



KINDERGARTEN STUDENTS' UNDERSTANDING OF THE QUALITY OF THEIR RELATIONSHIP WITH THEIR TEACHER

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Abstract:

Teacher-child relationships in early childhood are increasingly considered as a prerequisite for children's development. The Child Appraisal of the Relationship with the Teacher Scale (CARTS) (Vervoot, Doumen, & Verschueren, 2015) is a new multidimensional measure that evaluates the quality of teacher-child relationships from the children's perspective. The purpose of this study was to confirm the factor structure of the Dutch version of CARTS in the Greek context, to describe the perceptions of young children about their relationship with their teachers and to examine whether child's age, gender, and ethnicity contribute to this relationship. In total, 366 children (Mage= 5.4) from 36 kindergarten of Greece participated in this study. Results supported the construct validity of the CARTS scale. CFA implementation, consistent with attachment-based research revealed the three dimensions of the teacher-children relationships, Closeness, Dependency and Conflict. Supportive and warmth relationships were found. Children's demographics characteristics affect the quality of teacher-child relationships. The results highlighted the importance of the dyadic relationships.

Keywords: teacher-child relationships, children's perspectives, CARTS, early childhood, attachment

1. Introduction

Numerous studies highlighted the preschool years as a crucial period for children's development (Liu, Savitz-Romer, Perella, Hill & Liang, 2018; Sabol & Pianta, 2012; Roorda, Koomen, Spilt, & Oort, 2011). The number of children that are currently attending early childhood education is increasing for many countries (OECD 2013). To date, several studies provide evidence about the association between teacher-child quality relationships and children's development (Hamre & Pianta, 2001; O'Connor, Dearing, & Collins, 2011). Supportive teacher-child relationships promote school

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adjustment and predict academic performance in school (Hamre & Pianta, 2001; Howes, Fuligni, Hong, Huang, & Lara-Cinisomo, 2013; Ly, Zhou, Chu, & Chen, 2012). In contrast, conflictual teacher-child relationships associate with low academic achievement, engagement and negative emotions such as anger for teacher (Buyse, Verschueren, Doumen, Van Damme, & Maes, 2008; Hamre & Pianta, 2005).

In the realm of the teacher-child relationship, scholars have supported several theoretical models to conceptualize the teacher-child quality relationships, like models based on attachment theory (Bowlby, 1969; Davis, 2003), on the self-determination theory (Ryan & Deci, 2000; Wentzel, 2002) and on the interpersonal theory (Thijs, Koomen, Roorda & Hagen, 2011). However, it seems that attachment theory provides the most widely used and accepted framework when examining the teacher-child quality relationship (Davis, 2003; Mi-young & Neuharth-Pritchett, 2011). Attachment is "*an affectional tie or bond that one individual develops between self and another specific individual*" (Ainsworth, 1972, p. 100). Stemming from the attachment theory, scholars are describing the parent-child relationship based on three dimension, closeness, conflict, and dependency (Davis, 2003).

Similarly, the quality of teacher-child relationships is also characterized by the three dimensions of closeness, conflict, and dependency (Pianta, 2001). Closeness refers to secure, support and warmth relationships that provide children positive feelings to explore the environment (Pianta, 1999). Conflict is a negative aspect of teacher-child quality relationship and refers to the tension, anger, or aggression for both of them (Pianta, 2001). Dependency is an immature overreliance on teacher, "*a generalized or non-focused response characteristic*" (Ainsworth, 1972, p. 100) that expressed by child's clingy behaviors on teachers (Pianta, 2001).

In addition, researchers examined the association among closeness, conflict, and dependency and found mixed findings regarding to association between closeness and dependency (Gregoriadis & Tsigilis, 2008; Gregoriadis & Grammatikopoulos, 2014; Tsigilis, Gregoriadis & Grammatikopoulos, 2017; Gregoriadis, Grammatikopoulos, Tsigilis & Verschueren, 2020). These Greek studies conducted in early childhood education settings have demonstrated the positive correlations between closeness and dependency. Conflict and closeness have been conversely related, while conflict and dependency either have small positive correlation or strong negative correlation (Gregoriadis et al., 2020; Griggs, Gagnon, Huelsman, Kidder-Ashley, & Ballard, 2009). Solheim, Berg-Nielsen and Wichstrøm (2012) suggest to carefully interpreting the dependency as a positive or a negative construct.

The above findings highlight the cultural influence on the interpretation of teacher-child relationships (Bornstein, 2005). Previous empirical studies conducted in individualistic countries (Bosman, Roorda, van der Veen, & Koomen, 2018; Henricsson & Rydell, 2006), considered the dependency as negative aspect of teacher-child relationships and teachers are encouraged to promote the child's autonomy (Koivula, Gregoriadis, Rautamies & Grammatikopoulos, 2019). However, in collectivistic cultures there are studies that conceptualized dependency as more positive characteristic

especially for young children (i.e., preschoolers and kindergartners) (Garner et al., 2014; Gregoriadis et al., 2020).

1.1 Measuring Young Children's Perceptions

There are a few instruments available for measuring the quality of teacher–child relationship in early childhood education, based on teacher's reports the Teacher Relationship Interview (Stuhlman & Pianta, 2002), the Student–Teacher Relationship Observation Measurement (Glüer & Hannover, 2012), and the Student–Teacher Relationship Scale (Pianta, 2001). The most widely used instrument is the Student–Teacher Relationship Scale (STRS) (Pianta, 2001) (Doumen, Koomen, Buyse, Wouters, & Verschueren, 2009; Glüer & Gregoriadis, 2016; Henricsson & Rydell, 2006). STRS is a 28-item scale based on the adult-child attachment theory that measures teachers' perceptions of their relationships with their students (Pianta & Nimetz, 1991). The STRS consists of three relational subscales, Closeness, Conflict and Dependency (Pianta, 1999).

Apart from studies that examine the teacher's perspective, using the STRS in various countries, recent studies have directed their attention on children's perspectives about relationships with their teachers in order to obtain a complete picture of the teacher–child quality relationship (Doumen et al., 2009; Gregoriadis et al., 2020; Hughes, 2011; Vervoot, Doumen, & Verschueren, 2015). Towards this direction, some studies attempted to develop reliable and valid instruments to assess children's perspectives (Hughes, 2011; Mantzicopoulos & Neuharth-Pritchett, 2003; Spilt, Koomen, & Mantzicopoulos, 2010; Vervoot et al., 2015). Some of these instruments are the Relatedness Scale (Lynch & Cicchetti, 1992), the Young Children's Appraisals of Teacher Support (Y-CATS; Mantzicopoulos & Neuharth-Pritchett, 2003), the Kindergartner–Teacher Interaction Computer test (KLIC; Van Dijk et al., 2006), the Child-Report Student–Teacher Relationship Scale (Child-STRS; Koepke & Harkins, 2008), the Network of Relationships Inventory (NRI; Hughes, 2011) and the Child Appraisal of Relationship with Teacher Scale (CARTS; Vervoort et al., 2015). From these measures, three of them have a common orientation grounded in attachment theory, but at the same time focusing on different key relational dimensions (e.g. dependency versus autonomy) (e.g. Y-CATS; Mantzicopoulos & Neuharth-Pritchett, 2003) or displaying low reliability (e.g. Child-STRS; Koepke & Harkins, 2008).

The CARTS appears to be a promising instrument that is sensitive to three dimensions of teacher–child relationships (Vervoort et al., 2014, 2015). CARTS as a child report instrument tend to be the most psychometrically advanced and valid instrument for the assessment of teacher- child quality relationships. For example, in a recent Greek study, scholars demonstrated the factorial validity and internal consistency of CARTS (e.g. Closeness $\omega = .65$, Conflict $\omega = .91$, Dependency $\omega = .74$) and found a convergence between teachers and children perceptions about their relationships (Gregoriadis et al., 2020). Considering that relationships are dyadic constructs, scholars argue that an understanding of young children's relationship perceptions in schools is needed

(Papadopoulou & Gregoriadis, 2017; Hughes, 2011; Mantzicopoulos & Neuharth-Pritchett, 2003; Split et al., 2010).

1.2 The role of Children's Characteristics with Teacher-Child Relationships

Although the relation among the three dimensions of teacher-child relationship have been documented across several countries (e.g. Greece, Germany, Italy, Norway, Sweden, Turkey, Spain, and USA) the patterns of associations between children's characteristics and teacher-child quality relationships have received limited attention in the literature (Ewing & Taylor, 2009; Hughes, Gleason, & Zhang, 2005).

Previous studies reported mixed findings about the teacher-child relationships and children's age. As children grow up, their emotional proximity to teachers decreases over time, especially when children enter high school (Ang, Chong, Huan, Quek, & Yeo, 2008; Hargreaves, 2000). Empirical research assumed that the quality of the teacher-child relationship decreased during the first years of secondary education (Blankemeyer, Flannery, & Vazsonyi, 2002; Jellesma, Zee, & Koomen, 2015). However, there are findings that seem less clear especially those related to conflict dimension based on teachers' reports (e.g. Jerome, Hamre, & Pianta, 2009).

Furthermore, the gender of the child has an important impact on teacher-child relationship quality. For example, boys are more likely to display conflictual relationships with teachers than girls who experience more supportive relationships (Buyse, Verschueren, & Doumen, 2011; De Wit, Karioja, & Rye, 2010) and girls tend to be more dependent on teachers than boys (Howes, Phillipsen, & Peisner-Feinberg, 2000). In addition, based on the classroom gender socialization, girls are expected to be obedient and quiet while teachers focus their attention to boys (Duffy, Warren, & Walsh, 2001). However, there are studies that did not show significant difference across children's gender (e.g. Gillen, Wright, & Spink, 2011; Hughes, 2011; Mantzicopoulos, 2005).

There is some evidence to show that child's ethnicity influence teachers' perceptions about their relationships (Hamre & Pianta, 2001; Hughes et al., 2005). Likewise, some studies have found associations between ethnic and teacher-child relationships (Ladd, Birch, & Buhs, 1999; Wyrick & Rudasill, 2009), while others have found no associations (Casteel, 2000; Murray, Murray, & Waas, 2008). To date, there are studies that noted a consistent finding regarding teacher-children racial/ethnic match (Gershenson, Hart, Lindsay, & Papageorge, 2017; Yarnell & Bohrnstedt, 2018). For example, teachers have more positive expectations for White students than the undesired ethnic minorities (Ready & Wright, 2011; Tenenbaum & Ruck, 2007). Also, minority children experience less close teacher-child relationships than their non-minority peers (Ladd et al., 1999).

The teacher-child relationships are a co-built dyadic structure and are influenced by the characteristics of both teacher and child (Buyse et al., 2011; Eisenhower, Baker, & Blacher, 2007; Hamre & Pianta, 2001; Hughes et al., 2005). Knowledge on this issue is needed to provide insights on the extent to which children are affected with different way by the quality of the teacher-child relationship (Ewing & Taylor, 2009).

1.3 The current study

The main purpose of this study was to confirm the factor structure of the Dutch version of the Child Appraisal of Relationship with Teacher Scale (CARTS) in Greek context. A second purpose of the present study was to describe the perceptions of young children on the proposed three dimensions in Greek setting, by examining the intercorrelations among Closeness, Conflict and Dependency. Finally, the third purpose of this study was to examine whether child's age, gender, and ethnicity associate and contribute to quality of teacher-child relationships. This study expands previous research on student-teacher relationships by including young children perspectives about their relationships.

2. Material and Methods

2.1 Participants

Participants were recruited using a multistage sampling approach. The sample represents rural and urban areas of Central Macedonia (Thessaloniki, Pella and Chakidiki). The present study was conducted among 366 student-teacher dyads from 36 preschool classrooms.

In total, the sample consisted of 36 teachers of primary education in Greek public and private preschools and their children ($N=366$). Among the children 189 were girls (51.6%) and 177 boys (48.4%). More specifically, 36 kindergarten teachers provided demographic information for children's age and ethnicity. The average age of the children was approximately 5.4 years old ($SD = .49$). Last, the majority of the participating children were from Greece (94%) whereas the 6% were foreign. From each classroom, five girls and five boys were randomly selected to take part in the study. In some cases, when a class had few children, all children were participated to study in order to avoid negative feelings.

2.2. Instruments-Measures

A. Children - reported teacher relationship instrument

Children's perceptions were measured using the Dutch version of Child Appraisal of Relationship with Teacher Scale (CARTS; Vervoort et al., 2015) adapted in the Greek context (Gregoriadis et al., 2020). The CARTS consists of 16 items which capture the three subscales of student-teacher relationships quality, closeness (4 items, e.g., "I like to be with my teacher"), conflict (7 items, e.g., "My teacher often tells me that I don't cooperate in class") and dependency (5 items, e.g., "I like my teacher to be close when performing a task"). The internal consistency of the Dutch version of CARTS in the original study was good (Closeness $\alpha = .80$, Conflict $\alpha = .84$, Dependency $\alpha = .73$) (Vervoort et al., 2015).

The developers of the CARTS instrument suggest to complete the CARTS in two steps. Firstly, the researcher reads to the child a given statement and then, the child confirms or disconfirms it (e.g. item 2 "I often ask my teacher for help. Is that correct for you? Yes or No?"). Secondly, the child points out whether this statement is "always" or "sometimes true". This procedure repeated for each item. The children's responses are

scored on a five-point Likert scale (1 = No, always; 2 = No, sometimes; 3 = Child understands the item, but does not answer with yes or no; 4 = Yes, sometimes; and 5 = Yes, always) (Vervoort et al., 2015).

B. Demographic variables

Children's demographic characteristics were collected from the teachers of school district administration. As children's demographic data included the age, gender, and ethnicity.

2.3 Procedure

The research design and the ethics of this study were approved by the Greek National Educational Policy Institute. The author informed the preschools centers directors and teachers about the study's purpose and procedures and asked for their consent. Furthermore, the parents of the children attending the 36 preschools centers were also informed via an information letter about the study's purpose and they were asked to sign a consent form granting permission for their children's participation in the study. Preschool teachers started the survey by providing demographics characteristics of the preschoolers.

The researcher visited the 36 kindergarten centers and collected data from the randomly selected children. During the school day, the researcher was interviewed individually the selected children in a separate room in a dyadic setting, using the CARTS. Each interview lasted approximately 7-10 minutes. The study took place during the spring of 2018 when the dyadic relationships have already well established (Gregoriadis & Grammatikopoulos, 2014).

2.4 Statistical analysis

In order to examine the factor structure of CARTS in a Greek sample a confirmatory factor analysis (CFA) was conducted. In line with previous studies (e.g. Gregoriadis et al., 2020; Vervoot et al., 2015) a factor structure of three correlated factors model was postulated and tested (closeness, conflict, dependency). *Mplus 8* is used to perform the analysis, using the robust maximum likelihood estimator (MLM; Muthén & Muthén, 1998-2017).

The evaluation of the proposed model model's fit was based on the chi squared (χ^2) statistic, the Comparative Fit Index (CFI), the Root-Mean-Square Error of Approximation (RMSEA) and the Standardized Root Mean Square Residual (SRMR). A non-significant χ^2 contributes to a good model fit. CFI values of .90 to .95 suggest a good model fit. RMSEA and SRMR values of .06 show very good fit, less than .08 fair fit and .08 to .10 a moderate fit (Bentler, 1992; Hu & Bentler, 1999). Also, the internal consistency for three factors was assessed by Cronbach's alpha coefficients.

Next, descriptive statistics were analyzed to assess the perceptions of young children about the teacher-child quality relationships. Mean scores were used to estimate the children's views of their dyadic relationship. Then, the Pearson correlation coefficient (r) was also calculated to explore the associations between demographics variables and dimensions of CARTS. Independent t-tests were used to examine differences between groups of children. Finally, to examine whether child characteristics contributes to the

teacher-child relationships quality, a series of multiple regression analysis were conducted.

3. Results

3.1 Factor structure of CARTS

The first purpose the study was to confirm the three-fold factorial structure of the CARTS in the Greek educational setting. A series of CFA were conducted. Initially, CFA showed that the CFI and SRMR fit indices did not suggest a satisfactory fit to the data ($\chi^2 = 997.57$, $df = 129$, $p < .001$, $CFI = .852$, $RMSEA = .059$, $SRMR = .074$). The item 11 ("I like my teacher to be close when performing a task") which measures dependency was excluded due to the factor loading < 0.3 and the analysis was rerun. New CFA showed an improvement of the model fit ($\chi^2 = 147.51$, $df = 86$, $p < .001$, $CFI = .924$, $RMSEA = .044$, $SRMR = .061$). The first and second factor, Closeness and Dependency, consisted of 4 items, and the third factor Conflict involved 7 items. All factors loadings were statistically significant, ranging from .31 to .79 and the three factors corresponded fully to the dimensions that were previously found for the CARTS (e.g. Gregoriadis et al., 2020).

Table 1: Factor Analysis Results on the Greek Version of the CARTS

Items	Factor 1 Closeness	Factor 2 Dependency	Factor 3 Conflict
Clo_1	.38		
Clo_3	.56		
Clo_13	.31		
Clo_15	.31		
Dep_2		.71	
Dep_4		.54	
Dep_7		.79	
Dep_16		.50	
Con_5			.56
Con_6			.52
Con_8			.61
Con_9			.57
Con_10			.49
Con_12			.61
Con_14			.62

Note: Loadings below .30 are not presented.

3.1.1 Intercorrelations and reliability of CARTS subscales

The correlations among the three subscales were examined with the Pearson (r) coefficient. A statistically significant negative correlation between Conflict and Closeness subscale was found ($r = -.26$, $p < .01$). Also, Closeness and Dependency subscales were positively related ($r = .22$, $p < .01$). Rather unexpectedly, there was a small and statistically significant positive correlation between Dependency and Conflict ($r = .17$, $p < .01$). The

correlations between indicators of student–teacher relationship are statistically significant and in the expected directions (Gregoriadis et al., 2020; Vervoot, et al., 2015). The internal consistency of the subscales was determined with Cronbach’s a coefficients. The Cronbach’s a values were .68 for Closeness, .73 for Dependency and .76 for Conflict. The descriptive statistics of the factors and their inter-factor correlations are presented in Table 2.

Table 2: Descriptive Statistics and Intercorrelation Matrix of the Three CARTS Subscales

	Overall	Correlations		
	M (SD)	1 Closeness	2 Dependency	3 Conflict
1. Closeness	4.29 (.50)	1		
2. Dependency	3.59 (.89)	.22*	1	
3. Conflict	1.56 (.67)	-.26*	.17*	1

Note: * $p < .00$

3.1.2 Warmth, conflictual, dependent relationships and Children characteristics

Descriptive statistics of the means and standard deviations on the CARTS dimensions are available in Table 2. Children were rated an average of 1.56 ($SD = .67$) on the conflict subscale. The average for children rated conflict suggest that children perceived individually low levels of anger, punishment and negative interactions with their teachers. Although, the average closeness scores of 4.29 ($SD = .50$) reflected high quality and is associate with the perceived emotional security and support by teachers (Pianta, 1999), the mean for dependency subscale ($M = 3.59$, $SD = .89$) was in the medium to high. Children who experience more dependent relationships with their teachers lack of autonomy and have difficulties to explore the environment of classroom (Murray & Greenberg, 2000; Spilt, Vervoot & Verschueren, 2017).

To address the third research question regarding associations between teacher-child relationship quality and children demographic characteristics, Pearson correlations were analyzed between closeness, conflict, dependency and children’s age, gender, and ethnicity. Children’s age was negatively associated with children’s report of conflict ($r = -.19$, $p < .05$) and dependency ($r = -.26$, $p < .001$). Children’s gender was associated with closeness ($r = .17$, $p < .05$) and conflict ($r = -.14$, $p < .05$). Children’s ethnicity was only significant related with dependency ($r = .22$, $p < .05$).

Independent t-tests showed significant differences for the children’s gender. The mean score of closeness subscale is higher for girls ($M = 4.36$, $SD = .41$) than for boys ($M = 4.20$, $SD = .57$), contrary, the mean score of conflict subscale is higher for boys ($M = 1.65$, $SD = .68$) than for girls ($M = 1.46$, $SD = .564$). Regarding ethnicity, the foreign children ($M = 4.01$, $SD = .64$) expressed much more dependent behaviors than children from Greece ($M = 3.56$, $SD = .89$). All differences were statistically significant at .05 level.

In the next step of the analysis, multiple regression analysis was run to examine whether children’s age, gender and ethnicity predict teacher-children quality relationships. Separate models were conducted for each factor of CARTS. Children’s age, gender and ethnicity were entered as independent variables in the models. First, a model

predicting the closeness subscale was run, then predicting the conflict subscale and in the end, predicting the dependency subscale. All models that yielded were significant model (Table 3). The results showed that only children's gender ($\beta=.17, p<.05$) predicts the closeness subscale $F(1, 364) = 9.08, p = .003$. Regarding conflict subscale, children's gender and age function as predictors ($\beta = -.13, p<.05$), $F(2, 363) = 6.75, p = .001$. Finally, children's age and ethnicity ($\beta = .11, p<.05$), predict the dependency subscale $F(2, 363) = 15.49, p = .001$.

Table 3: Multiple Regression Analysis

	B	β	t	R ²	F
1. Closeness					
Children's Gender	.16	.17	3.01*	.02	9.08*
2. Dependency					
Children's Age	-.45	-.25	-5.02**		
Children's Ethnicity	-.42	.11	2.08*	.08	15.49**
3. Conflict					
Children's Gender	-.20	-.15	-2.87*		
Children's Age	-.17	-.13	-2.51*	.04	6.75*

Note: **. $p < .01$, * $p < 0.05$.

4. Discussion

The main purpose of this study was to examine the underlying factor structure of the adapted CARTS proposed by Vervoot et al., 2015 in the Greek educational context. Extending the literature on teacher-child relationships, this study analyzed children's perceptions of dyadic relationships quality. At the same time, this study investigated the possible association among children's demographics characteristics and quality of dyadic relationships.

Regarding the factor structure of CARTS, the CFA on the 15 items, postulated to identify the three dimensions of relationship Closeness, Conflict and Dependency and yielded a satisfactory fit. This finding is in agreement with the original study (e.g. Vervoot et al., 2015) and with a prior study in a Greek sample (e.g. Gregoriadis et al., 2020) that attempted to investigate the factorial structure of CARTS. The three - factor structure was confirmed and it provided some evidence regarding the internal consistency. The internal consistency of Closeness and Conflict subscale was lower in comparison to the Belgian study (.80 and .84 in general education, respectively) and was similar for Dependency subscale (.73). This finding could perhaps be attributed due to the different age of the sample group of children. In this study, the participating children were younger than the Belgian sample (mean age 8.15 for general education). Although closeness and dependency subscale have four items, the factor loadings of closeness subscale were lower. It could be that young children have difficulty to separate the two constructs, thus the consistency of closeness influenced in this way (Gregoriadis et al., 2020).

CARTS subscales means indicate that overall children describe their relationships with their teachers as warm, supportive, and secure with low levels of conflict and

moderate levels of dependency. Results for closeness and conflict are in agreement with previous studies (e.g., Birch & Ladd, 1997, 1998; Gregoriadis & Grammatikopoulos, 2014; Liu et al., 2018; White, 2016). For example, White (2016) reported a mean value of 32 ($SD = 4.06$) for Closeness, 11.75 ($SD = 4.40$) for Conflict. However, this study showed that dependency subscale was higher in comparison to the Vervoot's et al. study (2015). Young children perceived their relationships with a dependent way, a finding that has been reported for the first time in young children perceptions. Additionally, this finding is repeatedly noted in the prior studies based on preschool teachers' perspectives (Gregoriadis & Grammatikopoulos, 2014; Gregoriadis & Tsigilis, 2008; Tsigilis, Gregoriadis, Grammatikopoulos, & Zachopoulou, 2018) and scholars have suggested that there is a cultural influence in the way relationships are interpreted in different contexts.

The associations among the three factors of CARTS supported further the cultural influences of countries. Intercorrelations showed a similar pattern of associations of the three dimensions. For example, in the original Vervoot's et al. study (2015), as well as, in Gregoriadis's study (2020), Dependency related positively with Closeness and Conflict, whereas in other research reported on teacher's perceptions dependency showed mixed findings (Gregoriadis & Tsigilis, 2008; Hamre & Pianta, 2001). To date, many studies regarding teacher-child relationships have noted a variety of findings regarding psychometric properties of the dependency subscale. For, example Rydell, Bohlin and Thorell (2005) ruled out the dependency subscale from their study. Hamre and Pianta (2001) supported that both dependency and conflict were general negative feature of dyadic relationships. Contrary, in a series of Greek studies dependency perceived as a positive feature of relationship (Gregoriadis & Tsigilis, 2008; Gregoriadis & Grammatikopoulos, 2014). Taken together, it is suggested further research to increase our knowledge of the social - cultural influences in the development of relationships, especially for dependency subscale.

Finally, from an educational perspective it is important to consider the factors that influence the development of secure relationships in the classrooms. Children's age showed a negative association with conflict and dependency subscale. A variety of interpretations can be offered regarding this finding. The dyadic relationships could change when children grow up because they gain more experiences from school (Zhang, 2011). Teachers' expectations could contribute to this change, such as the promotion of autonomy behaviors or the social approval by peers (Koomen, Verschueren, van Schooten, Jak, & Pianta, 2012). Moreover, dependency did not associate with immature behaviors across middle childhood. Previous studies showed that the behaviors of overly dependent children were perceived more as anxious (Hughes, Bullock, & Coplan, 2014; Neuhaus, McCormick, & O'Connor, 2020).

According to children's gender, slightly differences in the children's interactions with their teachers were found. In this study, girls perceived more supportive and less conflictual relationships from boys. Previous studies have reported effects of gender on teacher-child relationships (Ewing & Taylor, 2009; Glüer & Gregoriadis, 2014;

Gregoriadis & Tsigilis, 2008; Hamre & Pianta, 2001). Regarding teacher–child relationship dependency, this study did not identify any significant gender differences.

Apart from the age and gender effects, an interesting finding of this study had to do with the association between dependency and children's ethnicity. Results indicated that Greek young children reported lower scores of dependency in their interactions with teachers in contrast with foreign children showed. This finding is reported at first time in Greek educational setting. Previous studies have found associations only for closeness and conflict dimension of teacher-child relationships (e.g. Ladd et al., 1999; Papadopoulou & Gregoriadis, 2017) or indicated no relation with children's ethnicity (e.g. Ewing and Taylor, 2009; Murray et al., 2008). Higher levels of Closeness were reported in Papadopoulou and Gregoriadis (2017) study, by Greek children compared to Roma children, who consisted one of the minorities. In the Conflict dimension it seems that children from Greece present lower scores rather than Roma children. A possible explanation would be that foreign children perceive their relationship with their teacher as more dependent because they possible feel anxious away from them and they may have difficulties to engage in classroom activities.

5. Strengths and limitations

The study provides strong support that CARTS is an important instrument to assess children's perceptions of their relationships with teachers. Results support the use of CARTS as an appropriate way to capture information of the three dimensions of teacher-children quality relationships. The group of foreign children is strength of this study, as these minorities children are generally underrepresented in research. At the same time, the sample of young children is characterized as strength and limit of this study. As strength is that it encompasses a large sample of young children and as limit that it refers to a small number of foreign children.

The results of this study need to be interpreted with regards of several limitations. An important limitation refers to the cross-sectional nature of the study. The results of the present study are promising; hence author is careful, when interpreting the findings. Secondly, the assessment of relationship quality was performed only by children's perspectives. Third, this study only investigated child's age, gender and ethnicity as influencing factors on teacher-child quality relationships. However, the interplay both teacher and classroom factors may have a role (Pianta, Hamre, & Stuhlman, 2003).

6. Implications for policy and practice

The present study provides some initial evidence regarding on the validity and reliability in the Greek educational context and suggests scholars to apply this measure to other countries. The cross-cultural validity of CARTS should offer to research community the opportunity to examine with a holistic way the quality of teacher–child relationships. A future study that will include a larger sample of foreign children from different areas of

the country could contribute to a detailed examination of the teacher-child quality relationships.

Moreover, other teachers' and children's characteristics should include it in the future research such as teachers' social self-efficacy or children with special educational needs. Only by addressing different factors that influence dyadic relationships can policy practitioners to prepare teachers to understand their children and to create positive classroom environments. Also, school psychologists and other practitioners may use the CARTS to guide the teacher and child consultation (Vervoot et al., 2015).

In the end, interventions to improve quality of teacher-child relationships and to promote positive behaviors are needed. Programs such as "Building School-Wide Inclusive, Positive and Equitable Learning Environments through a Systems-Change Approach" (SWPBS) have been found to reduce student's problem behaviors and lead to positive behaviors (Lewis, Jones, Horner, & Sugai, 2010).

7. Conclusion

Investigating child's perceptions of teacher-child relationships, this study revealed that young children experience supportive relationships to their teachers in the Greek educational context. Parallel, dependency on teachers is a common feature of relationships in Greek setting. This finding, also, was reflected in teachers' reports of dyadic relationships. With regard to children's demographic characteristics three important findings emerged: the negative association between children's age subscales of conflict and dependency, the relation between children's gender and subscales of closeness and conflict and, third the positive correlation among children's ethnicity and dependency. Together, these findings highlight the importance of including factor such as demographics when researchers assessing the teacher-child quality relationships. Finally, a deeper understanding of children's perceptions about relationships with their teachers could obtain with future research in different countries.

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Notes on Contributor

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Anastasia Vatou
KINDERGARTEN STUDENTS' UNDERSTANDING OF
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