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A First Examination of the Role of the International Child Development Programme in School Achievement

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ABSTRACT

The aim of this study was to explore whether the classroom implementation of the International Child Development Programme (ICDP) for secondary school students (grade 9) was linked to better school achievement. The goal of the ICDP is to increase school achievement by promoting positive teacher-student relationships. The study, performed in Sweden, applied a pre–post design (four years) with matched intervention and control schools ($N = 148$). The post-intervention assessments showed that there were significant differences in school achievement in Grade 9 between the intervention school and the control school. Specifically, a greater proportion of students at the intervention school demonstrated improvement in school subjects and achieved the competency requirements to enter an upper secondary school programme. Based on the results, the ICDP can be considered an important intervention to promote student learning by promoting positive teacher-student relationships.

KEYWORDS: ICDP, school, teacher-student relationship, school achievement, intervention

Introduction

In many European countries, including Sweden, school results have deteriorated since the mid-1990s (Hopkins, Stringfield, Harris, Stoll, & Mackay, 2014). As a result, the pressure to improve academic performance and document students' progress has increased (Lundström, 2015; OECD, 2016). To meet this challenge, interest in school-based interventions has expanded over the past years by focusing attention on the critical importance of implementing classroom strategies to increase students' academic performance (Briesch, Briesch, & Chafouleas, 2015; Rathvon, 2008).

The importance of trusting relationships between teachers and students has been identified as one important factor for student achievement. In fact, meta-analytical findings indicate a strong effect ($d = 0.72$) of teacher-student relationships on school results (Hattie, 2009). Teacher-student relationships that involve trust, compassion, caring, and attention are key elements in creating a positive educational climate and promoting social and emotional development and academic success in students (Hundeide, 2009; Martin & Dowson, 2009; Wubbels, den Brok,

van Tartwijk, & Levy, 2012). Despite the potential importance of a strong teacher-student relationship, most school-based interventions focus instead on teachers' instructional skills or on students' behaviour and the relationships among students (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Hamre et al., 2013; Rathvon, 2008). The aim of this study is to explore whether the implementation of the International Child Development Programme (ICDP) (Hundeide, 2009, 2001; Hundeide & Armstrong, 2011), whose aim is to train, promote, stimulate, and develop positive interactions between teachers and students throughout the daily teaching and learning experience, is linked to better student school achievement in secondary school students.

Teacher-student Relationship Quality and School Achievement

Researchers have highlighted that support through caring teacher–student relationships produce better school performance (Blum & Libbey, 2004; Hamre & Pianta, 2006; Jennings & Greenberg, 2009; Roos, 2015; von Wright, 2000). Specifically, the quality of the interaction between the teacher and the student, including aspects of being treated with warmth, openness, and respect (Bernstein-Yamashiro & Noam, 2013a), is crucial for promoting student learning and development (Aronson et al., 2009; Bernstein-Yamashiro & Noam, 2013b;

Gustafsson et al., 2010; Hattie, 2012; Martin & Dowson, 2009; Rutter, 1989; Vasta, 1995; Wubbels et al., 2012). One reason why a positive teacher-student relationship is important is that it increases students' motivation and engagement in their school work (Evertson & Weinstein, 2013). However, despite its importance, students often report the relationship with their teachers to be of poor quality (Resnick, Acierno, & Kilpatrick, 1997; Roeser, Eccles, & Sameroff, 2000).

One problem that might explain poor teacher-student relationships is that many teachers do not consider their roles as teachers or their relationships with students to be meaningful (Hattie, 2009). Although teachers emphasize the relationships among students, they are less observant of their own relationships with the students (Holfve-Sabel, 2006). For many years, teachers' relational skills have been regarded as personal qualities that cannot be taught or trained (Fibæk Laursen, 2004; Li Grining et al., 2010), and promoting teachers' relational skills has thus received relatively little research attention (Fredricks, Blumenfeld, & Paris, 2004; Pianta & Allen, 2008). To summarize, although research has presented strong evidence of the impact of the teacher-student relationship on students' academic achievement, few programmes have focused on promoting teachers' relationships with their students (Bernstein-Yamashiro & Noam, 2013b); thus, it is still unknown how these relationships can be promoted, as well as if methods to promote them are

effective.

Interventions to Promote Teacher-student Relationships

To date, little is known about what interventions could be used to promote positive teacher-student relationships. A meta-analysis of school-based social and emotional learning (SEL) programmes revealed significant improvements in social and emotional skills, attitudes, behaviours, and academic achievement (Durlak et al., 2011), but these interventions focused on the relationships *among students* rather than those between teachers and students.

In one unique study, Schindler and colleagues (Schindler et al., 2015) highlighted the need to change teachers' behaviours regarding reducing child behaviour problems and improving academic achievement (Hoyle, Marshall, & Yell, 2011; Sutherland et al., 2018). The behavioural intervention (Tier 2, BEST in CLASS) focused on improving teachers' abilities to provide students with positive behavioural support and improving the teacher-student relationship, which was shown to be effective both for the students' behavioural problems and their school performances (Hoyle et al., 2011; Sutherland et al., 2018). This intervention, however, involved the training of teachers for their relationships with students with severe behavioural problems and not for their relationships with students in a normative sample. In addition,

the results suggested that although teachers attempt to use a variety of interventions, they need assistance in how to identify and implement the best interventions (Schindler et al., 2015).

A further problem to promote positive teacher-student relationships at school is that many of the interventions have been implemented by researchers in controlled settings rather than implemented by regular classroom teachers. At the same time, interventions have a greater impact on student school achievement when delivered by regular school teachers than when delivered by other staff (Durlak et al., 2011). Unless interventions can be translated for the day-to-day interactions in the classroom, teachers will be reluctant to implement them and maintain them over time, regardless of the quantity and quality of the evidence base (Rathvon, 2008).

There are fundamental unresolved problems in how to apply the evidence-based knowledge regarding the positive effect of high-quality teacher-student relationships into the everyday teaching and learning process. In addition, it is important that such efforts are relevant and accepted and implemented by teachers to be as effective as possible.

The International Child Development Programme (ICDP)

The ICDP aims to train, promote, stimulate, and develop positive

interactions (e.g., teacher-student, parent–child) throughout daily experiences via guided interplay or interactions (GI) (Hundeide, 2009, 2001; Hundeide & Armstrong, 2011). The ICDP is a non-instructive psycho-social intervention that is derived from empirical science and has its theoretical roots in both developmental and humanistic psychology (Rye, 2001). The ICDP is based on everyday life experiences in which self-activity and the strengthening of trust in teachers' own abilities in concrete situations is fundamental. This approach is in contrast to theoretical instructions, which may impair teacher trust and motivation (Hundeide, 2001). One of the goals of this programme is to create a climate in the classroom where all students feel included and secure (Hundeide, 2009). The content of the programme is described in detail in the Methods section (p. 9–10).

Although the ICDP is widely used in schools in Sweden and in other countries, the existing evaluations of the programme have mainly focused on the parenting version of the programme and its effects on the parent–child relationship (Hundeide & Armstrong, 2011; Sherr, Skar, Clucas, von Tetzchner, & Hundeide, 2014). For example, a study of participation in an ICDP course for parents in Norway revealed increased positive attitudes towards child management and reported that improved parental strategies had a positive impact on child difficulties (Sherr et al., 2014). When implemented in schools, the goal of ICDP is to

promote positive interactions between teachers and students (Hundeide, 2009) to promote school achievement. However, no study has evaluated the effectiveness of this programme when implemented in schools.

The aim of the present study was to explore whether the implementation of the ICDP in the classroom of secondary school students (13–16 years of age) is linked to student school achievement. School achievement was measured by test scores on the standardized national tests in English, Swedish, and mathematics in grade 5 (pre-intervention) and grade 9 (post-intervention). The number of students demonstrating competence to enter the upper secondary school national programme and passing *all school subjects* was also used as a measure of school achievement. We hypothesize that intervention school students will have significantly higher school achievement than control school students.

Methods

Participants and Procedures

Data were derived from a study conducted in a small municipality with approximately 36,000 inhabitants in the southeastern part of Sweden. The study was conducted in

accordance with Swedish laws and ethical approval recommendations. We used a quasi-experimental design in which we compared school achievement among students enrolled in a secondary school (13–16 years of age) where classroom teachers used the International Child Development Programme (ICDP) with students in a matched control school in the same municipality, but 40 km away, that had not implemented the ICDP. The intervention school was identified through communication with the municipal director for childcare and education and two education specialist teachers trained in the ICDP. The control school was selected based on the geographic location (city versus rural) and the background variables of the school, such as the number of students and teachers, as well as parent- or student-related variables. All teachers at the intervention school ($N = 22$) reported that they had been using the ICDP for approximately two years, and no teachers at the control school ($N = 21$) had been trained in the ICDP. There was no direct contact or other connection between the studies and the involved schools, teachers, or students.

The control and intervention schools were compared based on the available school characteristics, such as the number of students, gender ratios, immigration backgrounds of the students, educational status of the parents, number of teachers, number of qualified teachers and number of students per class (Table 1). Background variables and selection data were

compiled from official records (i.e., the municipality annual quality account) and from questionnaires filled out by all teachers at the two schools ($N = 43$; $n = 21$ from the control school and $n = 22$ from the intervention school). Teachers provided their consent before the anonymous data were collected via questionnaires. In the control school, there were 247 students aged 13–16 years, with an average of 24.9 students per class. In the intervention school, there were 225 students aged 13–16 years, with an average of 25.0 students per class. The background variables were pre-specified due to their potential impact on students' academic results, as presented in earlier research (Engzell, 2016; Reynolds et al., 2014; Van de Werfhorst & Mijs, 2010). We used a chi^2 test and Mann–Whitney U-test to examine the association between the background variables and the type of school (intervention versus control). The Mann–Whitney U-test was used for variables with a limited sample size (see Table 1). Students' non-European background showed a significant association with the type of school, with a higher percentage of students with non-European backgrounds at the intervention school ($\chi^2 = 14.522$; df = 1; $p < 0{,}001$; $N = 472$) than at the control school. Students with non-Swedish backgrounds all came from countries outside of Europe. There were no other significant differences with respect to background data between the two schools.

Table 1. Background Data of Students and Teachers at the Intervention (ICDP) School and Matching School

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At the end of the 2005 semester, when students were in Grade 9, principals at both schools reported the national test results in mathematics, Swedish, and English. All teachers at the intervention school reported that they had been using the ICDP for approximately two years. In addition, to be able to compare school achievement before the teachers had implemented the ICDP at the intervention school, national test results from Grade 5 (i.e., 2001) were collected retrospectively from official data records of the municipality primary schools. In the intervention school, the number of students increased by 25 students between Grade 5 and Grade 9. These 25 new students were enrolled in the secondary school, and in Grade 8 to Grade 9, 17 were non-European immigrants. The control school had two new students in Grade 9, one of whom had a non-European background.

The ICDP: Content and Intervention

The ICDP is based on eight interaction themes organized into three types of dialogues: emotional, comprehension and

regulative (see Table 2) (Hundeide, 2001; Hundeide & Armstrong, 2011). The eight themes enable the teacher to perceive, analyse, reflect on, and promote the interactions between the teacher and the student.

Table 2. The Three Dialogue Types and Eight Guidelines of the ICDP.

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Implementation is a crucial part of this and any programme (Olofsson, Skoog, & Tillfors, 2016). The teachers in the intervention school received training based on the pedagogical principles of sensitizing (Hundeide & Armstrong, 2011). The main components of these pedagogic principles focus on trustful contact; the positive definition of the child; the activation of the themes of interaction, confirmation of current positive behaviour, awareness and verbalization of interaction; the exchange of experiences in the group; and a personal and compassionate form of mediation (Hundeide, 2009; Hundeide & Armstrong, 2011). Specific exercises and activities from teachers' fieldwork in the training (e.g., "golden moments", storytelling, didactic videos, viewing of pictures, role-play, and dramatizations) were used to increase teachers' focus on the students. Delivery of the intervention to the teachers in this study was performed by two education specialist teachers with

the appropriate competence and accreditation to train teachers in ICDP (so called diplomate counsellors). The trainers were experienced teachers who had several years of experience of training and supervising groups of teachers. The trainers were trained themselves in the pedagogical principles of increased sensitivity and how to implement the interaction themes and dialogues. The training of diplomate counsellors is regulated by the foundation of the ICDP (www.icdp.se).

The training of teachers consisted of six 2-hour group-based sessions that were approximately three weeks apart. The training period thus lasted for 15 weeks. In addition to the training sessions, the teachers practised the ICDP approach in their classrooms during this period. The sessions were both didactic and interactive. They focused on exploration of new ways of defining students, participation in discussions with colleagues, implementation of interaction themes, reading and reflection on the ICDP literature, and engagement in role-play. When the training period was completed, the teachers received monthly group-based supervision during the implementation of the ICDP, which lasted one additional year.

Measures

We used two measures of school achievement in this study as measures of school achievement in Grades 5 and 9.

National Tests

In Sweden, standardized tests are currently administered at the end of Grades 5 and 9 in three subjects, namely, Swedish, English, and mathematics, to assess student achievement. All students were invited to take the National tests. There were high participation rate, on average 95%, in both the control and intervention schools. Each school's principal reported the Grade 9 national test results (measured as pass = 1 or not pass = 0) for Swedish, English and mathematics (N = 148, 76 in the intervention school and 72 in the control school). The pre-intervention data for Grade 5 (2001) were collected retrospectively from the official data records of the municipality primary schools (N = 121, 51 in the intervention school and 70 in the control school).

The SALSA Scores

The SALSA scores are a statistical model applied in Sweden to compare schools' academic achievements (http://siris.skolverket.se). The SALSA score summarizes the schools' final grades in Grade 9 and presents the number of students who passed the national tests in Swedish, English, and mathematics to meet the competency requirements to enter the national programme offered at the upper secondary school level. The SALSA score also summarizes how many students

demonstrated improvement in *all school subjects.* The data for the SALSA score were collected from official records for both the intervention school and the control school (http://siris.skolverket.se).

All data from the national tests and all SALSA scores were available at the school level. The data were anonymous; it was not possible to link individual results between tests and between the pre- and post-intervention.

Data Analysis

We used Fisher's exact tests due to $n < 5$ and chi^2- tests due to $n > 5$ to examine potential differences in the national tests in mathematics, Swedish and English between students in Grades 5 and 9 in the intervention school and the control school. chi^2-tests were used to compare the SALSA scores. In these analyses, we examined the association between the type of school (intervention versus control) and the number of students who met the competency requirements to enter the upper secondary school national programme and the number of students who passed *all school subjects*. The data were analysed using the Statistical Package for the Social Sciences version 23.0 software (IBM SPSS Inc., Chicago, IL, United States).

Results

National Tests

A chi^2 was conducted to examine the number of students who had passed in all three subjects in Grade 9 (i.e., Swedish, English and mathematics), and the results are presented in Table 3. Considering the aggregate of tests in all three subjects (Swedish, English and mathematics), there was a significant difference between the intervention school and the control school ($\chi^2 = 9.52$; df = 3; $p < .05$; $N = 148$). The number of students in the control school who passed the national tests in all three subjects (Swedish, English and mathematics), was 47 (65.3%), and in the intervention school, it was 62 (81.6%) (Table 3).

Table 3. Cross Tabulation of the Number and Percent of Students Who Passed No, One, Two, or Three Subjects.

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Additionally, Fisher's exact test showed that there were no significant differences between the students in the control school and those in the intervention school regarding the national test scores in Grade 5 (*ps* = .828, .539, and .086, for national test scores in Swedish, mathematics, and English, respectively) (Table 4).

Table 4. Number and Percent and of Students who Participated in and Passed the National Test in Swedish, Mathematics and English in Grade 5 before the Intervention, T_1, and in Grade 9 after the Intervention, T_2.

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In Grade 9, there was a significant difference between the intervention and control schools on the national tests in mathematics ($p < .001$ from Fisher's exact test). There were no significant differences between the intervention and control schools in English ($p = .099$ from Fisher's exact test) or Swedish ($p = .356$ from Fisher's exact test).

SALSA Scores

To examine the differences between the intervention school and control school in the SALSA scores (i.e., the summary of the schools' final grades in Grade 9 and the number of students who passed the national tests), we used chi^2 tests. There was a significant difference between the intervention and control schools regarding the number of students who met the competency requirements to enter the national programme offered at the upper secondary school level ($\chi^2 = 10.68$; df = 1; $p = .001$; $N = 148$). Specifically, 71 students (93.4%) in the

intervention school and 53 students (73.6%) in the control school met the competence standards in the national tests. There was also a significant difference between the intervention school and the control school with regard to how many students demonstrated improvement in *all school subjects* ($\chi^2 = 4.42$; df = 1; $p = .035$; $N = 148$). Specifically, 63 students (82.9%) in the intervention school and 49 students (68.0%) in the control school demonstrated improvement in *all school subjects* when they entered the upper secondary school level.

Discussion

The aim of the present study was to explore whether the implementation of the International Child Development Programme (ICDP) (Hundeide & Armstrong, 2011), an intervention designed to foster student-teacher interactions and relationships, is linked to better school achievement. In Grade 9 (when the intervention school had implemented the ICDP during most of the secondary school time and the control school had not), there was a significant difference between the control school and the intervention school in the number of students who passed the national tests in Swedish, mathematics, and English. Hence, when using an aggregated score of all three national test scores, students in the intervention school

performed significantly better than the students in the control school. At baseline (when the students were in Grade 5), there was no difference between the schools in any of the subjects. Additionally, in Grade 9, a significantly greater proportion of students at the intervention school passed *all school subjects* in comparison to the control school, and a significantly greater proportion of students in the intervention school reached the appropriate level of competence to enter the national programme in the upper secondary school in comparison to the control school. These results are important, as access to upper secondary school is critical for students' future academic development (Lundström, 2015; Rutter, 1989; Townsend, 2007).

When examining the three subjects separately (rather than using a combined score), the results showed that the difference between the schools was predominantly found for the results in mathematics, where the intervention school had a better performance than students in the control school. A weaker effect in Swedish and English might be due, in part, to the fact that significantly more students with non-European backgrounds enrolled in the intervention school during secondary school, contrary to the control school. The students with non-European backgrounds had no prior knowledge of Swedish language. When students first arrive in Sweden, non-native Swedish students receive extra teaching in Swedish as a second language, and it normally takes substantial time to become fluent in the

Swedish language. Additionally, the extra time spent learning Swedish might take time from other subjects, such as English and mathematics. Hence, the lack of difference between the intervention school and the control school in Swedish and English might be due to some students' natural lack of knowledge in these subjects (Engzell, 2016; Van de Werfhorst & Mijs, 2010). For mathematics, language barriers might not be as large a problem as they might be for Swedish and English, indicated by the significant difference between the schools in the national test scores for mathematics. Future research should examine the effects of the ICDP using larger samples to control for the impact of language knowledge among students with non-European backgrounds. This research will be important to draw conclusions about the effectiveness of the ICDP for students' achievement in different school subjects.

Relation to Previous Work and the International Child Development Programme

Over the course of several years, knowledge has increased concerning the effects of the quality of the teacher-student relationship on academic success (Den Brok, Brekelmans, & Wubbels, 2004). Overall, meta-analyses and literature reviews have shown that the teacher-student relationship in classroom interactions is a factor of great importance for students' academic achievement (Hattie, 2009; Martin & Dowson, 2009;

Nordenbo, Søgaard Larsen, Tiftikçi, Wendt, & Østergaard, 2008). The core of a good relationship is to be able to communicate and collaborate with others. Teachers have the responsibility to create a positive climate in the classroom that promotes learning (Hamre et al., 2013). A good teacher-student relationship provides the opportunity for relation-based class leadership that gives the teacher the opportunity to create a positive climate in the classroom and to motivate work effort. However, relation-based class leadership in teacher-student interactions is a complex phenomenon (Aasen, Nordahl, Mælan, Drugli, & Myhr, 2014). Relation-based leadership in the classroom is closely linked to the teacher's actual practices in the classroom. It is not enough to have knowledge of the teacher-student relationship and relational class leadership; this knowledge must be performed and used at a conscious level (Harder & Stensmo, 2009; Postholm, 2015). The ICDP can offer strategies for teachers to work with their relational competence. Leading a class needs to go hand in hand with students' needs, and relationships with students are essential for the teacher to be able to exercise his or her leadership in the class. Teachers' abilities to have a good relationship with students have the potential to create a structure that is crucial for students' motivation, development, and learning (Hattie, 2009, 2012).

A more complex description of teacher-student classroom interactions is that the relationship consists of three domains:

emotional, organizational, and instructional (Hamre et al., 2013). Research often supports domain specificity and assumes that emotional support promotes the social development of students, whereas classroom management and organization promote positive student behaviour and attention, and instructional support improves learning. However, there are cross-domain linkages among the three domains. The three ICDP dialogues and guidelines (Table 2) are consistent with and align with these three domains and give teachers the opportunity to develop teacher-student relationships and relation-based class leadership in the classroom.

Emotional dialogue, with its four interaction guidelines, conforms to the emotional domain and is derived from attachment theory (Bergin & Bergin, 2009; Bowlby, 2005) and theory of motivation and self-system processes (Connell & Wellborn, 1991; Deci & Ryan, 2002; Stern, 1995). When teachers' pay attention to student initiative and appreciate what students do, students are encouraged to take risks and experience growth. Teachers who talk and express positive feelings towards students make students feel appreciated and confirmed. Teachers who succeed with this tend to be distinctive, as they are both interested in and have a close and good relationship with the student (Marzano & Pickering, 2010; Nordenbo et al., 2008; Sabol & Pianta, 2012). The learning environment in the school is created through the teacher's approach of being both confident

and supportive for individual students, and the students' commitment to the school and the schools' values are promoted (Aasen et al., 2014). By creating a good teacher-student relationship and good class leadership, a positive school culture is built that promotes learning (Doyle, 2009).

Regulative dialogue, with its four interaction guidelines, aligns with the organizational and management domain. In this sense, the teacher helps the student to develop routines and plan activities in a sequential pattern to reach goals and supports the student through successive scaffolding with positive limits. These skills are essential for developing students' self-regulation and executive functioning. Similarly, routines also facilitate the development of these skills, all of which are important for school achievement (Ponitz, Rimm-Kaufman, Grimm, & Curby, 2009). The characteristics of clear leadership and good structure in teaching include many assignments and activities that are carried out regularly in the classroom. These routines create a fixed frame about teaching and make teaching predictable. Students should become aware of the teacher's presence by being provided with an overview of activities and should interact when necessary. Structure in the classroom includes the framing of teaching with clear goals and conclusions. Having clear teaching goals with high expectations for the student is important for learning (Hattie, 2009).

Comprehension dialogue, with its three interaction guidelines, provides student instructional support. Through interaction, the teacher helps students to focus, share experiences, and engage with others to widen their own experiences. Through these interactions and dialogue, the students not only develop cognitively; a higher order of thinking is promoted when teachers enhance existing skills, scaffold more complex competencies and provide valuable feedback (Mayer, 2002; Nassaji & Swain, 2000; Partanen, 2016; Pintrich, 2000, 2003; Rogoff, 2008). Studies concur that these instructional interactions promote student achievements (Hamre & Pianta, 2005).

In this study, the result showed that implementation of the ICDP in the classroom of secondary school students was linked to better achievement in mathematics. This result is in line with results of a Dutch study in which the authors showed a correlation between students' experiences and achievement in mathematics with teachers' leadership, kindness, and interpersonal skills (Zijlstra, Wubbels, Brekelmans, & Koomen, 2013). This result supports the idea that the relationship consists of three domains, namely, emotional, organizational, and instructional (Hamre et al., 2013), and that these three domains are consistent with the three dialogues in the ICDP. From earlier research, it is also clear that teachers' relationships with students can change over time (Gehlbach, Brinkworth, & Harris, 2012). Through training, the use of dialogue and adherence to the

interaction guidelines, it is possible to effectively teach the three major domains of learning; accordingly, the implementation of the ICDP can explain the results on the national tests in mathematics and the greater proportion of students access to upper secondary school at the intervention school in comparison to control school.

Although this study shows that improving the teacher-student relationship is beneficial for students' achievement, it is important to acknowledge that teachers' professional skills are multi-faceted. In addition to relational abilities, the teachers' content knowledge and pedagogical knowledge are crucial for students' learning and development. These are important for how students succeed in a subjects like mathematics (Ball, Thames, & Phelps, 2008; Krauss et al., 2008). The schools that participated in the current study did not have any ongoing special focus on or interventions related to mathematics during the year. Further, teachers' pedagogical content knowledge (PCK) is developed by reflecting in the planning of teaching, in classroom practice and in post-work (Alonzo, Berry, & Nilsson, 2019; Ma'rufi, Budayasa & Juniati, 2017). However, PCK is not enough in itself. There is no clear connection between teachers' PCK and students' growing understanding of various subjects (Cross & Lepareur, 2015). Teachers need to develop their understanding of how students understand teaching and learning (Timperley & Alton-Lee, 2008). They also need to

develop sensitivity to students' needs (Eames, Williams, Hume, & Lockley, 2011). ICDP can be a way of increasing teachers' sensitivity and understanding of students' needs and perspectives, which might, in turn, increase teachers PCK and students' school achievement.

Acknowledgement of these issues point to the need for future studies in the area. Among other things, future studies should include other factors that could have a bearing on the findings, such as bullying or the quality of teacher-student relationship.

Limitations and Strengths

This study has some limitations that need to be mentioned. Due to the selection of the control school based on matching with the ICDP school, this is not a randomized study, and therefore, we do not control for potential confounders. Despite the good match based on background variables for students and teachers, unknown confounders can lead to bias. Additionally, all data from the national tests were provided, but they were anonymous; it was not possible to link individual results between tests and between pre- and post-intervention. Hence, we were not able to link the results from the different tests on an individual level, only on the group level. Unfortunately, this also means that we were not able to assess individual student performance over time and across subjects—representing a limitation in this study. The national test has been used for a

long time. The main purpose of the national tests is to contribute to a fair and equal assessment and grading throughout the country. All students in Sweden take the same tests and thus have the same opportunity to demonstrate their knowledge. Since the introduction of the national examinations in 1994, the consistent quality of the test has been assessed with different samples of national tests to standardize and improve the handling of samples and the implementation of instructions (OECD, 2011). However, the National tests have been questioned. We need more discussion of what we assess and how in school (Devine, David, & Menter, 2010). Also, the National tests are not designed in a way that take into consideration that students might perform differently in a test situation for reasons that are not related to their levels of knowledge (e.g., test anxiety). Thus, the tests might not work equally for all students (e.g., students who need more time and support in the test situation) (Borgström & Yassin, 2010). On the other hand, the tests offer a standardized way of measuring academic achievement, as all students take the same tests. In addition, the individual teacher does not play a significant role in the grading, which can be seen as a strength of the tests.

However, most principals and teachers consider the guidelines and standardization of the national tests to be acceptable. Another limitation is the quite high number of statistical comparisons that we made on the sample, which was relevant in

this explorative study. A final limitation is that the training of teachers consisted of six 2-hour sessions that were approximately three weeks apart as recommended by the ICDP. When the training was completed, the teachers received monthly supervision for approximately two years, but the implementation of the ICDP was not measured. Hence, it remains unclear to what extent teachers were using the ICDP framework in their interactions with the students.

Despite the limitations and that the study was done quite some years ago; this study offers a first examination of a widely used programme. We were able to compare two matched schools on several potentially important outcome measures, which, with the knowledge of the importance of teacher-student relationships for student achievement, puts this study in a unique position.

Conclusions

The results of this study showed that the implementation of the ICDP in secondary school classrooms was significantly associated with student achievement and the proportion of students who could enter the national programme offered at the upper level of secondary school. Based on the results from this first study, the ICDP may be considered one part of a comprehensive school programme designed to promote student learning. Teachers'

relational work with students may be one of the most difficult aspects of their job. Both novice teachers and experienced teachers struggle with developing healthy, effective relationships with students (Paulin, 2007; Wideen, Mayer-Smith, & Moon, 1998). Moreover, the concept of the teacher-student relationship does not take precedence in teacher training programmes. Thus, the need to develop concepts that capture the interpersonal dynamics in the classroom is essential (Birnik, 1998; Hamre et al., 2013). One reason teacher education programmes do not focus on the development of positive teacher-student relationships might be because this domain is perceived to be part of the individual teacher's psychological character (Li Grining et al., 2010). The ICDP may provide an opportunity to increase teachers' abilities to develop positive relationships with students and colleagues and increase awareness of relational aspects. By guiding interplay and interactions, the ICDP can be a way to promote student-teacher relationships that might positively impact student learning. In addition, the ICDP might be important in teachers' feelings of competence, as an increased awareness of the interaction between teacher and student it might increase their job satisfaction.

Disclosure Statement

The first author has been involved in the training, supervision, and implementation of ICDP in Swedish schools, however not in the schools that were examined in this paper. No potential conflict of interest was reported by the authors.

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