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Relational competence regarding students with ADHD – An intervention study with in-service teachers

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ABSTRACT

Research suggests that supportive teacher–student relationships are a prerequisite for student development. Developing such relationships requires teachers to observe, interpret, and reflect on teacher–student interactions and on teachers' relational competence in practice. Although teacher–student relationships are especially challenging with students with attention deficit hyperactivity disorder (ADHD), few studies have examined how these relationships develop. In this qualitative study, teachers from two Swedish elementary schools comprising one intervention ($n = 33$) and one control group ($n = 20$) completed pre- and post-tests in which they analysed videos of teacher–student interactions. We explored how the teachers understood relational competence in relation to students with ADHD before and after the video-based intervention, which included a presentation on the concept of relational competence and a model for analysing such competence. Our findings suggest that the intervention promoted teacher development regarding relational competence. Compared with the pre-test period, participants i) used more nuanced relational language, ii) substantiated their claims with concrete cues regarding interpersonal communication, and iii) adopted both teacher and student perspectives regarding the relationship. Finally, new understanding regarding relational competence was combined with knowledge regarding the importance of teacher sensitivity and responsiveness when working with students with ADHD.

KEYWORDS

Video based intervention; relational competence; teacher–student relationship; students with ADHD

Introduction

The importance of teacher–student relationships in student academic and social development has been well established (Ansari, Hofkens, and Pianta 2020; Ettekal and Shi 2020; Quin 2017). Allen et al. (2013) found that teachers' ability to respond sensitively to student needs was directly linked to student achievement: 'students first and foremost are highly social and emotional beings.' (Allen et al. 2013, 94). Hamre et al. (2013) further supported this by proposing that teaching and learning are essentially an interaction between teachers and students. This is consistent with Rushton, Giallo, and Efron (2019), who stated that strained teacher–student relationships predict students' emotional engagement in school. In the field of relational pedagogy (Bingham and Sidorkin 2003), the

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teacher–student relationship is seen as a prerequisite for learning. Thus, teachers’ ability to develop positive and supportive teacher–student relationships is a vital research focus. This ability, often labelled relational competence, is characterised by empathy, respect, and tolerance (Nordenbo et al. 2008).

Although the importance of positive and supportive teacher–student relationships has been established, previous studies have primarily examined relationships between teachers and typically developing students. However, special needs teachers often perceive the teacher–student relationship as the very heart of their work (Aspelin, Östlund, and Jönsson 2020). Few studies have specifically focused on relationships between teachers and students with Attention Deficit Hyperactivity Disorder (ADHD) (Ewe 2019). This is noteworthy as ADHD symptoms tend to negatively affect interpersonal relationships (Eccleston et al. 2019), leading to peer exclusion and loneliness (Beristain and Wiener 2020). Further, according to a systematic review on the relationships between teachers and students with ADHD, investigations have focused on the quality of these relationships as opposed to the ways in which such relationships form (Ewe 2019). However, an emerging field of research is aimed at developing teachers’ and pre-service teachers’ relational competence (Skibsted and Matthiesen 2016; Aspelin and Jönsson 2019). As the majority of this research has been directed towards typically developed students, the development of relationships between teachers and students with ADHD has not been well characterised.

In this study, we explored teachers’ professional development in terms of their understanding of relational competence, with a focus on students with ADHD, and examined how this understanding could be promoted through a video-based intervention. We addressed the following research questions:

RQ1: What need for professional development can be identified regarding how teachers understand relational competence?

RQ2: How will a video-based intervention transform teachers’ understanding of relational competence?

RQ3: After the intervention, how did teachers in the intervention vs. control group understand relational competence regarding students with ADHD?

Background

ADHD and the teacher–student relationship

The Diagnostic and Statistical Manual for Mental Disorders, Fifth Edition (DSM-5) states that ADHD is one of the most common disorders among school-aged children, with a prevalence of approximately 5% of all students. ADHD is typically characterised by severe difficulties among three areas: inattention, hyperactivity, and impulsivity (American Psychiatric Association 2013). These characteristics tend to negatively affect relationships with teachers and peers (Grygiel et al. 2018), leading to social rejection and self-fulfilling prophecies (Bell et al. 2011). An ADHD diagnosis can thus be considered as a risk factor for social integration problems in school.

As stated in the Introduction, despite a large body of research showing positive correlations between high-quality relationships and student development, few studies have examined the relationships between teachers and students with ADHD. These

reports indicated that relationships between teachers and students with ADHD are considerably more strained compared with relationships between teachers and typically developed students. Further, teachers generally characterise relationships with students with ADHD as less close and more conflictual than relationships with non-ADHD students (Prino et al. 2016). This is supported by findings from Rogers et al. (2015) and Al-Yagon (2016), indicating that, generally, students with ADHD experience considerably higher levels of teacher rejection compared with typically developing students.

Rimm-Kaufman et al. (2003) stated that 'sensitivity' and 'responsiveness' are important qualities of teacher–student relationships, especially for students with bold temperament styles and difficulties in maintaining relationships, such as students with ADHD. Lasko (2020) further supported this by stating that no teaching technique, regardless of quality, will be successful unless there is a positive teacher–student relationship. Thus, the literature has indicated that the relationship between teachers and students with ADHD is crucial for student academic and interpersonal success.

Teachers' relational competence

In the section above, we focused on the teacher–student relationship and how a student's attachment to their teachers can promote their education. In contrast, the concept of relational competence focuses on the teacher's position in the educational relationship. It refers to a teacher's ability to initiate, maintain, and develop positive and supportive relationships with students. According to the comprehensive review on teacher professionalism by Nordenbo et al. (2008), relational competence is a fundamental element of teacher competence, along with didactic competence and leadership competence.

Relational competence is thus a professional competence, as teachers are principally responsible for the quality of the relationships (Skibsted and Matthiesen 2016). The concept relies on a primary focus on the interpersonal connections between teachers and individual students (Aspelin 2018). Building on Rimm-Kaufman et al. (2003), Engblom-Wiklund (2018) defined relational competence in terms of 'sensitivity' and 'responsiveness' to student verbal and non-verbal cues, and showed that the concept is also applicable to a distance learning environment.

Jensen, Bengaard Skibsted, and Vedsgaard Christensen (2015) suggest that to be useful in practice, the concept of relational competence should be divided into concrete skills. Aspelin and Jönsson (2019) proposed three sub-concepts of relational competence. *Communicative competence* concerns a teacher's ability to communicate verbally and nonverbally to achieve a high degree of attunement in relation to students. *Differentiation competence* denotes a teacher's ability to regulate the degree of closeness and distance in relation to students. *Socio-emotional competence* refers to a teacher's ability to cope with emotional indicators of ongoing relationships, both their own and those of students. We used this model, referred to below as 'The Relational Competence Model' (RCM), in the design of the present study.

Video-based reflection for promoting interpersonal skills

Over the past two decades, researchers have examined the ways in which digital video can be used to promote teacher professionalism, both in a broad sense and more

specifically regarding teacher interpersonal skills. In a review of the effects of video-based interventions in teacher education, Kleinknecht and Gröschner (2016) stated that the method is effective for promoting pre-service teachers' ability to notice and analyse teaching behaviours. From a video-based intervention in which both a functional and dysfunctional teaching scenario were used, Thiel et al. (2020) found that both arrangements had positive effects on pre-service students' professional perceptions. Simpson and Vondrova (2019) investigated whether watching films of their own teaching vs. that of others altered the effects of the intervention in pre-service teachers and found no significant differences. After conducting a systematic review involving 82 studies, Major and Watson (2018) concluded that video was an effective method for promoting in-service teacher development.

Video-based reflection enables participants to repetitively view sequences both in full and in part, and thereby increases their understanding of interpersonal relationships as being built through ongoing interactions. Based on the results of various intervention studies, Sabol and Pianta (2012) suggested that teachers could improve their interactions with children via reflecting on their own video-recorded teaching, with support from supervisors. Rimm-Kaufman et al. (2003) demonstrated the benefits of educating student teachers in relational practices, supported by video, and with a specific focus on relationships to children with disabilities.

Another study using video (Aspelin and Jönsson 2019) investigated the developmental needs of pre-service teachers regarding their understanding of relational competence. Prior to the intervention, the pre-service teachers watched and analysed movies depicting different relational dilemmas that teachers face, guided by questions regarding teacher-student relationships. They focused on how teachers organised their teaching, the didactic choices they made, personal teacher characteristics, and the use of didactic tools to promote teaching. In the intervention, the pre-service teachers reflected on the same videos, but with the support of the RCM, and their focus shifted radically to interpersonal aspects. The design and results of the above-mentioned study form an important backdrop for the present study. However, in the present work, we focus on in-service teachers, included relationships between teachers and students with ADHD, and recruited both an intervention group and a control group. The design was tested in a pilot study (Ewe 2020).

Materials and methods

Selection and stratified sample

The present study was conducted in two elementary schools in two different Swedish municipalities. Each school was located fifteen kilometres from a medium-sized Swedish county-town, which made their geographical location equivalent. One of the schools formed the intervention group (IG) and the other the control group (CG). Both schools offered education for students between the ages of 6 and 16. Approximately 450 students attended the intervention school, and the control school had about 500 students. The intervention school had 80 employees, of whom about 50% were teachers. This was comparable to 65 employees, of whom 50% were teachers, in the control school.

All teachers at both schools received a request regarding study participation. Initially, 52 teachers in the IG and 29 teachers in the CG agreed to participate. Each participating

teacher received an individual code to enable the researchers to confidentially examine their pre- and post-test differences. The final sample included only participants who had completed both the pre- and post-test with the same code (IG, $n = 33$; CG, $n = 20$) (Table 1). We considered the educational background of the participants to have a high degree of conformity in the two samples because the proportion of pre- and primary teachers was 48.5% in the IG and 50% in the CG. Further, 42.4% and 50% of the teachers in the IG and CG were secondary teachers, respectively. Both samples contained untrained staff (IG, 6.1%; CG, 5.0%). Special educators comprised 3% of the IG and 0% of the CG.

The large drop-out rate in the present study (IG, 36.5%; CG, 31.0%) (Table 1) can likely be explained by the COVID-19 pandemic because the post-test took place in March of 2020. The requirement that the same code be used in both the pre- and post-tests resulted in further losses.

Procedure and design

We used pre- and post-tests to examine the effects of the intervention. Although the pre- and post-tests were administered at both schools, only the IG completed the intervention. The pre-test was implemented in February 2020 at both schools. One of the researchers gave a brief introduction in which they presented findings regarding teacher–student relationships. The intended function of the pre-test was to measure baseline understanding at both schools. A researcher administered the tests as web questionnaires, completed in the school auditorium. The participants individually completed the pre- and post-tests using their work computer and headphones. The pre-test consisted of demographic questions along with an embedded video sequence, produced especially for the research project, followed by three questions (table 2). The participant answers, and thus the analysis, were based on the video sequence, which was about three minutes long and portrayed a teacher giving an astronomy lesson. In the video, one student exhibited hyperactive and outgoing behaviour while another student was clearly inactive and inattentive. The participants were encouraged to carefully watch the sequence before answering the subsequent questions.

The pre-test was followed by an intervention in the IG three weeks later. The intervention included a presentation on the concept of relational competence, given by one of the researchers, together with a description of the three sub-concepts of the RCM and an explanation regarding how these can be applied to teacher–student interactions. Then, the participants analysed two video sequences with the support of the researcher as well as the RCM criteria. The first sequence showed a teacher interacting with his students while teaching mathematics, and the second sequence was a scene of a student-teacher interaction taken from a commercial movie.

The study concluded with a post-test in both the IG and CG. The post-test differed from the pre-test in that the demographic questions were removed and replaced with three

Table 1. Final sample.

	Participants (pre-test)	Participants (pre- and post-test)	Participants without the same code in both pre- and post-test	Final sample	Drop-out
IG	52	40	7	33	19 (36,5%)
CG	29	26	6	20	9 (31,0%)

Table 2. Content in pre- and post-test.

Moment	Activity	Method	Pre-test	Post-test
1	Demographic questions (n = 6)	Single and multiple-choice questions	X	
2	Attitude questions (n = 3)	Likert scale	X	
3	Clarification question (n = 1)	Multiple choice question	X	
4	Watching an educational situation	A video-sequence embedded in the questionnaire	X	X
5	Criteria for analysing relational competence	Written part		X
6	Assessment questions teacher's relational competence (n = 3) (1) In what way (s) do you think the teacher's actions promote a good relationship with the students? Motivate your answer ¹ (2) In what way (s) do you think that the teacher's actions counteract a good relationship with the students? Motivate your answer (3) How do you think the teacher should handle the arisen situation? Motivate your answer	Free text writing	X	X
7	Assessment questions: teachers' relational competence in relation to students with ADHD (n = 3) (4) Do teachers need to treat students who act like Kim in a special way? Motivate your answer ² (5) Do teachers need to treat students who act like Charlie in a special way? Motivate your answer ³ (6) What do you think characterises teachers' relational competence in encounters with students with ADHD compared to 'typical students? Motivate your answer	Free text writing		X
8	Evaluation of the intervention (n = 3)	Likert scale questions (n = 1) Free text writing (n = 2) ⁴		X
9	Evaluation of participants' perceived knowledge contributions (n = 4)	Likert scale questions (n = 3) ⁵ Free text writing (n = 4)		X

additional questions (Questions 4–6). These focused on the relational competence of teachers when working with students with ADHD, and evaluated the effect of the intervention (table 2).

Units of analysis

In this qualitative study, we explored how the participants understood a specific phenomenon, namely, teachers' relational competence. In previous studies (Ewe 2020; Holmstedt, Jönsson, and Aspelin 2018), we aimed to test the effectiveness of the intervention, and therefore statistically compared the participant answers before vs. after the intervention. However, the present study was based solely on qualitative data, and we focused on detecting differences in how the informants perceived relational competence. The dataset comprised written analyses of videos of teacher–student interactions viewed by the participants. The teacher responses were subjected to thematic analysis (Braun and Clarke 2006), which included the following six distinct steps:

(1) Repeated reading of the texts from the CG and IG, noting preliminary ideas regarding how the informants perceived the relational competence of the teachers in the films;

(2) Categorisation of typical patterns observed in the pre-test data from both the CG and IG to find indications of areas in which professional development was needed (RQ1);

(3) Categorisation of typical patterns observed in the post-test data from both the CG and IG to compare indications of development between the pre- and post-test periods (RQ2);

(4) Categorisation of the post-test data with a focus on whether the participants' understanding of relational competence regarding students with ADHD differed between the IG and CG (RQ3);

(5) Conversion of categories for RQ 1–3 into themes, to be presented in the Results section;

(6) Selection of significant quotes for each identified pattern, and translation of the quotes to English.

To strengthen inter-rater reliability, two researchers completed all of the steps. The researchers also engaged in continuous discussions about the results.

Ethics

This study followed the ethical principles for research in the humanities and social sciences (Stafström 2017). The study design, including missives, consent, and information forms were approved by the Swedish Ethical Committee on October 30th, 2019 (ref. 2019–03533). Pre- and post-answers were coded to ensure the confidentiality of each participant.

Results

In analysing the pre-test data, we found three areas of improvement regarding the teachers' understanding of relational competence. Together with the themes from the post-test, these themes (presented below) indicate that professional development took

place in the IG. Each theme is presented individually and is immediately followed by comments regarding how the teachers' understanding had changed post-intervention in both the IG and CG. Finally, we describe differences in the IG vs. CG in terms of post-test understanding of teacher relational competence regarding students with ADHD. The results are illustrated by significant quotes.⁶

Professional development regarding the participants' understanding of relational competence

In this section, RQ1 and RQ2 are answered.

Theme 1: Behaviour *without* vs. *with* consideration of relation to the student

Prior to the intervention, the participants at both schools interpreted relational competence, and specifically the teacher's nonverbal behaviour, without considering its significance in relation to the student, as in the examples below:

She seems interested in the students. (A18)

She has a nice and friendly tone and attitude towards the students. (A35)

She (the teacher) constantly has a tone and rhetoric that signals interest and enthusiasm. (B22)

Thus, the participants saw the teacher's behaviour as sufficient to understand how the relation to the student – and thus the teacher's relational competence – could be understood.

Post-intervention, a substantial number of participants considered the teacher–student relationship when describing the teacher's behaviour. One group of participants explicitly acknowledged the student's perspective as exemplified below:

With her non-verbal communication, she (the teacher) shows with her body language that she cares and wants the student to feel loved. She walks over to the student, who sits at the front, and almost holds her, which makes the student calm down. (A60)

The teacher is interrupted by Kim (a student). She (the teacher) walks up to Kim and says "I can see that this means a lot to you, but we can talk about it during the break, okay?" She does not speak out loud in front of the whole class, but instead bends down to talk to Kim. The teacher puts her hand on Kim's shoulder to show Kim that she needs to calm down a bit. Maybe the touch itself creates calm within Kim. (A26)

The teacher really sees Kim and calms her down by putting her hand on Kim's shoulder. (A4)

Another group also acknowledged the student's perspective, but in a more implicit way, as exemplified below:

When Kim mention helium and a 'Donald Duck' voice, the teacher smiled a little, humorously, as if she "understood" how it sounds when talking with a 'Donald Duck' voice. (A26)

By walking towards the student who was upset, she validated the student and showed that she saw her. (A2)

It feels like the teacher has an 'agreement' with Kim that she should 'approach' when Kim gets angry or feels anxious. (A51)

Thus, several participants now interpreted the teacher–student relationship and the teacher's relational competence by taking the student's perspective into account.

The corresponding development only occurred in *one* case in the CG:

She looked at the student's reaction and realised that she was compelled to meet the student halfway to make it possible for Kim to attend the rest of the lesson or even the day. (B22)

Theme 2: Claims *without* vs. *with* support

In the pre-test, the participants at both schools described and interpreted the teacher's attitudes without substantiating their claims, as in the examples below:

The teacher (...) notices that the student is not feeling well. (A2)

She is honest and tries to get the student involved. (A49)

Patience and a respectful response towards the girl who speaks out of turn in class. (B8)

However, interpretations were supported in some instances, as below:

The teacher ... responds to the girl who speaks out loud without raising her hand by walking up to her, putting her arm around her, and talking to her individually. (A4)

Thus, with a few exceptions, the participants interpreted the teacher's relational competence without giving any concrete examples from the teacher's behaviour.

Post-intervention, many participants used behavioural cues to support their claims about the teacher's attitudes. Some participants mentioned the teacher's paralinguistic language, as exemplified below:

She is tender and has an inviting and warm tone. She is perceived as friendly and calm. (A47)

She walks up to the girl at the front who wants to say something irrelevant and talks quietly and nicely to her. (A35)

Other participants mentioned the teacher's body language, as exemplified below:

The teacher's body language exhibits a responsiveness to the students' thoughts, as she turns to them while listening to their questions. (A51)

When the student in the yellow shirt was not selected to speak despite eagerly raising her hand, the teacher walked to her, put her hand on her shoulder, and said something to validate her. The teacher showed with her body language that the student was important - even if she did not get to answer this time. (A8)

Some of the participants mentioned the teacher's facial expressions, as exemplified below:

She says that she understands the student, but she does not exhibit it clearly with her facial expressions. (A24)

She creates a relationship with the students by inviting them into the conversation. She shows them that she likes them by smiling and showing that she is interested in their answers. (A33)

Finally, some answers concerned two or more of the mentioned categories, as exemplified below:

She smiles and has a nice tone in her voice. She shows the student that she is interested by touching the student's arm. (A3)

The teacher focuses on the student. She is using a friendly voice. (A15)

As indicated in the above quotes, several participants interpreted the teacher–student relationship and teacher’s relational competence according the teacher’s nonverbal behaviour.

Only in the following two cases did participants in the CG identify the above themes:

The teacher is listening. She has patience. She puts her hand on Kim’s shoulder. She talks in a soothing way. (B17)

The teacher has a good relationship with the student who speaks out loud without raising her hand. She bends down, places her hand on the student, and explains to her that she can tell her more later. (B3)

Theme 3: *Everyday language vs. professional language*

Prior to the intervention, the participants at both schools used everyday language to explain their interpretation of the teacher’s behaviour. For example, several participants used the expression ‘the teacher sees the students’ without explaining what this means for the interaction, as illustrated below:

The teacher tries to see the students. She also validates a student who needs a lot of attention. (B1)

That the teacher ... is trying to get the silent student to attend to the lesson and to show her that she is actually seeing her. (B20)

Another word often used without clarification was ‘validate’, as in the examples below:

She uses a friendly tone and walks up to the student and validates her. (A15)

The teacher validates the students who need validation in a soft way. (B50)

The participants also stated that the teacher was acting ‘calm’, as in the examples below:

The teacher acts calm and responds to the students in a friendly manner. (A4)

The teacher calmly approaches the student who interrupted her ... (A30)

Thus, the participants used everyday discourse to describe and interpret the teacher’s relational competence, that is, their explanations lacked nuanced terminology.

Participants used more professional, relational language after the intervention, as exemplified below:

The teacher’s verbal and non-verbal language is congruent in her approach to Kim. (A3)

Her verbal communication is skilled, you get the impression that the students understand her and that she listens to them (when she is not disturbed by the girl in the front). She has a nice tone in her voice ... (A35)

... the non-verbal part seems to be consistent with what the teacher says. (A29)

Thus, post intervention, the participants used more nuanced relational language to describe the teacher’s manner.

We did not observe a similar development between the pre- and post-test CG data.

Teacher relational competence concerning students with ADHD

This section concerns RQ3. This section differs from the previous ones in two ways. First, the object of study was only examined in the post-test, and there were no pre-test results. Second, we describe the CG responses first to demonstrate how the IG developed an enhanced understanding compared with the CG.

Understanding of relational competence in the CG regarding students with ADHD

The quotes below signify the CG responses regarding working with students with ADHD:

Be patient, maintain low affect, and show that you are interested in what the students' have to say, but at the same time stick to the framework and structure as it is important for these students. (B4)

Students with ADHD sometimes need a different type of treatment. It is very important to have clear frameworks and guidelines, so the students know what to do and understand that there are rules to follow. (B1)

Create a relationship before setting a lot of boundaries. Think about placement in the room and what aids are useful for that particular student, for example, iPad, tactile ball, extra break time, etc. (B3)

The quotes above expose an awareness regarding the importance of positive relationships between teachers and students with ADHD. However, the relationships were described at a superficial level using vague wording, which primarily focused on maintaining low affect and 'getting to know the student'. Further, many of the responses focused on structural factors, like the teacher's ability to set clear boundaries, and his or her ability to offer and support the student's use of alternative tools.

Understanding in the IG regarding relational competence towards students with ADHD

The quotes below signify the IG responses regarding working with students with ADHD:

Relationships with students with ADHD often require greater effort and greater responsibility on the part of the teacher. The tone of voice you use/how close you are, etc. can be more decisive for a child with ADHD than for a 'typical' student. (A8)

Understanding, extra clarity in body language, emotions. Reinforce good behaviour to strengthen the student. The teacher should be clear that some of the student's behaviour is not always appropriate, but that they trust in the student as a person at all times. (A19)

The teacher needs to be skilled in preventing situations where negative emotions escalate, as well as dealing with the student's emotions, e.g., by diverting their attention. Further, the teacher needs to be skilled in dealing with their own emotions in situations where a student is acting out. Keep calm. (A24)

The quotes above indicate an understanding of these relationships as interpersonal processes in which each teacher's ability to interpret student behaviour was seen as central. In specific focus was the ability of each teacher to interpret student non-verbal communication, enabling him or her to anticipate and prevent difficult situations. The teacher–student relationship was thus a greater focal point in the answers given by the IG compared with those given by the CG. Each teacher's ability to alternate their focus between a student's signals and their own response was also seen as essential in the creation of a positive teacher–student relationship between teachers and students with bold temperament styles.

Discussion

Teachers' relational competence

Our qualitative analysis of answers from the IG pre- and post intervention suggest that the intervention increased the participants' understanding of relational competence. However, both participants in the IG and CG were able to accurately describe the dynamic in the presented teaching situation in the pre-test. This is inconsistent with previous similar studies in which participants initially made speculations regarding the lesson organisation and other factors that were not directly visible in the interaction (Aspelin and Jönsson 2019). A possible explanation for this difference concerns the samples: while the participants in the present study were in-service teachers, the participants in Aspelin and Jönsson (2019) were pre-service teachers, with limited teaching experience. Thus, the data indicate that a teacher's understanding of teacher–student relationships is related to teaching experience. However, even if the participants in both the IG and CG had a 'practical' focus in the pre-intervention period, our results suggest that they primarily connected relational competence to individual teachers rather than to relational processes. That those in the IG exhibited altered post-test perspectives, including perspectives regarding both the teacher and student, indicates a transition from an intra-personal to an inter-personal framework.

Our findings support the idea proposed by Jensen, Bengaard Skibsted, and Vedsgaard Christensen (2015) that the concept of relational competence should be divided into practical skills. In our intervention, the participants used the RCM as an analytical tool. The findings indicate that an analytical focus on teacher–student communication, differentiation in relationships, and social emotions is relevant in enhancing teacher understanding of relational competence. Our study adds to the existing literature by identifying significant features of progress, for example, that the teachers acknowledged student behaviour and used behavioural cues to support their claims. Further, our findings emphasise the importance of observing and reflecting on nonverbal communication to develop a more nuanced understanding of relational competence.

Teachers' relational competence regarding students with ADHD

Our results point to some important features of how the teachers perceived relationships with students with ADHD. Although most participants in the CG mentioned the teacher–student relationship in their responses, the wording was vague, such as 'getting to know the student' or 'being a friend'. In contrast, in the post-test, those in the IG described these relationships as interpersonal processes, focusing on the teacher's ability to anticipate problematic student behaviour. More specifically, they emphasised the teacher's interpretation of the student's non-verbal signals to predict and/or prevent difficult situations, and to promote student progress. Further, those in the IG highlighted the importance of self-awareness regarding a teacher's non-verbal signals when communicating with students with ADHD. Although the teacher's ability to set clear boundaries was emphasised more frequently among the CG, this topic was also present among the responses of the IG, who were more likely to combine this idea with reflections regarding interpersonal relationships. This indicates that the IG participants had merged their understanding of

relational competence with their previous knowledge of ADHD. These findings support the idea that a teacher's ability to alternate their focus between a student's signals and their own response is essential in the creation of a positive teacher–student relationship. This is consistent with the findings of Allen et al. (2013), who asserted that a teacher's ability to sensitively respond to student needs is essential for student success, as well as with Rimm-Kaufman et al. (2003), who stated that sensitivity and responsiveness are significant components of relationships with students with bold temperament styles, which is a characteristic of students with ADHD. In practice, oscillating between the perspectives of the teacher and student can enable the teacher to act as an emotional filter between the student and his/her environment, which can promote learning and facilitate the prediction and prevention of disruptive behaviour.

Conclusion

Relational competence is a basic element of teacher competence that is highly important in promoting student academic and social development (Nordenbo et al. 2008). In the present study, we focused on how teachers develop relational competence. RQ1 concerned the teachers' need for professional development regarding relational competence. Our findings suggest that pre-intervention, the teachers understood relational competence i) with a one-dimensional focus on the teacher's perspective, ii) without substantiating their claims, and iii) in terms of everyday language. RQ2 concerned how a video-based intervention transformed the teachers' understanding of relational competence. Our findings suggest that post-intervention, the teachers understood relational competence by i) acknowledging the behaviour of students (in relation to the teacher), ii) using behavioural cues to support their claims, and iii) using comparatively nuanced relational language, especially regarding nonverbal communication. RQ3 concerned the way in which teachers understood relational competence regarding students with ADHD. Our results suggest that the IG understood relational competence as an interpersonal phenomenon in which the ability to oscillate between student nonverbal signals and the teacher's own nonverbal responses is central to promoting learning and can facilitate the prediction and prevention of disruptive behaviour. This differs from the responses of the CG, who mentioned relationships, but used vague formulations and did not consider interpersonal aspects.

Limitations and further research

Our data indicate that teacher understanding of relational competence could be increased through interventions featuring video-based reflection on teaching practise. Although the intervention was short, that is about two hours, our results suggest that small efforts can be effective, which is important considering the heavy workload of teachers. It is possible that a more extensive intervention would have an even greater effect. However, we cannot draw conclusions about the sustained impact of the intervention based on the present findings. A delayed post-test/follow up analysis would be helpful to determine the extent to which intervention-related changes in information processing were sustained.

Another limitation is that new perspectives regarding teaching may not be followed by changes in pedagogical practice. Therefore, future research focused on changes in practice before and after an intervention is needed to understand how relational competence is promoted, and to examine associated implications for the social and academic development of students. Student reports, teacher reports, and observations of interactions between teachers and students diagnosed with ADHD would be useful additions. We have recently collected such data, and plan to report on these topics soon.

Implications for teacher development

Our findings suggest that the relational competence of teachers concerning students with ADHD is related to being present with the student in the moment. More specifically, it is about being able to flexibly shift focus between oneself and the student, to be 'one step ahead', and to anticipate problematic situations before they occur. To do this, teachers must be aware of their own non-verbal reactions. One way to develop such awareness is through video-based reflection, which facilitates understanding regarding relational competence. When teachers are more aware regarding how the nonverbal signals they 'give off' are perceived by their students, they are better equipped to provide support.

Notes

1. Only provided within post-test for the intervention group.
2. Hyperactive and outgoing.
3. Inattentive and introvert.
4. Only provided within post-test for the intervention school.
5. The post-test at the control school only contained four evaluation questions (2 Likert-scale; 2 Free-text writing) due to the fact that they did not undergo the intervention.
6. Small adjustments were made to the citations to increase readability without changing the content.

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