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# Teaching in a Shared Classroom: Unveiling the Effective Teaching Behavior of Beginning Team Teaching Teams Using a Qualitative Approach

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**Abstract:** This study aims to gain insight into the experiences of beginning team teaching teams and the dimensions of effective teaching behavior that are perceived as clear added value in their pedagogical practices. Sixteen beginning team teaching teams from twelve different elementary schools participated in team interviews. The more complex dimensions of effective teaching behavior, based on the International Comparative Analysis of Learning and Teaching (ICALT) framework, such as adaptive teaching and activating learning, were perceived as clear added value in their team teaching practices. Meanwhile, the more basic teaching dimensions—including efficient classroom management, providing clear instruction, and creating a safe and stimulating learning climate—were reported to a lesser extent.

**Keywords:** team teaching; effective teaching behavior; beginning team teaching teams; professional development; elementary education; collaborative teaching; informal learning



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## 1. Introduction

The 21st century has brought about significant changes in society, particularly in the field of education. In Flanders (the Dutch-speaking part of Belgium), as well as in other places around the world, the teaching profession continues to reflect a highly individualized character, one in which teachers take sole responsibility for their classes and engage in little or no collaboration with their colleagues [1–3]. Teachers must respond daily to the various challenges which confront them, including the growing heterogeneity of the population of learners [4], educational reforms and innovations (e.g., inclusive education [5]), and the necessity of teaching both high-ability learners and learners with special educational needs [6].

Team teaching, a collaborative teaching model in which two or more teachers collaborate in the planning, teaching, and/or evaluation of a course [7], is often put forward as a tangible answer to tackle these challenges. This innovative teaching model has changed and evolved over time [8,9]. Historically, the origin of team teaching can be traced to the concept of teachers providing separate instruction while jointly sharing the planning and preparation of their lessons. It was initially perceived as a method for managing larger class sizes and for prescribing together a detailed lesson plan of teacher actions [10]. Over time, it has undergone a transformative process, evolving into a collaborative and cooperative teaching approach where teachers now share responsibility for the planning, teaching, and assessment of the curriculum for a group of learners [7]. The theoretical foundation of team teaching aligns with the socio-constructivist perspective on learning [11]. Specifically, teachers are committed to collaborating, sharing expertise, supporting each other, learning collaboratively, and enhancing their own competencies [12,13]. In this way, team teaching can be seen as a promising professional development strategy to enhance teachers'

knowledge, skills, and attitudes [14]. Together, teachers can share ideas and support, which can help to improve their teaching practices [15,16]. They can also learn new teaching techniques and approaches, which can help them gradually refine and develop their own teaching style [17]. In the contemporary educational landscape, there is a growing focus on team teaching. Team teaching can be implemented for various reasons and also has different forms. An illustrative case can be found in Austrian elementary and secondary schools [11], where the practice of team teaching is widely adopted in inclusive classrooms and is often referred to as co-teaching. A general teacher and a special education teacher team up to teach a class where learners with diverse learning needs are educated together. In Australia, for example, team teaching involves the collaboration of classroom teachers and subject specialists, with the overarching goal of elevating the quality of education and providing learners with a more holistic and comprehensive learning experience [2]. Similarly, in Finland, team teaching is frequently employed, particularly in the context of multidisciplinary projects. This approach not only fosters a sense of holistic learning but also actively encourages learners to establish connections between various subject domains [2].

Although research has mainly focused on experienced team teaching teams and has highlighted the benefits of team teaching [11], there is a gap in the literature regarding how beginning team teaching teams, which consist of teachers who are new to this collaborative teaching model, approach their shared classroom practices. Consequently, there is limited understanding of how this collaborative model of teaching impacts their teaching behavior, as the research on effective teaching behavior merely focuses on the context of solo teaching [18–20]. In line with the theory of Van de Grift [19], effective teaching behavior can be defined as the behavior of teachers that impact learners' learning outcomes. Moreover, Van de Grift [21] identified six directly observable dimensions of effective teaching behavior: (1) creating a safe and stimulating learning climate, (2) establishing efficient classroom management, (3) providing clear instruction, (4) activating learning, (5) employing adaptive teaching, and (6) teaching learning strategies.

So far, very little attention has been paid to the team teaching practices of beginning team teaching teams, particularly concerning the impact of this collaborative model of teaching on their teaching behavior. Consequently, this study aims to gain insight into the dimensions of effective teaching behavior that are perceived as clear added value by beginning team teaching teams in their collaborative teaching practice and how team teaching impacts these dimensions.

### *1.1. Team Teaching*

Team teaching is a pedagogical collaborative teaching model that has gained significant popularity in recent years, particularly within elementary and secondary schools [22,23]. Multiple terms—such as co-teaching, collaborative teaching, and cooperative teaching—are often used to describe the various forms of collaborative practice between teachers across a range of pedagogical contexts [13,24]. Whereas collaborative teaching is a broad concept encompassing any form of teacher collaboration [23], team teaching is a specific subset of collaborative teaching where teachers share core teaching responsibilities in three phases of a lesson, namely in the planning, teaching, and assessment of a course [7]. Co-teaching is often used for a more narrowly defined collaboration involving a general teacher and a special education teacher [25–27]. The latter is a specialized form of team teaching typically applied in inclusive education settings to support learners with diverse learning needs [12].

As expressed in the literature, based on the level of collaboration between the teachers, five team teaching models can be distinguished: the observation model, the coaching model, the assistant teaching model, the equal status model, and the teaming model [11]. In the observation and coaching models, one teacher has full responsibility for teaching, while the other observes the learners [28,29] or coaches the teacher [30]. In the assistant teaching model, one teacher still has full responsibility for teaching, while the other takes on an active, assistant role, moving through the classroom to provide support to the learners [28,31]. All teachers have the same level of responsibility in the equal status model,

within which three subcategories can be identified: parallel teaching, sequential teaching, and station teaching. In parallel teaching, learners are divided into subgroups, with each teacher teaching the same content to a subgroup [31]. In sequential teaching, teachers divide up the content or activities, and each takes responsibility for one or more phases of the lesson [32,33]. In station teaching, teachers divide both the class group and the content or instructional activities into different stations [25,28,34]. Finally, in the teaming model, both teachers share responsibility for the planning, teaching, and assessment of the lessons, with interaction and dialogue between them [28,33]. All team teaching models can be considered of equal importance [35], and the choice of a model depends on the lesson's objective [11].

Furthermore, the literature on team teaching highlights various benefits for both learners and teachers. Substantial studies show that having multiple teachers in the classroom provides learners with diverse perspectives and teaching styles, resulting in richer learning experiences [7], quicker assistance [9], increased support [22], and more personalized attention [36]. However, it is important to note that team teaching may also introduce challenges, such as potential confusion among learners arising from different responses to the same question and varying expectations from each teacher [24].

Moreover, previous research has shown that team teaching enables teachers to better address the needs of diverse learners [31] and promotes a supportive classroom environment [24]. Additionally, team teachers in several studies report increased support and reflective dialogue [37,38] and growth on both professional, e.g., pedagogical skills and reflection [11], and personal, e.g., self-confidence and self-efficacy [9], levels [11,39]. However, team teaching can also result in increased workload and incompatibility among colleagues [40–42]. For example, teachers may have differences in teaching styles, approaches, or perspectives that hinder effective collaboration and coordination within the team.

Team Teaching as a Professional Development Strategy

A substantial amount of the literature shows that team teaching can be seen as a valuable professional development strategy [13,43,44] to enhance teachers' knowledge, skills, and attitudes [14]. One reason why team teaching is regarded as valuable for professional development is its capacity to facilitate informal learning [45,46], where teams are committed to collaborating, sharing expertise, supporting each other, learning collaboratively, and enhancing their own competencies [12,13]. For example, a key benefit of team teaching is the opportunity for teachers to share their expertise and to learn from each other [11,37]. Moreover, teachers can pool their knowledge and skills to create a more effective learning environment for their learners [25,47]. As mentioned above, teachers can also provide each other with feedback and support by working together, which can help to improve their teaching practices [15,16], as well as different teaching methods and strategies, which can help them to develop and adapt their own teaching style over time, leading to effective teaching practices [17]. In this way, by integrating effective teaching behavior, team teaching has the potential to support powerful individual and collective learning in the teachers' own or shared classrooms [13,23], and it can enhance their teaching practices and create a more impactful learning environment for their learners.

### *1.2. Effective Teaching Behavior*

Over several decades, teachers' behaviors have consistently been studied in school effectiveness research [48–50]. Effective teaching behavior is defined as the behavior of teachers that has a significant influence on learners' learning and outcomes [18,19,51–53]. Educational research reviews indicate the complexity and multidimensionality of effective teaching behavior and the various frameworks and models used in the literature [18]: for example, the dynamic system model [48], the Framework for Teaching (FfT) [54], and the Classroom Assessment Scoring System (CLASS) [55]. This study uses the International Comparative Analysis of Learning and Teaching (ICALT) framework of Van de Grift [21] and thereby focuses on the visible teaching behavior that individual teachers display in

their educational practice and that can be observed in everyday lessons [56]. The ICALT framework was chosen for this study due to its extensive utilization and citation in effectiveness research. Furthermore, its user-friendly nature—characterized by a manageable number of items, comprehensible language use, and simple format—makes it an attractive tool for researchers and educators worldwide [18]. As indicated in prior research, the instrument has been validated across different European countries [18,57] and is relevant for use in elementary and secondary education [21].

The ICALT framework identifies six categories of effective teacher behavior [19,58–60]:

(1) Creating a safe and stimulating learning climate. This first dimension includes creating a positive climate for learning by facilitating a relaxing learning atmosphere that promotes learner comfort and the display of respect towards learners. Additionally, it entails fostering self-assurance among learners, as well as establishing positive interpersonal relationships between teachers and learners and among peers [52,61–64].

(2) Establishing efficient classroom management. The second dimension refers to indicators of lesson organizations [56]. It is important for teachers to efficiently organize their lessons and to minimize time loss during transitions [51,65]. This involves adequate lesson preparation and time management, as well as the ability to establish a good lesson structure to minimize time spent on task-unrelated matters and to effectively handle learners' misbehavior [51,66–68].

(3) Providing clear instruction. Indicators of teaching behavior in the third dimension involve a clear lesson structure, effective interchange of explanations, and well-structured assignments for individual and group work [51,69,70]. Furthermore, teachers must ensure that the lesson objectives are clear [62,63] and that learners comprehend the learning material [62,63,71,72]. In this way, learners are more likely to comprehend what is being taught and are able to connect newly learned content to previously acquired knowledge [50,51,53].

(4) Activating learning. The fourth dimension occurs when teachers stimulate interactions between themselves and their learners, as well as among learners, by fostering collaborative group work, encouraging peer-to-peer explanations, and facilitating think-alouds [50,73]. Additionally, teachers can promote active learning by activating learners' prior knowledge or utilizing advance organizers [74,75].

(5) Employing adaptive teaching. The fifth dimension refers to the teaching approach in which teachers adjust their instruction and classroom assignments to the individual differences among their learners [76]. This is because not every learner learns in the same way or in the same amount of time. For instance, teachers may extend the amount of instruction time, such as through pre-teaching and re-teaching, which has been found to be effective in accommodating the instructional needs of learners [77,78].

(6) Teaching learning strategies. The last domain of observable teaching behavior includes teachers' support in the development of learners' metacognitive skills and self-regulated learning in their classroom [71,73]. By scaffolding, which involves providing simplified tasks, modeling, thinking aloud while resolving problems, and giving corrective feedback, teachers can explicitly model the desired behavior [62,73,79]. These learning strategies significantly contribute to the learning performance of learners [62,63,80].

Previous research [21,57] has demonstrated that the dimensions of teaching behavior follow a systematic level of difficulty. These dimensions range from basic skills—such as creating a safe and stimulating learning environment, efficient classroom management, and providing clear instruction—to more complex skills—such as activating teaching, teaching learning strategies, and adaptive teaching. The dimension requiring the least complex skills, such as creating a safe and stimulating learning environment, is particularly achievable for novice teachers. Conversely, experienced teachers have demonstrated high scores across all six teaching domains [81]. Van de Grift et al. [59] demonstrated that the complexity of a dimension is related to its acquisition. Specifically, a teacher must first acquire the ability to create a safe and stimulating learning environment (i.e., the basic

and least complex dimension) before exhibiting efficient classroom management skills and providing clear instruction. Once teachers have mastered the basic complex dimensions of effective teaching behavior, they are more likely to display more complex behavior, such as activating learners, teaching learning strategies, and adaptive teaching (i.e., the most complex dimension) [20]. Although the dimensions of effective teaching behavior have been explored in multiple studies for solo teaching, they have not been studied in relation to team teaching practices, which is the focus of this study.

### 1.3. Present Study

Although research has highlighted the benefits of team teaching, these studies have focused on experienced team teachers; as such, there is a gap in the literature regarding the team teaching practices of beginning team teaching teams and, consequently, how this collaborative model of teaching impacts their teaching behavior. Moreover, previous studies have predominantly focused on the effective teaching behavior of teachers in the context of solo teaching [18–21]. Therefore, this study aims to gain insight into beginning teams' experiences with team teaching and how this new, collaborative teaching model impacts their effective teaching behavior. As shown in the literature, both effective teaching behavior and team teaching are complex and take a multitude of forms, which are commonly observed in teachers' educational practices. Therefore, we opted for qualitative research to obtain a deeper understanding of beginning teams as to what dimensions of effective teaching behavior are perceived as clear added value in their shared classroom practice. By adopting a qualitative research perspective, we can delve into the experiences, perceptions, and interactions of beginning team teachers in their shared classroom practices and consequently inform the development of effective strategies for teacher professional development in this area.

In sum, this study addresses the following research question: what dimensions of effective teaching behavior do beginning team teaching teams perceive as clear added value in their teaching practice?

## 2. Materials and Methods

### 2.1. Sample

This study took place in the Dutch-speaking part of Belgium (Flanders) and is part of a larger research project aiming to study the effects of team teaching. The research project also provided a free professional development program to teachers interested in starting with team teaching, and participation in the program automatically included participation in this study. An email was sent out to kindergarten, elementary, and secondary schools in Flanders, and schools that were interested in participating could register. The scope of this article is limited to elementary schools to provide a comprehensive understanding of how team teaching is conducted and implemented in this educational setting.

To ensure the consistency of the sample, the study restricted participation to beginning team teachers who had no or limited experience in team teaching and had not received in-service training on the topic. Additionally, to generate meaningful insights and reflections regarding their team teaching practices, participants were required to team teach for a minimum of four hours per week. This criterion was established to ensure that participants acquired an adequate level of experience and engagement in team teaching, allowing them to offer valuable perspectives and observations. None of the participants were engaged in full-time team teaching, except for one team (T8; see Table 1). Rather, they incorporated a limited number of hours in their teaching curriculum, while the remaining hours consisted of solo teaching.

**Table 1.** Background characteristics of the different participants.

| Team Teaching Team | Number of Teachers | School | Urban or Rural [1] | Grade | Gender | Years of Experience | Hours of Team Teaching per Week (max = 24) | Subjects |
|---|---|---|---|---|---|---|---|---|
| T1 | 2 | School 1 | Rural | 4th | F–F | 5 and 18 | 8 | Mathematics, language |
| T2 | 2 | School 2 | Rural | 3rd and 4th | F–F | 10 and 15 | 5 | Mathematics, sciences |
| T3 | 4 | School 3 | Urban | 6th | F–F–F–F | 3, 7, 10, and 10 | 14 | Mathematics, language |
| T4 | 3 | School 4 | Urban | 4th | F–F–F | 16, 16, and 32 | 6 | All subjects |
| T5 | 2 | School 5 | Rural | 5th | F–F | 13 and 13 | 12 | Mathematics, language |
| T6 | 2 | School 5 | Rural | 5th | F–F | 4 and 13 | 12 | Mathematics, language |
| T7 | 2 | School 6 | Urban | 5th | M–F | 15 and 15 | 4 | Mathematics, language, sciences |
| T8 | 2 | School 6 | Urban | 1st | F–F | 1 and 8 | 24 | All subjects |
| T9 | 2 | School 7 | Urban | 5th and 6th | F–F | 3 and 14 | 12 | Sciences, religion |
| T10 | 2 | School 7 | Rural | 5th and 6th | F–M | 22 and 30 | 13 | Mathematics, sciences |
| T11 | 2 | School 8 | Rural | 4th | F–F | 13 and 15 | 15 | Mathematics, language |
| T12 | 2 | School 9 | Urban | 2nd | F–F | 18 and 20 | 17 | Mathematics, language, sciences |
| T13 | 2 | School 10 | Rural | 3rd | F–F | 3 and 19 | 4 | Mathematics, language |
| T14 | 2 | School 11 | Urban | 5th | F–M | 11 and 18 | 4 | Mathematics |
| T15 | 2 | School 11 | Urban | 6th | F–M | 18 and 20 | 4 | Mathematics |
| T16 | 2 | School 12 | Rural | 3rd and 4th | F–F | 4 and 10 | 6 | Mathematics, language |

[1] Rural-located school: 6000 $\leq$ 27,000 inhabitants; urban-located school: 27,000 $\leq$ 500,000 inhabitants.

The study was obtained using a volunteer sampling strategy, resulting in a total of 16 beginning teams, comprising 32 elementary school teachers from 12 schools. To ensure the confidentiality and anonymity of the participating teachers, an informed consent procedure was obtained, and team codes and school codes were used to protect their identities. Additional background characteristics of the different beginning teams are presented in Table 1.

Most beginning teams consisted of a team of two teachers and primarily engaged in team teaching during mathematics and language lessons. Additionally, there were seven teams with one novice teacher and nine teams consisting solely of experienced teachers. Team teaching was solely adopted by a single team (T8) on a full-time basis. In contrast, all other teams allocated fewer hours to team teaching, and for the remaining hours, they taught alone in solo teaching.

### *2.2. Semi-Structured Team Interviews*

To explore in depth how team teaching affects beginning team teachers' teaching behavior, a semi-structured team interview guide containing open-ended questions was developed. Team interviews were chosen as the preferred method, as they allow each member of the team to exchange opinions and share ideas regarding their collaborative classroom practices [82]. The interview guide was divided into two main parts, each containing specific questions aligned with the research question. In the first part, beginning team teachers were asked to rank the dimensions of effective teaching behavior. They were instructed to prioritize the dimensions that highlight clear added value of team teaching, placing them at the top of the ranking, while the dimensions with no added value in their team teaching practice were to be positioned at the bottom. We have deliberately chosen to rank the dimensions in order to make it clear which dimensions were the most valuable in their team teaching practice. In the second part, more in-depth discussions focused on the dimensions identified as having clear added value. Beginning teams were asked to elaborate as to why team teaching impacts these specific dimensions positively and why the dimensions are perceived as clear added value in their team teaching practice.

### 2.3. Procedure

The interviews were conducted in September 2022, and each interview lasted approximately 50 min. All interviews were conducted in either the classroom or a quiet room at the teachers' school and were digitally recorded by the first author [79]. The first author conducted both the interviews and the analyses. Furthermore, the study's reliability and validity were ensured by employing four criteria, as identified by Lincoln and Guba [83]. First, the study ensured reliability or dependability, as defined by Tobin and Begley [84], by conducting step-by-step and critical discussions with the authors about the interpretation of qualitative data. Second, the study addressed transferability or external validity by providing detailed and thick descriptions of the research process, as advocated by Younas et al. [85]. The third component, objectivity or confirmability, was maintained throughout the interviews by requiring a neutral attitude from the interviewer, and a detailed description of each step of the research process was documented and discussed with all co-authors. Finally, the study ensured internal validity or credibility by having regular discussions between the first author and the other two authors regarding the research's design, results, and conclusions. The use of these four criteria has ultimately strengthened the reliability and validity of the qualitative research process [86]. This study was conducted in compliance with the ethical guidelines and regulations set forth by the Ethics Committee for the Social Sciences and Humanities of the University of Antwerp.

### 2.4. Analysis

Data gathered from all 16 beginning teams were systematically transcribed and analyzed in two steps using thematic content analysis [87]. First, a within-case analysis of each team teaching team was made in which the dimensions of effective teaching behavior with clear added value were described. Secondly, a thematic cross-case analysis was carried out using NVivo to compare and contrast all interviews [88]. We used a mixed coding approach, incorporating both inductive and deductive coding strategies [86,87,89]. In the first phase, we used deductive coding by adding five dimensions of effective teaching behavior as main categories, i.e., "creating a safe and stimulating learning climate", "efficient classroom management", "clear instruction", "activating teaching", and "adaptive teaching". These dimensions were most perceived as clear added value for beginning teams in their shared teaching practice. In the second phase, we adopted an exclusively inductive coding approach to further analyze the data. Within each main category, we subdivided them into multiple subcategories based on the valuable insights of the beginning teams, as mentioned in the team interviews (see Appendix A).

To increase the reliability of the coding, another researcher with expertise in interview transcription independently coded a sample (four interviews in total) of the data. This coding was performed using the most up-to-date version of the coding scheme, encompassing both main codes and subcategories, which was maintained by the first author. When analyzing the four interviews coded by both the first author and the independent researcher, the intercoder reliability for both main codes and subcodes was found to be 83%, exceeding the minimum threshold of 80% established by Miles and Huberman [88]. This indicates a satisfactory level of agreement between the coders in their application of the coding scheme.

## 3. Results

First, we present an overview of the dimensions of effective teaching behavior and how many beginning teams perceived a particular dimension as clear added value in their shared classroom practice (see Table 2). Second, we report a detailed analysis of why each dimension was perceived as valuable in the shared teaching practice of the beginning teams.

**Table 2.** Overview of the number of beginning teams that perceived the dimensions of effective teaching behavior as clear added value in their team teaching practice.

| Dimensions of Effective Teaching Behavior | Number of Teams [1] |
|---|---|
| Creating a safe and stimulating learning climate | 1 |
| Efficient classroom management | 6 |
| Clear instruction | 2 |
| Activating learning | 11 |
| Adaptive teaching | 11 |
| Teaching learning strategies | 0 |

[1] The number of teams refers to the quantity of beginning teams that ranked the dimension of effective teaching behavior at the top during the team interview. Some teams ranked multiple dimensions as clear sources of added value in their team teaching practice.

The findings revealed that a majority of the interviewed teams (11 out of 16) acknowledged that team teaching facilitates the effective implementation of "adaptive teaching" and "activating learning" during their collaborative teaching practice (see Table 2). A minority of teams ($n$ = 6) expressed the belief that efficient lesson organization contributes to the success of their team teaching practice. Additionally, only two teams emphasized the importance of providing clear instruction within the context of team teaching. Furthermore, one team highlighted the team teaching approach's potential in creating a safe and stimulating learning environment. Conversely, teaching learning strategies did not emerge as a dimension with clear added value in the team teaching practice of beginning teams. None of the 16 teams reported team teaching as a significant factor in this specific dimension.

### 3.1. Adaptive Teaching (n = 11)

Adaptive teaching emerged as a primary goal for the majority of teachers when they embarked on team teaching. They recognized the added value of adaptive teaching, especially in light of the increasingly diverse learner population. As one participant noted, *"The learner population is very diverse, but when you teach alone, you feel like you fall short"* (T11_D). Furthermore, all beginning teams expressed the belief that they could better address the varying learning levels of learners through team teaching, allowing them to provide enhanced support tailored to each learners' individual needs.

> "*We effectively cater to the zone of proximal development. I truly feel that way. Our learners can continue working when we are together in the classroom, they don't have to wait. The subjects and exercises are not too difficult for them, and the lessons certainly aren't too slow.*" (T3_M.)

Beginning teams provide enhanced support through the implementation of homogeneous ability groups. However, they acknowledged a tendency to overlook high-ability learners in solo teaching, where the focus tends to be predominantly on the learners who need extra support, and the needs of other learners are inadvertently neglected. All beginning teams explained that by collaborating in their shared classroom, they could provide enrichment activities for high-ability learners. This may involve one teacher being responsible for finding or developing enrichment materials.

> "*When there are two teachers in the classroom, it allows us for equal attention for all ability groups, and not only for the learners with extra needs.*" (T8_Y.)

On the other hand, beginning teams mentioned that they could better meet the needs of learners requiring extended instruction and work time. By utilizing the assistant teaching model, for example, one teacher can focus on a specific ability group of learners while the other teacher focuses on the other learners. This enables them to provide extended instruction more frequently for learners with extra needs.

> "*I have the feeling that by addressing concerns and providing immediate support to a specific group at that moment, we are more effective in team teaching. When you are*

*alone in front of the class and you focus on that group needing extra support, all the other children have to manage on their own*." (T4_A.)

Participants emphasized that the distribution of attention among different groups of learners contributes to a certain level of "peace of mind" in their team teaching lessons. This distribution alleviates the burden on teachers to prepare for all learners' levels and instills confidence that they are effectively addressing the diverse needs of the learner population.

"*You have to adjust your teaching behavior within a certain range. Otherwise, you have to cater to the lowest and highest learning levels for learners. Now, during team teaching, we can work in a targeted way and prepare the instruction or exercises for a certain learning group, and that brings peace of mind for us*." (T3_LI.)

Finally, the majority of the teams indicated that their primary focus for adaptive teaching lay in differentiated instruction and dividing the learners into different groups according to their cognitive ability, while only a few teams incorporated differentiation based on language, motor skills, or learners' behavior. The majority of the teams also highlighted that their collaborative approach enables them to better determine the learning levels of learners by combining their knowledge as a team, while others perceive this as an opportunity for professional growth. However, the larger class sizes often associated with team teaching result in a longer period of time required for certain teachers to become acquainted with their learners' individual capabilities.

### *3.2. Activating Learning (n = 11)*

When asked about the perceived impact of team teaching on the dimension of activating learning, beginning teams highlighted several key factors that contribute to its effectiveness. First, they intentionally schedule more "active and intensive" lessons during their team teaching hours. This involves teaching together more frequently for subjects such as mathematics and language that require significant cognitive engagement from learners. They also purposefully select lesson content that involves the physical engagement of learners, such as measurement or weighing activities. The presence of multiple teachers has prompted beginning teams to use active teaching methods, such as cooperative learning, in order to actively engage all learners simultaneously.

"*Another significant factor contributing to the impact of team teaching in our practice is the choice of subjects that we decide to team teach. We specifically focus on main subjects rather than subjects like religion or artistic expression, as those are not as demanding or rigorous. As an example, just now during the math lesson, there were children in different groups measuring certain things outside. You are less likely to teach such lessons during solo teaching*." (T13_B.)

Furthermore, active learning also involves working in small groups. Beginning teams often divide learners into smaller groups, both heterogeneous and homogeneous, with each teacher guiding a smaller group of learners. They use various teaching models, such as the parallel model for enhancing speaking opportunities in French class or the station teaching model, where each teacher supervises one or more stations. By being physically present with more than one learner, almost all beginning teams feel that they can engage learners more quickly and effectively in their lessons. Consequently, they can provide more and immediate feedback to learners, resulting in increased learning time.

"*Once the instruction is given, you are much more closely involved. It becomes much more intensive. Children have to engage and are obligated to work. When compared to situations where only one teacher is providing instruction, having two teachers, with one actively circulating, makes a noticeable difference*." (T5_A.)

Additionally, team teaching allows for the use of more activating and playful teaching methods. Teachers described using collaborative, brainstorming sessions to determine the most suitable teaching methods and to divide tasks related to collecting or developing

materials. Moreover, sharing ideas and experiences with each other fosters mutual learning among the teachers.

> "*The responsibilities are also divided, (. . .). This applies to playful formats as well. We each design a few activating teaching methods. We each come up with something, so you don't have to come up with everything yourself. That's also a form of collaboration*." (T16_J.)

Although the fact that team teaching lessons are more intense and active for learners, some teachers expressed that it actually feels more comfortable for them to teach in a team. A shared responsibility and task distribution underlie this comfort.

> "*Personally, I find team teaching reassuring, having someone else in the classroom. For example, if I support a group and my full focus is there, I know that my colleague is taking care of the rest of the learners*." (T13_B.)

Finally, a minority of the teams noted that the large group size during team teaching can result in more noise and distractions, especially during activating lessons. They also acknowledged that the intensity of the lessons, as they are highly interactive and the teachers provide close guidance to learners, may be overwhelming for certain learners. Nevertheless, teaching together helps to prevent moments when learners have nothing to do and ensures that all learners remain actively engaged throughout the entire duration of the lesson.

> "*You are constantly very close to the learners. Sometimes it can be frustrating for the learners, who might think, "Oh no, they noticed again." You notice that all learners are actively engaged throughout the entire 50 min of the lesson*." (T6_A.)

### *3.3. Efficient Classroom Management (n = 6)*

All teams, even those who did not explicitly rate this dimension at the top during the interview, indicated that during their first weeks of teaching together, they gave deliberate thought to the organization of lessons in their team teaching practice. They acknowledged that they had not previously engaged in this level of thorough planning or explicit attention to classroom management. Since teaching together was a new experience for them, they aimed to be well-prepared and to avoid feeling inferior to one another.

> "*We think about efficient classroom organization more consciously compared to classes where we teach alone. (. . .) We have only just started working together and you don't want to feel inferior to each other either. We want to start our lessons well prepared*." (T10_B.)

Moreover, team teaching contributes to a smooth flow of the lessons without interruptions. Having multiple teachers in the classroom allows for maintaining discipline and addressing behavioral issues effectively. For example, when using the assistant teaching model, one teacher can continue with the instruction without interrupting the lesson while the other teacher manages specific learners' behavior. This can be achieved through actions such as tapping the desk or providing individualized assistance to support their participation.

> "*I also found it beneficial in terms of behavior and concentration. While my colleague gives the instruction, I am usually already circulating in the classroom, so I can help keep unengaged learners focused on the lesson. I observe much more. My colleague is so focused on the instruction that I can intervene and involve everyone regarding their behavior*." (T1_E.)

The added value of team teaching also lies in basic support and administration, such as setting up computers, providing materials, and correcting exercises, while the other teacher continues with the lesson. The majority of teams actively thought about the structure of their lessons and discussed the specific roles each team member will assume. In fact, three teams even developed detailed lesson plans during the first weeks of their collaboration,

specifying each person's role, which teaching methods they would use, and how they would organize working with ability groups. These discussions often took place during a weekly meeting, a free scheduled class hour where they prepared their team teaching lessons together.

> "*We have a meeting every Monday. We both have a free hour. (. . .) During these meetings, we discuss how we shape our team teaching lessons. We consider different instructional methods, the organization of learners in the classroom, and the distribution of instructional responsibilities. At other times, we are occupied with creating and planning our lessons*." (T16_J.)

Although the preparation process requires significant time investment, which is not always available, the teams firmly believe that engaging in collaborative discussions about their classroom management is worthwhile. They are convinced that, over time, this will establish a sense of routine and enhance their collaboration. By intentionally reflecting on their classroom management practices, they described the substantial knowledge exchange that takes place among team members.

> "*During the preparation phase, we deliberately think together about how we organize ourselves during the team teaching lessons. For instance, my colleague comes up with certain ideas on how to approach something, and I can further elaborate on them. We consolidate our efforts, recognizing that together we possess more knowledge than we would individually, specifically regarding how to make a lesson run efficiently*." (T6_R.)

Lastly, two teams mentioned limiting their preparation time by establishing a fixed routine and predetermined structure for their lessons, with assigned models and tasks. At the beginning of the school year, they determined the concrete format of the lessons and which team teaching models they would apply at specific moments. The majority of the beginning team teaching teams indicated their preference for employing the assistant model in their teaching practices. These teams consist of a classroom teacher and an assistant teacher, where the classroom teacher takes charge of the lesson preparation while the other teacher plays a more supportive role. Some teams also mentioned the use of the parallel and station teaching models (both being equal status models). In contrast, other teams briefly discussed the lesson progression and made spontaneous decisions during the lesson regarding task assignments. In these teams, teachers viewed each other as equals in all three phases of team teaching, emphasizing the importance of flexibility as a valuable asset in their practice of team teaching.

> "*Friday afternoons, we always do station teaching. My colleague checks my schedule, and I write down which aspects of the stations are involved. We try to limit our collaborative meetings. Station teaching has a fixed pattern. On Thursdays, we briefly discuss what we need. We do not have a separate meeting for lesson planning anymore*." (T1_I.)

### *3.4. Clear Instruction (n = 2)*

Only two teams explicitly highlighted that they were able to achieve clearer and more structured instruction when teaching together as a team. These teams primarily utilized the teaming model, where they physically taught together in front of the class and interacted with each other. A few other teams also mentioned the potential of team teaching to enhance clear instruction by complementing each other or offering different explanations. Some teams emphasized the importance of clear agreements on who says what, while others preferred a more spontaneous approach during the lesson.

> "*Sometimes, you may have a different teaching style or explain something in a different way, which can result in learners not grasping certain concepts initially but understanding them through a different explanation. That is also an advantage. We do not discuss it beforehand, and that is enjoyable. Responding to each other is also a key element in achieving effective instruction. Complementing each other also helps maintain the children's attention*." (T10_R.)

Furthermore, three other teams described the benefits of the assistant teaching model, where one teacher focuses on instruction while the other teacher provides visual support at the board. The supporting teacher creates visual representations based on the verbal instructions given.

> "*Having four hands and two mouths at once is beneficial in itself. To be more specific, while my colleague was explaining something, I was writing down the visual support on the board. The children see it, and I am firmly convinced that it provides them with a reference for the rest of the lesson.*" (T14_S.)

The two beginning teams also noted that the assistant teaching model enables them to provide specific feedback to learners and to assess their understanding during instruction. One teacher moves around the classroom while the other provides instruction, allowing for immediate checks on learners' comprehension.

> "*My colleague is the first to move around and checks on learners working independently. Are they keeping up? Some children overestimate themselves, but if you teach alone at the front and use the same activity where learners can choose, you only realize at the end of your lesson that they didn't understand.*" (T1_I.)

The desire to provide prompt feedback is also driven by the ability to quickly respond to learners' needs. If learners have not understood something, the team can immediately address their concerns: *"If they haven't understood something, you can immediately gather and address their concerns"* (T1_E).

### *3.5. Creating a Safe and Stimulating Learning Climate (n = 1)*

Only one beginning team teaching team emphasized the significance of prioritizing the creation of a safe and stimulating learning environment in their team teaching practice. This team faced the challenge of having a very large group of learners ($n$ = 45) as a result of merging two class groups. Recognizing the importance of this dimension, the beginning team teaching team considered it paramount to address this dimension before focusing on other aspects of their teaching behavior.

> "*Creating a safe and stimulating learning environment is very important, in my opinion. The children need to feel comfortable with one another first and become accustomed to being part of a large group, which provides them with a sense of safety. It all begins with enjoying coming to school and feeling well. Without these factors in place for a child, effective learning cannot take place.*" (T2_E.)

## 4. Discussion

The aim of this study was to gain deeper insight into beginning team teaching teams' experiences with team teaching and, consequently, which dimensions of effective teaching behavior are perceived as clear added value in their team teaching practices. This study utilized the dimensions of effective teaching behavior of Van de Grift [21]: (1) creating a safe and stimulating learning climate, (2) efficient classroom management, (3) providing clear instruction, (4) activating learning, (5) adaptive teaching, and (6) teaching learning strategies. To identify the dimensions with clear added value, a comprehensive cross-case analysis was performed across all 16 team interviews. This involved examining the frequency and consistency of each dimension that was reported as clear added value by the teams. By aggregating and comparing the data, this study was able to determine the dimensions that consistently stood out as clear added value in their shared classroom practice. It was found that most beginning team teaching teams perceived clear added value regarding more complex ICALT teaching dimensions, including adaptive teaching and activating learning. The second major finding was that the more basic teaching dimensions—including efficient classroom management, providing clear instruction, and creating a safe and stimulating learning climate—were reported to a lesser extent. Previous research has demonstrated in the context of solo teaching that these more basic dimensions are particularly achievable for novice teachers [82]. However, it is important to note

that beginning team teaching teams do not necessarily consist solely of novice teachers. Specifically, in this study, there were seven teams with one novice teacher and nine teams comprising solely experienced teachers. All beginning teams reported the more complex dimensions as clear added value in their new, collaborative teaching practice. In alignment with the literature, the majority of the beginning teams indicated that they had already mastered the basic complex dimensions of effective teaching behavior and therefore focused on the more complex dimensions in their team teaching practice [20]. In this way, team teaching can be seen as a lever for novice teachers to realize more complex dimensions of effective teaching behavior. Specifically, beginning teams, comprising a mix of experienced and novice teachers, challenge and inspire themselves to achieve adaptive teaching and activating learning in their shared classroom practice, dimensions that are often perceived as challenging for novice teachers [82].

Moreover, almost all beginning teams ($n$ = 11) indicated that team teaching provided them with the opportunity to differentiate better in their shared classroom practices and to actively engage learners in the learning process. Particularly, they stated that they began team teaching to better support all learners, which aligns with the existing literature showing this to be the most popular motivation for implementing team teaching [8]. Consistent with previous studies, the beginning teams expressed that by teaching together, they could work more effectively with each learners' individual needs. Prior research has confirmed that teachers are better able to provide quicker assistance [9], increased support [23], and more personalized attention [36] in team teaching settings. Adaptive teaching, in the practice of beginning teams, is primarily focused on extended instruction, which has been found to be effective in accommodating the learning needs of learners [77,78], and is based on learners' cognitive ability for forming homogeneous groups. The teams divide the learners into ability groups, and each teacher guides a specific group of learners. In this way, they feel they can better meet the learning needs of all learners. Furthermore, the study revealed that eleven beginning teams indicated that team teaching has a clear added value for realizing "activating learning". They intentionally scheduled more "active and intensive" lessons in their team teaching hours. This enabled them to work in groups more frequently and employ a range of activating teaching methods, such as cooperative learning [50,73]. Moreover, the beginning teams reported that they can engage learners more rapidly and effectively in their team teaching lessons. However, in line with previous research [24], the teams also emphasized the presence of more noise and distractions, particularly during activating lessons. It is interesting to observe that the team teaching teams in our study never explicitly mentioned that team teaching enhanced equity for their learners [90]. Although, they did indicate that by teaching collectively, they can provide equal attention to all learners, better address various learning needs, and engage all learners more quickly and effectively in their lessons.

Although the majority of the beginning teams indicated the more complex dimensions such as adaptive teaching and activating learning as clear added value in their team teaching practices, none of the teams stated the added value of the dimension "teaching learning strategies". The teams prioritized other, more complex dimensions and noted that a growth opportunity exists for the dimension "teaching learning strategies" to develop in their team teaching context. Nevertheless, the results of earlier studies have highlighted the importance of this dimension and indicated that it takes roughly 15 to 20 years of experience to develop the most difficult teaching skills in the context of solo teaching [19,58,81]. However, a significant number of teachers never develop these more complex skills. Previous studies on effective teaching behavior [58], using the ICALT observation instrument, indicate that teachers in the USA and the Netherlands achieve higher scores in the context of solo teaching for the more basic dimensions, such as creating a safe and stimulating learning climate, efficient classroom management, and providing clear instruction. The more complex dimensions, that the beginning team teaching teams in this study highlighted as a clear added value, obtain lower scores in different educational contexts, such as the Netherlands, the USA, Republic of Korea, Indonesia, and South Africa [18,58]. Notably,

within these contexts, adaptive teaching appears to be the least prevalent [18]. This suggests that adaptive teaching remains an unconventional practice in many countries and poses a significant challenge for numerous teachers to master [60]. Team teaching, however, enables teachers to effectively implement adaptive teaching within their shared classroom practices. It can, therefore, be considered as a strategy to realize complex teaching behaviors, such as adaptive teaching and activating learning.

Furthermore, it is noteworthy that only six beginning teams explicitly mentioned that team teaching allows them to organize lessons more efficiently, despite all team interviews referring to indicators of lesson organization [56]. For example, under the dimension of "adaptive teaching", the teams referred to the practical organization of different ability groups and their guidance. Under the dimension of "activating teaching", they mentioned designing active lessons and using engaging teaching methods. Additionally, the teams also noted that during their team teaching lessons, they were better able to minimize time loss during transitions [51,65] compared to solo teaching, and the physical presence of multiple teachers in the classroom helped them maintain order and effectively handle learners' misbehavior [67].

A last observation in the results of this study is that the beginning teams clearly expressed that they learned a great deal from each other during the interviews. In this manner, team teaching is identified by teachers as a professional development strategy [12,13]. The teams mentioned that they can better determine learners' levels by leveraging the different perspectives of each teacher and combining their knowledge ("adaptive teaching"). They also indicated that during team teaching lessons, they shared ideas and experiences with each other to try out activating teaching models ("activating teaching"). Furthermore, the teams emphasized that they coordinated their classroom management in a way that allows one teacher to continue teaching while the other handles behavior issues or maintains order ("efficient classroom management"). By consciously reflecting on their lessons, they also learned new teaching techniques and approaches, which can help them to gradually refine and develop their own teaching style [16].

Finally, this study acknowledges some of its strengths and limitations. A strength of this study is its qualitative approach, which delves into the experiences, perceptions, and interactions of beginning team teachers regarding their collaborative teaching behavior. By conducting team interviews, this study gained a deeper understanding of the perceived impact of team teaching on the dimensions of effective teaching behavior within the context of their shared classroom practices. However, in this study, we did not verify whether there may be a discrepancy between what teachers suggest in the interviews and what they actually carry out in the classroom. Therefore, future research should consider conducting (video) observations to gain more insight into their actual team teaching practices, going beyond perceptions. Future research can undertake a systematic follow-up on each team, discerning potential shifts in their perspectives throughout the duration of the school year. In doing so, future research can focus on the evolution of beginning team teaching teams and map their progression in terms of effective teaching behavior.

It is crucial to note that previous research has shown that effective teaching behavior significantly influences learners' learning and outcomes [51–53,67]. Thus, understanding how learners perceive their teachers' behaviors, especially in the context of team teaching in elementary education, is essential for strengthening the teaching quality of beginning team teachers. For example, My Teacher Questionnaire (MTQ), which is based on the dimensions of ICALT [91], can be used to obtain a better understanding of the learners' perspectives. Future research should also aim to triangulate the perceptions of beginning team teachers and learners, as this will provide a way to validate the educational practices of beginning team teaching teams in elementary education. Moreover, previous studies have failed to focus on the learners' perceptions in the context of team teaching in elementary education.

The findings of this study contribute to the literature by providing empirical evidence of the dimensions of effective teaching behavior that are perceived as clear added value in the team teaching practice of beginning team teaching teams. The results emphasize

the added value of team teaching in especially facilitating adaptive teaching, activating learning, and efficient classroom management. This study expands our understanding of how team teaching can enhance these dimensions and offers practical insights for educators and researchers interested in collaborative teaching practices. However, it is worth noting that not all dimensions of effective teaching behavior were found to have clear added value to the team teaching practice of every beginning team teaching team. The absence of certain dimensions in team teaching highlights the diverse approaches and priorities of teams, suggesting that individual teaching contexts and team dynamics may influence the extent to which certain dimensions are emphasized. Therefore, based on this study, we advise that professional development programs for (beginning) team teachers pay attention to the unique context and varying needs of each beginning team teaching team and align with the specific areas they wish to focus on. Additionally, these programs should specifically address the behavioral dimensions that beginning team teaching teams have identified as clear added value in their team teaching practices, including adaptive teaching, activating learning, and efficient classroom management. Moreover, particular attention should be given to the dimensions of "teaching learning strategies", as it currently remains underexplored among beginning team teaching teams.

This study also offers recommendations for teachers starting with team teaching in their teaching practice. First, it is advised that schools, noticing that teachers may struggle to meet all learners' needs, consider initiating team teaching. The teams in this study reported that, through team teaching, they are better equipped to implement adaptive teaching and actively engage learners more in their team teaching lessons. Teachers can, in turn, initiate these more complex dimensions by dividing their tasks and, for instance, starting with the assistant model. Second, the beginning team teaching teams mentioned that they learned a great deal from each other when team teaching. Therefore, it is essential for teachers to remain open to the inclusion of other teachers in a collaborative teaching approach. This way, team teaching can truly be viewed as a professional development strategy where teachers are open to learning from each other, exchanging expertise, and enriching each other with ideas to achieve (even more) effective teaching behavior. Specifically, team teaching can be beneficial for novice teachers seeking to exhibit more complex teaching behavior. For instance, teachers struggling with adaptive teaching or activating learning can achieve these outcomes better in their classrooms through team teaching. Finally, teachers could also utilize the various dimensions of effective teaching behavior in evaluating their team teaching practice.

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## Appendix A

**Table A1.** Coding scheme with main codes and subcodes.

| Main Codes and Subcodes | Codes |
|---|---|
| ICALT D1: Creating a safe and stimulating learning climate | 3 |
| Added value | |
| Priority—large class groups | 3 |
| ICALT D2: Efficient classroom management | 100 |
| Added value | |
| Basic support and administration (bringing laptops, collecting materials, . . .) | 28 |
| Dealing with disruptive behavior and concentration learners | 22 |
| More efficient lesson organization | 16 |
| Fixed routine in functioning | 9 |
| Working together—planning | 4 |
| 'Peace of mind' for teachers | 4 |
| Growth opportunity for teams | 17 |
| ICALT D3: Clear instruction | 26 |
| Added value | |
| Completing each other's instruction | 16 |
| Interactive instruction | 6 |
| Visualize instruction | 5 |
| ICALT D4: Activating learning | 77 |
| Added value | |
| Working more in groups | 22 |
| Immediate and better feedback to learners | 12 |
| More intensive for learners | 10 |
| Purposeful organization active lessons | 9 |
| More active for learners | 8 |
| More comfortable for teachers | 5 |
| Growth opportunities for teams | 6 |
| Disadvantage—too intensive for learners | 5 |
| ICALT D5: Adaptive teaching | 132 |
| Added value | |
| Better guidance of all learners | 32 |
| Working in groups | 26 |
| Determine learners' levels | 16 |
| Organization extended instruction | 9 |
| Dividing teachers' responsibilities | 4 |
| How to differentiate (instruction, cognitive ability, learners' behavior, . . .) | 36 |
| Growth opportunities for teams | 9 |

## References

1. Deneire, A.; Faddar, J.; Vanhoof, J.; Van Petegem, P. *Denken, Handelen en Professionele Ontwikkeling van Vlaamse Leraren en Schoolleiders: Eerste Resultaten van de Teaching and Learning International Survey (TALIS) 2013*; Departement Onderwijs en Vorming, Strategische Beleidsondersteuning: Brussels, Belgium, 2014. Available online: https://www.oecd.org/education/school/Flanders-TALIS-2013-Vlaams-Rapport-Webversie.pdf (accessed on 20 June 2023).
2. OECD. *TALIS 2018 Results (Volume II): Teachers and School Leaders as Valued Professionals*; OECD Publishing: Paris, France, 2020. [CrossRef]
3. Vanblaere, B.; Devos, G. Relating School Leadership to Perceived Professional Learning Community Characteristics: A Multilevel Analysis. *Teach. Teach. Educ.* **2016**, *57*, 26–38. [CrossRef]
4. Decristan, J.; Fauth, B.; Kunter, M.; Büttner, G.; Klieme, E. The Interplay between Class Heterogeneity and Teaching Quality in Primary School. *Int. J. Educ. Res.* **2017**, *86*, 109–121. [CrossRef]
5. Van Mieghem, A.; Verschueren, K.; Petry, K.; Struyf, E. An Analysis of Research on Inclusive Education: A Systematic Search and Meta Review. *Int. J. Incl. Educ.* **2020**, *24*, 675–689. [CrossRef]

6. Barbier, K.; Struyf, E.; Donche, V. Teachers' Beliefs about and Educational Practices with High-Ability Students. *Teach. Teach. Educ.* **2022**, *109*, 103566. [CrossRef]
7. Baeten, M.; Simons, M. Student Teachers' Team Teaching: How Do Learners in the Classroom Experience Team-Taught Lessons by Student Teachers? *J. Educ. Teach.* **2016**, *42*, 93–105. [CrossRef]
8. Friend, M.; Cook, L.; Hurley-Chamberlain, D.; Shamberger, C. Co-Teaching: An Illustration of the Complexity of Collaboration in Special Education. *J. Educ. Psychol. Consult.* **2010**, *20*, 9–27. [CrossRef]
9. Gardiner, W. Mentoring two student teachers: Mentors' perceptions of peer placements. *Teach. Educ.* **2010**, *21*, 233–246. [CrossRef]
10. Murata, R. What Does Team Teaching Mean? A Case Study of Interdisciplinary Teaming. *J. Educ. Res.* **2002**, *96*, 67–77. [CrossRef]
11. Baeten, M.; Simons, M. Student Teachers' Team Teaching: Models, Effects, and Conditions for Implementation. *Teach. Teach. Educ.* **2014**, *41*, 92–110. [CrossRef]
12. Fluijt, D.; Bakker, C.; Struyf, E. Team-Reflection: The Missing Link in Co-Teaching Teams. *Eur. J. Spec. Needs Educ.* **2016**, *31*, 187–201. [CrossRef]
13. Walsh, T. 'Promoted Widely but Not Valued': Teachers' Perceptions of Team Teaching as a Form of Professional Development in Post-Primary Schools in Ireland. *Prof. Dev. Educ.* **2022**, *48*, 688–704. [CrossRef]
14. Merchie, E.; Tuytens, M.; Devos, G.; Vanderlinde, R. Evaluating Teachers' Professional Development Initiatives: Towards an Extended Evaluative Framework. *Res. Pap. Educ.* **2018**, *33*, 143–168. [CrossRef]
15. Bashan, B.; Holsblat, R. Co-Teaching through Modeling Processes: Professional Development of Students and Instructors in a Teacher Training Program. *Mentor Tutoring* **2012**, *20*, 207–226. [CrossRef]
16. Dee, A.L. Collaborative Clinical Practice: An Alternate Field Experience. *Issues Teach. Educ.* **2012**, *21*, 147–163.
17. Gurger, H.; Uzuner, Y. Examining the Implementation of Two Co-Teaching Models: Team Teaching and Station Teaching. *Int. J. Incl. Educ.* **2011**, *15*, 589–610. [CrossRef]
18. Maulana, R.; André, S.; Helms-Lorenz, M.; Ko, J.; Chun, S.; Shahzad, A.; Irnidayanti, Y.; Lee, O.; de Jager, T.; Coetzee, T.; et al. Observed Teaching Behaviour in Secondary Education across Six Countries: Measurement Invariance and Indication of Cross-National Variations. *Sch. Eff. Sch. Improv.* **2021**, *32*, 64–95. [CrossRef]
19. Van de Grift, W. Quality of Teaching in Four European Countries: A Review of the Literature and Application of an Assessment Instrument. *Educ. Res.* **2007**, *49*, 127–152. [CrossRef]
20. Van der Lans, R.; Van de Grift, W.; van Veen, K. Same, Similar, or Something Completely Different? Calibrating Student Surveys and Classroom Observations of Teaching Quality Onto a Common Metric. *Educ. Meas.* **2019**, *38*, 55–64. [CrossRef]
21. Van de Grift, W. Measuring Teaching Quality in Several European Countries. *Sch. Eff. Sch. Improv.* **2014**, *25*, 295–311. [CrossRef]
22. Simons, M.; Baeten, M.; Vanhees, C. Team Teaching During Field Experiences in Teacher Education: Investigating Student Teachers' Experiences with Parallel and Sequential Teaching. *J. Teach. Educ.* **2020**, *71*, 24–40. [CrossRef]
23. Vangrieken, K.; Dochy, F.; Raes, E.; Kyndt, E. Teacher Collaboration: A Systematic Review. *Educ. Res. Rev.* **2015**, *15*, 17–40. [CrossRef]
24. Simons, M.; Coetzee, S.; Baeten, M.; Schmulian, A. Measuring Learners' Perceptions of a Team-Taught Learning Environment: Development and Validation of the Learners' Team Teaching Perceptions Questionnaire (LTTPQ). *Learn. Environ. Res.* **2019**, *23*, 45–58. [CrossRef]
25. Cook, L.; Friend, M. Co-Teaching: Guidelines for Creating Effective Practices. *Focus Except. Child.* **1995**, *28*, 1–16. [CrossRef]
26. Kamens, M.W. Learning about Co-Teaching: A Collaborative Student Teaching Experience for Preservice Teachers. *Teach. Educ. Spec. Educ.* **2007**, *30*, 155–166. [CrossRef]
27. Mastromieri, M.; Scruggs, T. *The Inclusive Classroom: Strategies for Effective Differentiated Instruction + Mylab Education with Pearson*, 7th ed.; Pearson: London, UK, 2023.
28. Badiali, B.; Titus, N.E. Co-Teaching: Enhancing Student Learning Through Mentor-Intern Partnerships. *Sch. Univ. Partn.* **2010**, *4*, 74–80.
29. Graziano, K.; Navarette, L. Co-Teaching in a Teacher Education Classroom: Collaboration, Comprise, and Creativity. *Issues Teach. Educ.* **2012**, *21*, 109–126.
30. Nevin, A.; Thousand, J.; Villa, R. Collaborative Teaching for Teacher Educators: What Does the Research Say? *Teach. Teach. Educ.* **2009**, *25*, 569–574. [CrossRef]
31. Thousand, J.; Villa, N.; Nevin, A. The Many Faces of Collaborative Planning and Teaching. *Theory Pract.* **2006**, *45*, 239–248. [CrossRef]
32. Dugan, K.; Letterman, M. Student Appraisals of Collaborative Teaching. *Coll. Teach.* **2008**, *56*, 11–15. [CrossRef]
33. Helms, M.; Alvis, J.; Willis, M. Planning and Implementing Shared Teaching: An MBA Team-Teaching Case Study. *J. Educ. Bus.* **2005**, *8*, 29–34. [CrossRef]
34. Akerson, A.; Montgomery, M. Peer-to-Peer Co-Teaching: Idea to Implementation. *SRATE J.* **2017**, *26*, 1–8.
35. De Backer, L.; Schelfout, W.; Simons, M.; Vandervieren, E. Student Teachers' Peer Team Teaching Experiences from a Quantitative Perspective: Perceptions, Profiles, and Transition Probabilities. *Teach. Teach. Educ.* **2023**, *135*, 104361. [CrossRef]
36. Birrell, J.; Bullough, R. Teaching with Peers: A Follow-Up Study of the First Year of Teaching. *Action Teach. Educ.* **2012**, *27*, 72–81. [CrossRef]
37. Chang, L.; Lee, G. A Team-Teaching Model for Practicing Project-Based Learning in High School: Collaboration between Computer and Subject Teachers. *Comput. Educ.* **2010**, *55*, 961–969. [CrossRef]

38. Jang, S. Innovations in Science Teacher Education: Effects of Integrating Technology and Team-Teaching Strategies. *Comput. Educ.* **2008**, *51*, 646–659. [CrossRef]
39. Chanmugan, A.; Gerlach, B. A Co-Teaching Model for Developing Future Educators' Teaching Effectiveness. *Int. J. Teach. Learn. High. Educ.* **2013**, *25*, 110–117.
40. Gardiner, W.; Robinson, K. Partnered Field Placements: Collaboration in the "Real World". *Teach. Educ.* **2010**, *45*, 202–215. [CrossRef]
41. Nokes, J.; Bullough, R.; Egan, W.; Birrell, J.; Hansen, J. The Paired-Placement of Student Teachers: An Alternative to Traditional Placements in Secondary Schools. *Teach. Teach. Educ.* **2008**, *24*, 2168–2177. [CrossRef]
42. Tobin, K.; Roth, W.; Zimmermann, A. Learning to Teach Science in Urban Schools. *J. Res. Sci. Teach.* **2001**, *38*, 941–964. [CrossRef]
43. Rytivaara, A.; Kershner, R. Co-Teaching as a Context for Teachers' Professional Learning and Joint Knowledge Construction. *Teach. Teach. Educ.* **2012**, *28*, 999–1008. [CrossRef]
44. Smith, R.; Ralston, N.C.; Naegele, Z.; Waggoner, J. Team Teaching and Learning: A Model of Effective Professional Development for Teachers. *Prof. Educ.* **2020**, *43*, 80–90.
45. Hoekstra, A.; Korthagen, F.; Brekelmans, M.; Beijaard, D.; Imants, J. Experienced Teachers' Informal Workplace Learning and Perceptions of Workplace Conditions. *J. Workplace Learn.* **2009**, *21*, 276–298. [CrossRef]
46. Kyndt, E.; Gijbels, D.; Grosemans, I.; Donche, V. Teachers Everyday Professional Development: Mapping Informal Learning Activities, Antecedents, and Learning Outcomes. *Rev. Educ. Res.* **2016**, *86*, 1111–1150. [CrossRef]
47. Gast, I.; Schildkamp, K.; van der Veen, J. Team-Based Professional Development Interventions in Higher Education: A Systematic Review. *Rev. Educ. Res.* **2017**, *87*, 736–767. [CrossRef] [PubMed]
48. Creemers, B.P.M.; Kyriakides, L. *The Dynamics of Educational Effectiveness*, 1st ed.; Routledge: New York, NY, USA, 2008. [CrossRef]
49. Hattie, J. *Visible Learning for Teachers: Maximizing Impact on Learning*, 1st ed.; Routledge: New York, NY, USA; Taylor & Francis Group: Abingdon, UK, 2012. [CrossRef]
50. Muijs, D.; Reynolds, D. *Effective Teaching: Evidence and Practice*, 4th ed.; SAGE: Washington, DC, USA, 2018.
51. Creemers, B.P.M. *The Effective Classroom*, 1st ed.; Cassell: London, UK, 1994.
52. Opdenakker, M.-C.; Maulana, R.; den Brok, P. Teacher–Student Interpersonal Relationships and Academic Motivation within One School Year: Developmental Changes and Linkage. *Sch. Eff. Sch. Improv.* **2012**, *23*, 95–119. [CrossRef]
53. Scheerens, J. *Educational Effectiveness and Ineffectiveness: A Critical Review of the Knowledge Base*, 1st ed.; Springer: Dordrecht, The Netherlands, 2016.
54. Danielson, C. *The Framework for Teaching Evaluation Instrument*, 1st ed.; Danielson Group: Chicago, IL, USA, 2013.
55. Pianta, R.C.; Hamre, B.K. Conceptualization, Measurement, and Improvement of Classroom Processes: Standardized Observation can Leverage Capacity. *Educ. Res.* **2009**, *38*, 109–119. [CrossRef]
56. Van den Hurk, H.T.G.; Houtveen, A.A.M.; Van de Grift, W.J.C.M. Fostering Effective Teaching Behavior through the Use of Data-Feedback. *Teach. Teach. Educ.* **2016**, *60*, 444–451. [CrossRef]
57. Van de Grift, W.; Helms-Lorenz, M.; Maulana, R. Teaching Skills of Student Teachers: Calibration of an Evaluation Instrument and Its Value in Predicting Student Academic Engagement. *Stud. Educ. Evol.* **2014**, *43*, 150–159. [CrossRef]
58. Maulana, R.; Kington, A.; Ko, J.; Feng, X.; Helms-Lorenz, M.; Looker, B.; Hibbert-Mayne, K.; Blackmore, K. Observing Secondary School Teachers' Effective Teaching Behavior in the Netherlands, England, and the United States Using the ICALT Observation Instrument. *Front. Educ.* **2023**, *8*, 1068938. [CrossRef]
59. Van de Grift, W.J.C.M.; Lam, J.F. Het didactisch handelen in het basisonderwijs [Instruction in Elementary Education]. *Tijds. V. Ond.* **1998**, *23*, 224–241.
60. van der Lans, R.; Van de Grift, W.; van Veen, K. Developing an Instrument for Teacher Feedback: Using the Rasch Model to Explore Teachers' Development of Effective Teaching Strategies and Behaviors. *J. Exp. Educ.* **2018**, *86*, 247–264. [CrossRef]
61. Cornelius-White, J. Learner-Centered Teacher-Student Relationships are Effective: A Meta-Analysis. *Rev. Educ. Res.* **2007**, *77*, 113–143. [CrossRef]
62. Hattie, J.; Clinton, J. Identifying Accomplished Teachers: A Validation Study. In *Advances in Program Evaluation: Vol. 11. Assessing Teachers for Professional Certification: The First Decade of the National Board for Professional Teaching Standards*, 1st ed.; Ingvarson, L., Hattie, J., Eds.; Emerald Group Publishing: Bingley, UK, 2008; pp. 313–344, Chapter 11. [CrossRef]
63. Smith, T.W.; Baker, W.K.; Hattie, J.; Bond, L. A Validity Study of the Certification System of the National Board for Professional Teaching Standards. In *Advances in Program Evaluation: Vol. 11. Assessing Teachers for Professional Certification: The First Decade of the National Board for Professional Teaching Standards*, 1st ed.; Ingvarson, L., Hattie, J., Eds.; Emerald Group Publishing: Bingley, UK, 2008; pp. 345–378, Chapter 12. [CrossRef]
64. Teodorović, J. Classroom and School Factors Related to Student Achievement: What Works for Students? *Sch. Eff. Sch. Improv.* **2011**, *22*, 215–236. [CrossRef]
65. Marzano, R.J. *What Works in Schools. Translating Research into Action*, 1st ed.; ASCD: Alexandria, VA, USA, 2003.
66. Opdenakker, M.-C.; Minnaert, A. Relationship between Learning Environment Characteristics and Academic Engagement. *Psychol. Rep.* **2011**, *109*, 259–284. [CrossRef] [PubMed]
67. Maulana, R.; Opdenakker, M.-C.; Stroet, K.; Bosker, R. Observed Lesson Structure during the First Year of Secondary Education: Exploration of Change and Link with Academic Engagement. *Teach. Teach. Educ.* **2012**, *28*, 835–850. [CrossRef]

68. Yair, G. Reforming Motivation: How the Structure of Instruction Affects Students' Learning Experiences. *Br. Educ. Res. J.* **2000**, *26*, 191–210. [CrossRef]
69. Kindsvatter, R.; Wilen, W.; Ishler, M. *Dynamics of Effective Teaching*, 1st ed.; Longman: Harlow, UK, 1988.
70. Rosenshine, B.V. How Time is Spent in Elementary Classrooms. In *Time to Learn: A Review of the Beginning Teacher Evaluation Study*, 1st ed.; Denham, C., Lieberman, A., Eds.; U.S. Department of Health, Education and Welfare, National Institute of Education: Washington, DC, USA, 1980; pp. 107–126.
71. Kameenui, E.J.; Carnine, D.W. *Effective Teaching Strategies that Accommodate Diverse Learners*, 1st ed.; Prentice Hall: Upper Saddle River, NJ, USA, 1998.
72. Pearson, P.D.; Fielding, L. Comprehension Instruction. In *Handbook of Reading Research*, 1st ed.; Barr, R., Kamil, M.L., Mosenthal, P.B., Pearson, P.D., Eds.; Longman: Harlow, UK, 1991; Volume 2, pp. 815–860.
73. Abrami, P.C.; Bernard, R.M.; Borokhovski, E.; Waddington, D.I.; Wade, C.A.; Persson, T. Strategies for Teaching Students to Think Critically: A Meta-Analysis. *Rev. Educ. Res.* **2015**, *85*, 275–314. [CrossRef]
74. Nunes, T.; Bryant, P. *Children Doing Mathematics*, 1st ed.; Blackwell: Hoboken, NJ, USA, 1996.
75. Pressley, M.; Wood, E.; Woloshyn, V.E.; Martin, V.; King, A.; Menke, D. Encouraging Mindful Use of Prior Knowledge: Attempting to Construct Explanatory Answers Facilitates Learning. *Educ. Psychol.* **1992**, *27*, 91–109. [CrossRef]
76. Tomlinson, C.A.; Brighton, C.; Hertberg, H.; Callahan, C.M.; Moon, T.R.; Brimijoin, K.; Conover, L.A.; Reynolds, T. Differentiating Instruction in Response to Student Readiness, Interest, and Learning Profile in Academically Diverse Classrooms: A Review of Literature. *J. Educ. Gift.* **2003**, *27*, 119–145. [CrossRef]
77. Smale-Jacobse, A.; Meijer, A.; Helms-Lorenz, M.; Maulana, R. Differentiated Instruction in Secondary Education: A Systematic Review of Research Evidence. *Front. Psychol.* **2019**, *10*, 2366. [CrossRef]
78. Smit, R.; Humpert, W. Differentiated Instruction in Small Schools. *Teach. Teach. Educ.* **2012**, *28*, 1152–1162. [CrossRef]
79. Houtveen, A.A.M.; Van de Grift, W.J.C.M. Effects of Metacognitive Strategy Instruction and Instruction Time on Reading Comprehension. *Sch. Eff. Sch. Improv.* **2007**, *18*, 173–190. [CrossRef]
80. Slavin, R.E. Research on Cooperative Learning and Achievement: What We Know, What We Need to Know. *Contemp. Educ. Psychol.* **1996**, *21*, 43–69. [CrossRef]
81. Van de Grift, W.J.C.M.; Van der Wal, M.; Torenbeek, M. Ontwikkeling in de pedagogische didactische vaardigheid van leraren in het basisonderwijs. *Ped. Stud.* **2011**, *88*, 416–432.
82. Savin-Baden, M.; Howell, M.C. *Qualitative Research: The Essential Guide to Theory and Practice*, 1st ed.; Routledge: New York, NY, USA, 2013.
83. Lincoln, Y.; Guba, E.G. *Naturalistic Inquiry*, 1st ed.; SAGE: Washington, DC, USA, 1985.
84. Tobin, G.A.; Begley, C.M. Methodological Rigour within a Qualitative Framework. *J. Adv. Nurs.* **2004**, *48*, 388–396. [CrossRef]
85. Younas, A.; Fàbregues, S.; Durante, A.; Escalante, E.L.; Inayat, S.; Ali, P. Proposing the "MIRACLE" Narrative Framework for Providing Thick Description in Qualitative Research. *Int. J. Qual. Methods* **2023**, *22*, 16094069221147162. [CrossRef]
86. Nowell, L.S.; Norris, J.M.; White, D.E.; Moules, N.J. Thematic Analysis: Striving to Meet the Trustworthiness Criteria. *Int. J. Qual. Methods* **2017**, *16*, 1609406917733847. [CrossRef]
87. Braun, V.; Clarke, V. Using Thematic Analysis in Psychology. *Qual. Res. Psychol.* **2006**, *3*, 77–101. [CrossRef]
88. Miles, M.; Huberman, M. *Qualitative Data Analysis*, 1st ed.; SAGE: Washington, DC, USA, 1994.
89. Saldana, J. *The Coding Manual for Qualitative Researchers*, 1st ed.; SAGE: Washington, DC, USA, 2015.
90. Strogilos, V.; King-Sears, M.E.; Tragoulia, E.; Voulagka, A.; Stefanidis, A. A meta-synthesis of co-teaching students with and without disabilities. *Educ. Res. Rev.* **2023**, *38*, 100504. [CrossRef]
91. Maulana, R.; Helms-Lorenz, M.; Van de Grift, W. Development and Evaluation of a Questionnaire Pre-service Teachers' Teaching Behaviour: A Rasch Modelling Approach. *Sch. Eff. Sch. Improv.* **2015**, *26*, 169–194. [CrossRef]