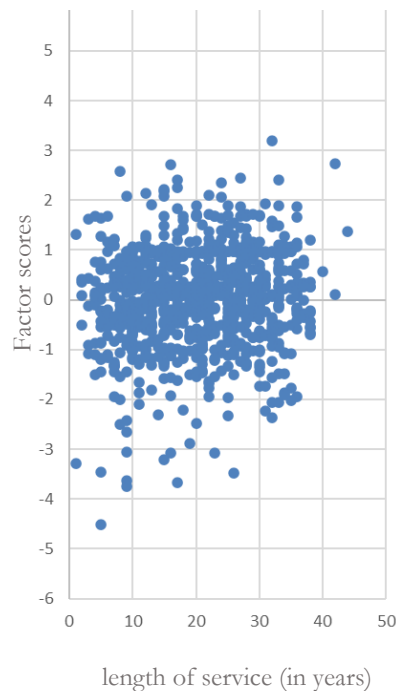


**Table 3**

Scatterplot between teachers' length of service (in years) and their factor scores for the dimension "Adapting, supporting and training in teaching practices".



**Table 4**

Scatterplot between teachers' length of service (in years) and their factor scores for the dimension "Developing pre-service teacher's reflective practice".



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## 8.5 Appendix 5: Q-Q plots representing the normality of the studentized residuals from the regressions of teacher seniority and factor scores for the four factors
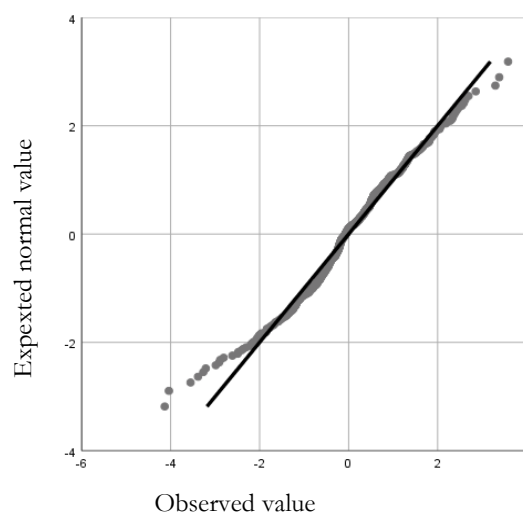
**Figure 1**

Q-Q graph showing the normality of studentized residuals from the regression of length of service as a teacher and factor scores for the "Co-supervision and analysis of own practices" factor.
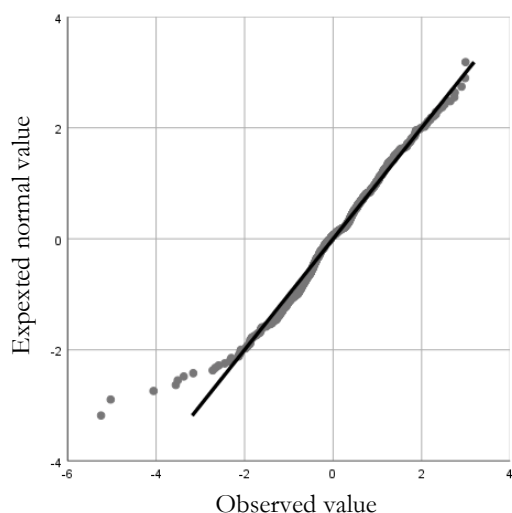
**Figure 2**

Q-Q graph showing the normality of studentized residuals from the regression of length of service as a teacher and factor scores for the "Observing and evaluating" factor.





**Figure 3**

Q-Q graph showing the normality of studentized residuals from the regression of length of service as a teacher and factor scores for the "Adapting, supporting and training in teaching practices" factor.
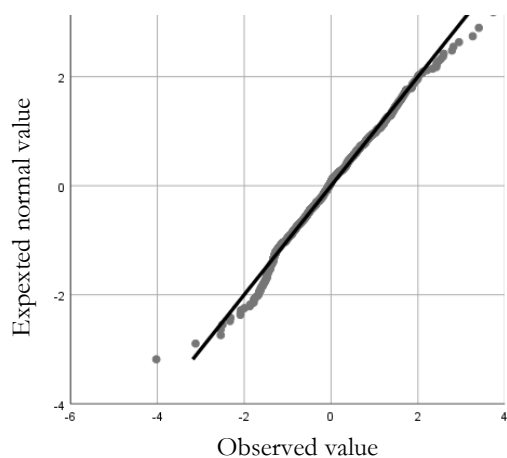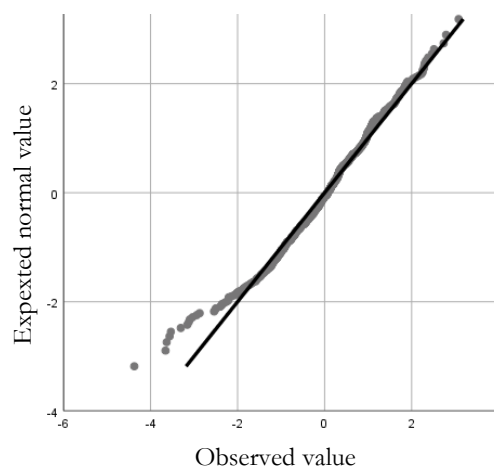
**Figure 4**

Q-Q graph showing the normality of studentized residuals from the regression of length of service as a teacher and factor scores for the " Developing pre-service teacher's reflective practice " factor.

## 8.6 Appendix 6: tables showing Levene's ANOVA tests for comparing differences in means between cooperating teachers divided into subgroups

**Table 1**

Levene's test for each of the ANOVAs used to identify differences in means between cooperating teachers divided according to the number of pre-service teachers supervised (3 sub-groups).

| Dimensions | Levene's statistics | Sig. |
|---|---|---|
| "Co-mentoring and analysis of one's own practices" | 2,461 | 0,061 |
| "Observing and evaluating" | 1,439 | 0,230 |
| "Adapting, supporting and training in teaching practices" | 0,243 | 0,866 |
| "Developing the pre-service teacher's reflective practice" | 2,396 | 0,067 |

**Table 2**

Levene's test for each of the ANOVAs used to identify differences in means between cooperating teachers divided according to whether or not they had received training to supervise pre-service teachers (2 sub-groups).

| Dimensions | Levene's statistics | Sig. |
|---|---|---|
| "Co-mentoring and analysis of one's own practices" | 1,656 | 0,198 |
| "Observing and evaluating" | 0,166 | 0,684 |
| "Adapting, supporting and training in teaching practices" | 0,261 | 0,610 |
| "Developing the pre-service teacher's reflective practice" | 1,691 | 0,194 |

## 8.7 Appendix 7: Bonferroni test performed on the 4 factors to compare sub-groups of cooperating teachers according to the number of pre-service teachers supervised.[8]

| Variable dépendante | (I) STAGIAIRES_ENCADRES | (J) STAGIAIRES_ENCADRES | Différence moyenne (I-J) | Erreur standard | Sig. | Intervalle de confiance à 95 % Borne inférieure | Borne supérieure |
|---|---|---|---|---|---|---|---|
| REGR factor score 1 for analysis 1 | 0 | 1 | -,11274949 | ,30547813 | 1,000 | -,9205705 | ,6950715 |
| | | 2 | -,41468524 | ,30392218 | 1,000 | -1,2183916 | ,3890211 |
| | | 3 | -,51347689 | ,30231561 | ,539 | -1,3129347 | ,2859810 |
| | 1 | 0 | ,11274949 | ,30547813 | 1,000 | -,6950715 | ,9205705 |
| | | 2 | -,30193575* | ,09087327 | ,006 | -,5422454 | -,0616261 |
| | | 3 | -,40072740* | ,08534628 | ,000 | -,6264212 | -,1750336 |
| | 2 | 0 | ,41468524 | ,30392218 | 1,000 | -,3890211 | 1,2183916 |
| | | 1 | ,30193575* | ,09087327 | ,006 | ,0616261 | ,5422454 |
| | | 3 | -,09879164 | ,07959766 | 1,000 | -,3092835 | ,1117002 |
| | 3 | 0 | ,51347689 | ,30231561 | ,539 | -,2859810 | 1,3129347 |
| | | 1 | ,40072740* | ,08534628 | ,000 | ,1750336 | ,6264212 |
| | | 2 | ,09879164 | ,07959766 | 1,000 | -,1117002 | ,3092835 |
| REGR factor score 2 for analysis 1 | 0 | 1 | -,56827431 | ,30907608 | ,398 | -1,3856099 | ,2490612 |
| | | 2 | -,48384206 | ,30750180 | ,696 | -1,2970145 | ,3293304 |
| | | 3 | -,48677542 | ,30587630 | ,671 | -1,2956493 | ,3220985 |
| | 1 | 0 | ,56827431 | ,30907608 | ,398 | -,2490612 | 1,3856099 |
| | | 2 | ,08443224 | ,09194358 | 1,000 | -,1587078 | ,3275723 |
| | | 3 | ,08149888 | ,08635149 | 1,000 | -,1468531 | ,3098509 |
| | 2 | 0 | ,48384206 | ,30750180 | ,696 | -,3293304 | 1,2970145 |
| | | 1 | -,08443224 | ,09194358 | 1,000 | -,3275723 | ,1587078 |
| | | 3 | -,00293336 | ,08053517 | 1,000 | -,2159044 | ,2100377 |
| | 3 | 0 | ,48677542 | ,30587630 | ,671 | -,3220985 | 1,2956493 |
| | | 1 | -,08149888 | ,08635149 | 1,000 | -,3098509 | ,1468531 |
| | | 2 | ,00293336 | ,08053517 | 1,000 | -,2100377 | ,2159044 |
| REGR factor score 3 for analysis 1 | 0 | 1 | -,08859508 | ,30875451 | 1,000 | -,9050802 | ,7278901 |
| | | 2 | -,22534215 | ,30718186 | 1,000 | -1,0376685 | ,5869843 |
| | | 3 | -,28365007 | ,30555806 | 1,000 | -1,0916824 | ,5243823 |
| | 1 | 0 | ,08859508 | ,30875451 | 1,000 | -,7278901 | ,9050802 |
| | | 2 | -,13674707 | ,09184792 | ,821 | -,3796341 | ,1061400 |
| | | 3 | -,19505500 | ,08626165 | ,144 | -,4231694 | ,0330594 |
| | 2 | 0 | ,22534215 | ,30718186 | 1,000 | -,5869843 | 1,0376685 |
| | | 1 | ,13674707 | ,09184792 | ,821 | -,1061400 | ,3796341 |
| | | 3 | -,05830793 | ,08045138 | 1,000 | -,2710574 | ,1544415 |
| | 3 | 0 | ,28365007 | ,30555806 | 1,000 | -,5243823 | 1,0916824 |
| | | 1 | ,19505500 | ,08626165 | ,144 | -,0330594 | ,4231694 |
| | | 2 | ,05830793 | ,08045138 | 1,000 | -,1544415 | ,2710574 |
| REGR factor score 4 for analysis 1 | 0 | 1 | ,23639816 | ,30811132 | 1,000 | -,5783861 | 1,0511825 |
| | | 2 | ,02019806 | ,30654195 | 1,000 | -,7904361 | ,8308323 |
| | | 3 | -,01609955 | ,30492153 | 1,000 | -,8224486 | ,7902495 |
| | 1 | 0 | -,23639816 | ,30811132 | 1,000 | -1,0511825 | ,5783861 |
| | | 2 | -,21620010 | ,09165659 | ,111 | -,4585812 | ,0261810 |
| | | 3 | -,25249772* | ,08608195 | ,021 | -,4801369 | -,0248585 |
| | 2 | 0 | -,02019806 | ,30654195 | 1,000 | -,8308323 | ,7904361 |
| | | 1 | ,21620010 | ,09165659 | ,111 | -,0261810 | ,4585812 |
| | | 3 | -,03629761 | ,08028379 | 1,000 | -,2486039 | ,1760087 |
| | 3 | 0 | ,01609955 | ,30492153 | 1,000 | -,7902495 | ,8224486 |
| | | 1 | ,25249772* | ,08608195 | ,021 | ,0248585 | ,4801369 |
| | | 2 | ,03629761 | ,08028379 | 1,000 | -,1760087 | ,2486039 |

*. La différence moyenne est significative au niveau 0.05.

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[8] Group 0: cooperating teachers who do not know the number of trainees they have supervised.

Group 1: cooperating teachers who have supervised 1 to 4 trainees.

Group 2: cooperating teachers who have supervised 5 to 10 trainees.

Group 3: cooperating teachers who have supervised more than 10 trainees.