Toward a Comprehensive Assessment of Relationships with Teachers and Parents for Youth with Intellectual Disabilities

Céleste Dubé

A Thesis in the Department of Psychology

Presented in Partial Fulfillment of the Requirements For the Master of Arts (Psychology) at Concordia University, Montreal, Quebec, Canada

June 2020

CONCORDIA UNIVERSITY

School of Graduate Studies

This is to certify that the thesis prepared

By: Céleste Dubé

Entitled: Toward a Comprehensive Assessment of Relationships with Teachers and Parents for Youth with Intellectual Disabilities

and submitted in partial fulfillment of the requirements for the degree of

Master of Arts (Psychology – Research Option)

complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Signed by the final examining committee:

_____ Chair

Dr. Andreas Arvanitogiannis

_____ Examiner

Dr. Jean-Philippe Gouin

_____ Examiner

Dr. Mark Ellenbogen

_____ Supervisor

Dr. Alexandre J.S. Morin

Approved by _____
Dr. Aaron Johnson
Chair of Department

_____
Dr. André G. Roy
Dean of Faculty of Arts & Science

Date _____

Abstract

Toward a Comprehensive Assessment of Relationships with Teachers and Parents for Youth with Intellectual Disabilities

Céleste Dubé

Youth with intellectual disabilities (ID) are known to present a higher risk for a variety of psychosocial adjustment difficulties. Furthermore, whereas these youth tend to depend on adult caregivers to a greater extent than their typically developing peers, thus making them more likely to potentially benefit from positive relationships with them. Unfortunately, these relationships are all but neglected in research focusing on youth with ID, due to the difficulty of achieving reliable and valid self-report measures with this population, and the limits of informant report in accurately capturing their own perceptions. The goal of the present study was to develop and validate a comprehensive multi-informant (youth, parents, and teachers) measure of relationship quality with parents and teachers specifically developed for your with ID. To do so, this study relies on a sample of Australian (N=253, 67.20% males) and Canadian (N=142, 49.30% males) adolescents with ID (M_{age} = 15.82). Our results support the reliability, factor validity, discriminant validity (in relation to sex, ID level, country, and comorbidity), convergent validity (with measures of anxiety, depression, externalizing behaviors, and prosocial behaviors reported by youth, their parents, and their teachers), and test-retest stability of this comprehensive measure of relational warm and conflict. The results further support the idea that youth self-reports provide a distinct perspective on relationship quality relative to parents' or teachers' reports, and demonstrate that parents and teachers themselves are unable to differentiate their own perspective on these relationships from that of the target youth. Furthermore, the results also suggest a risk of differential item functioning related to teachers' report of relational warmth in relation to youth with ID presenting comorbid conditions. This measure is likely to help fill an important gap in the literature on relationship quality for youth with ID, and to allow for a much improved assessment process among this population.

Acknowledgements

I would like to recognize the invaluable assistance provided by a select few during my thesis. Most importantly, I am extremely grateful to Dr. Alexandre Morin for his guidance and support, which was instrumental to the completion of my work. Both his mentoring and research skills aided me immensely and allowed for much personal and academic growth. I also greatly appreciate the help of all members of the Substansive Methodological Synergy Lab. Among these lab members, I am indebted to Elisabeth Olivier especially, for her extremely helpful feedback. From her and Dr. Morin, I was able to develop my academic writing skills and learnt many analytical techniques necessary for this research project. I also want to thank Dr. Christophe Maïano, Dr. Danielle Tracey and Dr. Rhonda G. Craven for allowing me to work with this incredibly rich data set. To conclude, I cannot forget to thank my family and friends for all the unconditional love and support during these last two intense academic years.

Contribution of Authors

This thesis was written and prepared by Céleste Dubé, who benefitted from the supervision and support of her supervisor (Dr. Alexandre J.S. Morin) and one additional member of the Substantive-Methodological Synergy Research Laboratory (postdoctoral fellow Elizabeth Olivier) who both provided feedback on various versions of this dissertation and mentoring for the analyses. Dr. Christophe Maïano (Université du Québec en Outaouais), Dr. Danielle Tracey (Western Sydney University) and Dr. Rhonda G. Craven (Australian Catholic University) also contributed significantly by giving us access to this rich data set, that was years in the making, allowing for research on a largely neglected population. Although the dissertation itself can be considered to be the sole work of Céleste Dubé, the contributions of these additional individuals will also be requested for the conversion of this thesis into a research article, and acknowledged in the authorship list of this article.

Table of Contents

In 2015, the worldwide prevalence of mental illnesses in youth was reported to have reached 13.4% (Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015). More specifically, anxiety disorders were estimated to affect 6.5% of youth, depressive disorders 2.6% of them, and externalizing disorders (attention-deficit hyperactivity and disruptive disorders) 9.1% of them at any specific point in time (Polanczyk et al., 2015). More concerning is that prevalence estimates for these adjustment difficulties tend to be even higher among youth with intellectual disabilities (ID) (Einfeld, Ellis, & Emerson, 2011; Maïano et al., 2018; Tipton-Fisler Rodriguez, Zeedyk, & Blacher, 2018), a population already known to be at higher risk for mental and physical health difficulties (Hughes-McCormack, Rydzewska, Henderson, MacIntyre, Rintoul, & Cooper, 2018).

An intellectual disability is defined as an impairment in general mental abilities of varying severity that impacts adaptive functioning in one or more out of three domains: conceptual, social and practical (American Psychiatric Association [APA], 2013). As a result of their limited cognitive abilities and social skills (Craven, Morin, Tracey, Parker, & Zhong, 2015; Schmückle, Schmolz, & Lindert, 2017) youth with ID tend to display lower levels of autonomy and greater levels of dependence on adult caregivers relative to typically developing (TD) youth. This more limited level of autonomy places youth with ID at a disadvantage relative to their TD peers in their ability to negotiate with success the core developmental tasks of adolescence, with include the emergence of greater independence and autonomy from their caregivers and of stronger connections with their peers. Youth with ID also tend to have fewer friends than TD youth, and fewer opportunities to engage in fruitful social exchanges with same age peers (Hudson, 2003; Solish, Perry, & Minnes, 2010), which may contribute to their higher risk of psychosocial adjustment difficulties.

Importantly, their more limited levels of autonomy also mean that their ability to maintain

quality relationships with adult caregivers becomes critically important for youth with ID. High quality social relationships are characterized by feelings of warmth, relatedness, connectedness, and support, as well as by low levels of conflicts and disagreements (Birch & Ladd, 1997; Pianta, 1999). Unfortunately, despite their higher documented risks for psychosocial adjustment difficulties, there is a scarcity of research addressing the drivers of psychosocial adjustment among youth with ID, particularly those involving their social relationships with parents and teachers. This shortage of research is partly due to the difficulty in measuring internal states, such as youth perceptions of relationship quality, among this population.

In research conducted among populations with ID, self-reports are often excluded due to participants more limited cognitive skills (Turk, Khattran, Kerry, Corney, & Painter, 2012), leading to questions about their ability to reliably and validly report on their internal states using self-report questionnaires. Importantly, although limited cognitive skills do not preclude the reliance on self-report instruments, such instruments require substantial adaption efforts to adequately capture internal states among this population (e.g., Maïano, Bégarie, Morin, & Ninot, 2009), and few self-report measures scales adapted to this population have ever been systematically validated (Stringer & Heath, 2008). As result, the majority of the research literature for this population relies on parent or teacher reports which, although informative, remain unable to adequately reflect youth's unique perspective regarding their relationships with these core caregivers (Bear, Minke, & Manning, 2002; Turk et al., 2012). For example, whereas teachers tend to assume that global feelings of self-worth will be lower among youth with ID relative to their TD peers, research relying on valid self-report measures often fails to support this expected difference (Bear et al., 2002). These observations highlight the need for the development of proper, and comparable, measurement instruments to assess relationship quality among this population

from a variety of perspectives (i.e., self versus informant reports).

To address this limitation, the present study proposes a short version of a scale initially developed by Pianta and Steinberg's (1992) to assess teacher-student relationships among TD youth which has been extended to also cover parent-child relationships, and adapted to be applicable to populations with ID. Following from Pianta and Steinberg's (1992) original measure, this adapted questionnaire assesses the separate dimensions of warmth and conflict which characterize children's teacher-student relationships and parent-child relationships as reported by the children themselves, but also by their parents and teachers. In particular, parents and teachers reports were extended to cover two different perspectives: (a) their own feelings directed at the target youth; (b) their perceptions of the target youth feelings toward them.

The present study seeks to verify the psychometric properties of this new suite of questionnaires using a sample comprised of English-speaking Australian (n = 253) and French-speaking Canadian (n =142) adolescents with ID. The participants' teachers and parents were asked to complete the same measures (teacher-student relationship or parent-child relationship scales) focusing on their perceptions of their relationships with the target student/children.

Parent-Child and Teacher-Student Relationships from an Ecological Developmental Perspective

The ecological model of human development describes development as unfolding across a series of reciprocal interactions between individual and environmental factors (Bronfenbrenner & Morris, 1998). According to this model, environmental factors form a series of nested systems of increasing complexity, at the center of which the individual is located, with his or her own biopsychological characteristics. The next level is occupied by the Microsystem, which includes the environments with which the individual shares his or her closest interactions, such as the

immediate family (including parents) and the classroom (including teachers). Because of its close proximity to the individual, the Microsystem is expected to exert the strongest impact on development via a series of transactions involving the developing individual, himself or herself expected to play an active role in this process. Other environmental layers, such as the Mesosystem (represents all interactions between a person's microsystems) and the Macrosystem (represents the broader social context) are expected to play more indirect roles, occurring mainly via their impact on the Microsystem. According to the ecological model, transactions occurring between developing individuals and their immediate environment (i.e. the Microsystem), which encompasses teachers and parents, are thus expected to play a key role in shaping youth development (Bronfenbrenner & Morris, 1998). We now turn our attention to the two core components of the Microsystem formed by parent-child and teacher-student relationships.

Parent-Child Relationships

The Attachment Bond between Parents and Children

Attachment theory (Bowlby, 2005) describes humans as equipped with a behavioural attachment system from birth. This evolutionary derived system drives infants to seek proximity and care from adults when faced with a threat, which in turn increases their chances of survival (Bowlby, 2005). A complementary attachment system in the caregiver activates in response to the child's activation system in an effort to re-establish a sense of security in the child. This second system is referred to as the parents' caregiving system and works to instill security in the child by providing empathic and responsive care (Bowlby, 2005). Following a series of early interactions, an attachment bond between the infant and the primary caregiver is created in the form of a "relatively long enduring tie in which the partner is important as a unique individual and is interchangeable with none other" (Ainsworth, 1989, p. 711). This parent-child attachment bond

becomes a characteristic of the dyad, specific neither to the child nor to the parent, but to their reciprocal interactions (Ainsworth, 1989).

The earliest interactions between the infant and the parent are often instinctive in nature. However, as children grow, their cognitive skills also develop, allowing them to internalize their expectations regarding their interactions with their parents. These beliefs on how their behavior triggers responses from their parents are referred to as internal working models (Shemmings, 2006). Attachment styles also differ in quality depending on these early interactions between the infant and the caregiver. Early research by Ainsworth and Bell (1969) led to the identification of qualitatively distinct styles of attachment. A secure attachment is formed when parents are sensitive, warm, and consistently available to their children (McElwain & Booth-LaForce, 2006). Securely attached children feel that they can trust their parents to adequately respond to their needs. Securely attached infants are able to use their parent as a secure base from which to explore their environment (Ainsworth & Bell, 1969). In contrast, more insecure attachment styles emerge from the repeated exposure to conflict and unreliable caregiver behaviors (Davies & Sturge-Apple, 2014). Insecure attachments may thus develop when caregivers are less able to offer consistent and sensitive responses to their children, who then have to adapt their care-seeking strategies to that less reliable environment (Gerhardt, 2006). Insecurely attached children thus struggle to develop a trusting relationship with their parents. Importantly, this secure (i.e., warmth, supportive, responsive) or insecure (i.e., conflictual, unresponsive) attachment bond formed early between parents and their developing infant has been proposed to act as a guide upon which the developing individual will tend to model future relationships (Bowlby, 1973).

Parenting Styles

Once the early attachment bond is established, parenting styles come to play an additional

role in shaping the quality of parent-child relationships that lasts well into adolescence. According to Baumrind (1991), parenting behaviors can be summarized according to the two distinct dimensions of responsiveness and control. Responsiveness encompass behaviors via which parents demonstrate their warmth and acceptance of the child's opinion. In contrast, control encompasses behaviors via which parents set rules and follow through with them. When considering these two dimensions, Baumrind (1991) proposed to differentiate among four distinct parenting styles: (a) Authoritarian: Low responsiveness and high control; (b) Neglectful: Low responsiveness and low control; (c) Indulgent: high responsiveness and low control; and (d) Authoritative: High responsiveness and high control. If we take the example of decision-making, Authoritative parents will guide their adolescent to make their own decision through collaborative discussion. In contrast, Authoritarian parents will try to impose their own decision upon their children. Neglectful parents will not participate in this decision making process, and let children make their own decisions while displaying no responsiveness to the need for help expressed by the children. In contrast, Indulgent parents will also allow their children to make their own decisions, but they will do so while remaining responsive to their children's needs (Alonso-Stuyck, 2019). Children exposed to an Authoritative parenting style are usually prone to developing positive and warm relationships with their parents. In contrast, those whose parents tend to have an Authoritarian style are more likely to share conflictual relationships (Davies & Sturge-Apple, 2014; Luyckx et al., 2011). Interestingly, four decades ago, similar observations led Lewis (1981) to propose parent-child conflict, rather than simply the presence of parental control not backed up with sufficient responsiveness, as the main driver of the documented undesirable consequences of exposure to Authoritarian parents.

Parent-Child Relationship

Thus, early interactions with parents lead to the development of a predominantly secure or insecure attachment style, which influences the development of future interpersonal relationships. Upon the foundations built by this early attachment style, parenting behaviors to which youth are exposed throughout childhood and early adolescence contribute to further shaping the nature of parent-child relationships. Arguably, the quality of these relationships can be assumed to reflect a synthesis of all past, and current, interactions between adolescents and their parents. This relationship itself, in alignment with Lewis (1981) early proposition and current knowledge on the core drivers secure attachment styles and efficient parenting, is often measured along the two dimensions of warmth and conflict. Warmth is defined as positive interactions between youth and their parents that are characterized by positive affect, emotional availability and support, and the ability to meet the others' emotional needs. In contrast, conflict takes the form of unpleasant, hostile, unsupportive, and quarrelsome interactions between youth and their parents, possibly as a result of inconsistently harsh discipline and/or insecure attachment styles (Davies & Sturge-Apple, 2014). As such, a high quality parent-child relationship is one that is characterized by a high level of warmth and a low level conflict, whereas a low quality parent-child relationship is rather characterized by low levels of warmth coupled by high levels of conflict (Birch & Ladd, 1997; Pianta, 1999; Boele, Van der Graaff, De Wied, Van der Valk, Crocetti, & Branje, 2019).

Expanding Attachment Theory to the School Context: Teacher-Student Relationships

Research on parent-child relationships has been extended to the school domain thanks to the seminal work done by Pianta and his colleagues (Pianta, 1999; Pianta & Steinberg, 1992; Pianta, Steinberg, & Rollins, 1995) on teacher-student relationships, also described according to warmth and conflict dimensions. These two dimensions originate from attachment theory and parenting research, whereby warmth is proposed to emerge when students come to see their teacher

as a safe haven, whereas conflict is rather seen to emerge from insecurity stemming from exposure to inconsistent caregiver behaviours. Interestingly, these two dimensions are generally defined in a way that matches the definition of parent-child warmth and conflict. More specifically, warmth is defined as the presence of positive student-teacher interactions characterized by positive affect, open communication, and feelings of mutual acceptance. In contrast, conflict is defined as the presence of arguments, negative emotions, disagreements, and quarrelsome interactions between a student and the teacher. Supporting this proposition, these dimensions were found to demonstrate stability over time, to be relatively independent from age and culture, and to predict changes in student adjustment over time (Pianta et al., 1995).

During adolescence, youth still rely substantially on adults as guides for many decisions and sources of support. In contexts from which parents are absent, other adults can come to play equally important complementary roles. Outside of the family setting, teachers arguably represent key caregiving figures (Verschueren & Koomen, 2012), particularly during adolescence as children normatively start to gain some degree of autonomy from their parents (e.g., Chu, Saucier, & Hafner 2010; Eccles, 1999). In fact, meta-analytic results even suggest that that teacher support may yield greater benefits than support from family and friends in relation to adolescent wellbeing (Chu et al., 2010).

Outside of the family context, research has generally shown that youth naturally tend to display attachment behaviors that match their relationships with their parents (Koomen & Hoeksma 2003), supporting the idea that early attachment styles remain activated in adolescence and able to influence later interpersonal relationships (Shemmings, 2006; Verschueren, & Koomen, 2012). Thus, the nature of youth relationships with their teachers should, to some extent, match the nature of their relationships with their parents. Indeed, some degree of convergence

between youth relationships with their parents and teachers has often been reported (e.g., Ciarrochi, Morin, Sahdra, Litalien, & Parker, 2017; Sabol & Pianta, 2012). However, this similarity is not expected to be perfect, and indeed research has documented well-differentiated patterns of relationships between youth and their teachers, relative to their parents (e.g., Jager, 2011; Scholte, Lieshout, & Aken, 2001). Indeed, the bond between student and teacher is arguably not as strong as the relationship between parent and child, because teacher-student relationships are normally not as long lasting. Teachers are thus considered "ad hoc" attachment figures (Verschueren & Koomen, 2012), more likely to display relationships displaying a pattern that differs from those involving parents, or that differs over time. For this reason, positive teacher-student relationships are likely to serve a particularly important role for otherwise isolated or at risk children (e.g., Baker, 2006; Huber, Sifers, Houlihan, & Youngblom, 2012; Richman, Rosenfeld, & Bowen, 1998).

Parent-child and Teacher-Student Relationships and Youth Psychosocial Adjustment: Theoretical Perspectives

In the present study, we assess the criterion-related validity of our comprehensive multi-informant measure of teacher-student and parent-child relationships in relation to various indicators of psychosocial adjustment. Poor psychological health appears to thrive in the context of poor relationship quality between developing youth and their adult caregivers. Grounded in the ecological model of human development, Cummings, Davies, and Campbell's (2000) developmental psychopathology perspective highlights that youths' adjustment problems tend to fall under three categories: internalizing problems, externalizing problems, and social problems. Both anxiety and depressive symptoms fall under the category of internalizing problems. The former is expressed as fear and worry, while the latter is expressed as negative affect, hopelessness

and feelings of loneliness (Smokowski, Bacallao, Cotter, & Evans, 2015). Externalizing problems encompass all forms of aggressive or hostile behaviors directed toward others (Achenbach & Edelbrock, 1978; Inguglia, Ingoglia, Liga, Coco, & Cricchio, 2015). Finally, prosocial behaviors (i.e., positioned as a lack of social problems) encompass empathetic actions taken to help others (Putnick et al., 2018; Pastorelli et al., 2016). Some examples include being considerate of others feelings or lending a hand when someone needs help. When teacher-student and parent-child relationships are characterized by a low level of warmth and/or by a high level of conflict, adolescents are more likely to experience psychosocial adjustment difficulties, including increases in anxiety, depression, and externalizing behaviors, as well as decreases in prosocial behaviors (Inguglia et al., 2015; Vieno, Nation, Pastore, & Santinello, 2009; Brière, Archambault, & Janosz, 2013; Smokowski et al., 2015; Putnick et al., 2018; Mounts, 2011).

From the perspective of attachment theory, early interactions are assumed to represent a key mechanism by which poor relationship quality come to increase vulnerability to psychosocial difficulties in adolescence. From early attachments, youth learn and develop internal working models of themselves and others (Bowlby, 1973). When early attachment are more secure, youth cognitive representations of themselves tend to be more positive, and characterized by increased confidence in themselves and others (Birch & Ladd, 1997). These learnt beliefs and expectations are then applied to new relationships and are subject to maintenance or reconstruction depending on the quality of these new relationships (Bowlby, 1973). For example, the effects of a secure attachment style are expected to carry over into the school context, so that students with positive parent-child relationships are also likely to benefit from positive teacher-student relationships. Importantly, this internalized emotional security, when integrated into youth internal working models, allows them to be similarly caring and supportive toward others. Thus, students with

established emotional security at home are also more likely to experience emotional security at school, which in turn helps support the development of their social, behavioral, and self-regulatory competencies (Pianta, 1999). Teachers are also likely to be more motivated to invest time in supporting students with whom they share quality relationships (Hamre & Pianta, 2001).

In contrast, poor early interactions between children and their primary caregivers are expected translate into distorted working models of themselves and others among exposed children (Bowlby, 1973). Through selective attention, these youth then come interpret their experiences in ways that are consistent with these distorted mental representations and working models. These distortions could include the perception of hostility or rejection from others where none was intended. As a result, youth with these distortions sometimes display greater anger, resentment, or feelings of disconnection in relation to significant others, and tend to have more difficulty trusting new environments and people. These integrated negative view of others also make them less motivated, and likely, to engage in supportive, caring, or helping behaviors directed at others (Shaver, Mikulincer, & Cassidy, 2019). Furthermore, this disruption of the early relationship between the child and the primary caregiver is also thought to impede the development of moral restraints, thus favoring the emergence of more aggressive behaviors (Steele & Steele, 2014). These behaviors can also develop at school, as children carry over their mental representations of self and others into that context (Rohner, 2004; Weaver, Shaw, Crossan, Dishion, & Wilson, 2015). However, by responding to students' needs and providing them with a safe learning environment, teachers fostering high quality relationships with students displaying more insecure attachments may themselves become alternative positive attachment figures, thus allowing students to activate more positive caregiving systems (Obsuth, Murray, Malti, Sulger, Ribeaud, & Eisner, 2017).

Overall, students sharing positive relationships with their parents and teachers are thus better equipped to cope during stressful events, buffering them against the experience of psychosocial difficulties (e.g., McElwain & Booth-LaForce, 2006). On the contrary, adolescents with insecure attachments are more self-critical, display greater dependency on others (Bowlby, 1980), demonstrate heightened emotional sensitivity (Kerstis, Åslund, & Sonnby, 2018), and more aggressive or hostile behaviors (Steele & Steele, 2014). The lack of adaptive skills to buffer stress combined with negative representations of themselves and others may contribute to the increased vulnerability for depression and anxiety often reported in youth with poor relationships, and increase their tendency to rely on aggression, rather than prosocial behaviors, to handle stressful situations (Rohner, 2004; Davies & Sturge-Apple, 2014). Finally, simply increasing conflict between child and caregiver may be an unspecific stressor which in turn may triggers psychosocial difficulties in youth already predisposed to them (e.g., Adrian & Hammen, 1993; Pinquart, 2017).

Parent-child and Teacher-Student Relationships and Youth Psychosocial Adjustment: Empirical Evidence among Typically Developing Youth

Due to the lack research focusing specifically on the role of parent-child and teacher-student relationships for the psychosocial adjustment of youth with ID, we first turn our attention to empirical evidence stemming from research conducted among samples of TD youth, before turning our attention more specifically to youth with ID.

Internalizing Behaviors

When considering parent-child relationships, the warmth and conflict dimensions were both found to demonstrate strong associations with internalizing symptoms in adolescents (Branje, Hale, Frijns, & Meeus, 2010). More precisely, when parent-child relationships are characterized by high levels of warmth, adolescents tend to report fewer internalizing problems (Inguglia et al.,

2015; Vieno et al., 2009; Ackard, Neumark-Sztainer, Story, & Perry, 2006). Greater parent-child warmth also moderates the relationship between risk factors and internalizing symptoms. For instance, negative life events were found to predict increases in depressive symptoms only among adolescents lacking a warm relationship with their parents (Ge, Natsuaki, Neiderhiser, & Reiss, 2009; Hazel, Oppenheimer, Technow, Young, & Hankin, 2014; Labella & Masten, 2018). On the contrary, greater parent-child conflict tends to be related to higher levels of anxiety and depression in a more systematic manner for exposed children (Brière et al., 2013; Smokowski et al., 2015). A recent meta-analysis on parental warmth and conflict confirms these findings, suggesting that both dimensions equally predicted the development of adolescent depression and anxiety, with medium effect sizes (Yap, Pilkington, Ryan, & Jorm, 2014).

In terms of teacher-student relationships, the warmth and conflict dimensions were both found to contribute to internalizing symptoms in a manner similar to that observed for parent-child relationships. More precisely, warm teacher-student relationships are generally linked to fewer internalizing problems (Averdijk, Eisner, & Ribeaud, 2013; Liu, Li, Chen, & Qu, 2015; Drugli, 2013), whereas conflict tends to predict higher levels of internalizing problems (e.g. Drugli, 2013). When both dimensions are simultaneously considered, teacher-student conflict appear to play a stronger (negative) role than warmth in the prediction of internalizing symptoms (Longobardi, Settanni, Prino, Fabris, & Marengo, 2019), suggesting that the negative consequences of teacher-student conflict may override the benefits of warmth. However, additional studies have shown that warm teacher-student relationships may have a stronger role to play as a buffer against the effects of exposure to other risk factors, such as peer victimization (Huang, Lewis, Cohen, Prewett, & Herman, 2018; Sulkowski & Simmons, 2018).

Externalizing Problems

Parent-child relationships characterized by higher levels of warmth and lower levels of conflict have been found to be associated with lower levels of externalizing behaviors. For instance, parental warmth has been found to share associations with lower levels of externalizing behaviors (Ackard, et al., 2006; Smokowski, et al., 2015), and even to predict lower levels of externalizing behaviors two years later (Eisenberg, Zhou, Spinrad, Valiente, Fabes, & Liew, 2005). Likewise, adolescents sharing conflictual relationships with their parents also tend to display more externalizing behaviors (Ostrov, & Bishop, 2008; Weaver et al., 2015), an association that is maintained longitudinally (Withers, McWey, & Lucier-Greer, 2016). When both dimensions of relationship quality are compared, parent-child conflict seems to play a stronger role in the prediction of externalizing problems (Hoeve, Dubas, Eichelsheim, Van der Laan, Smeenk, & Gerris, 2009). Indeed, a recent meta-analysis found that although parental warmth was associated with decreases in externalizing problems, the size of this effect was minimal compared to the effects of parent-child conflict (Pinquart, 2017). However, tentative evidence suggests that the effects of conflict with one caregiver (e.g. one parent) may fade out among youth exposed to warm relationships with another caregiver (e.g., the other parent: Wang, 2019).

Similar results were found in research focusing on teacher-student relationships. Thus, warmth was found to share negative associations with externalizing behaviors (Liu et al., 2015; Birch & Ladd, 1997), whereas conflict was found to predict higher levels of externalizing behaviors (Drugli, 2013; Murray & Murray, 2004). Similar to what was found when considering parent-child relationships, research on teacher-student relationships also suggested that conflict could be a more potent driver of externalizing behaviors than warmth (Drugli, 2013), a result that is maintained longitudinally (Hamre & Pianta, 2001; Henricsson & Rydell, 2004). In contrast, the benefits of warm teacher-student relationships appear to be more time-limited (Baker, Grant, &

Morlock, 2008).

Prosocial Behaviors

Research on parent-child relationships shows that youth exposed to greater levels of parental warmth tend to display more prosocial behaviors (Putnick et al., 2018; Gryczkowski, Jordan, & Mercer, 2018; Yoo, Feng, & Day, 2013), whereas those exposed to parent-child conflict tend to display fewer prosocial behaviors (Guo & Feng, 2017; Padilla-Walker, Nielson, & Day, 2016). Moreover, this relationship was demonstrated to be bidirectional in relation to parental warmth, so that not only does parental warmth predict increases in prosocial behaviors, increases in prosocial behaviors also predict increasingly warm relationships with parents (Putnick et al., 2018; Pastorelli et al., 2016). However, some researchers found that parent-child conflict was a stronger predictor of prosocial behaviors in adolescents relative to parental warmth, which remains an important predictor of prosocial behaviors even when conflict is simultaneously considered (Padilla-Walker et al., 2016; Putnick et al., 2018).

Results are not as straightforward when teacher-student relationships are considered. Some research has shown that relationship quality (perceived by students and teachers), predict increases in prosocial behaviors among students (Obsuth et al., 2017). In contrast, other research has failed to find an effect of teacher-student relationship quality on prosocial behaviors (Wissink, Deković, Stams, Asscher, Rutten, & Zijlstra, 2014; de Jong, Koomen, Jellesma, & Roorda, 2018). Birch and Ladd (1998) found that warm teacher-student relationships were related to an increase in prosocial behaviors, whereas teacher-student conflict was related to a decrease in these behaviors. However, this effect was only seen in kindergarten and was no longer apparent in first grade.

Parent-Child and Teacher-Student Relationships among Youth with ID

Despite the documented importance of parent-child and teacher-student relationships for TD youth, only limited research has considered these relationships among youth with ID. This lack of attention is worrisome given the fact that youth with ID have been reported to present a higher risk of developing insecure attachment styles with their primary caregivers (Hamadi & Fletcher, 2019; Teague, Newman, Tonge, & Gray, 2018). In fact, ID severity appears to be significantly associated with the risk of developing an insecure attachment (Naber et al., 2007; Raaska, Elovainio, Sinkkonen, Matomäki, Mäkipää, & Lapinleimu, 2012). There are several possible explanations for this occurrence. On the one hand, parents may struggle with the challenges posed by having to meet the specific needs of a child with ID (Hamadi & Fletcher, 2019). Indeed, parents of children with ID have been themselves found to present an increased risk for mental illness, which may also contribute to the emergence of poorer relationships with their children (Olsson & Hwang, 2008; Seltzer, Floyd, Song, Greenberg, & Hong, 2011). On the other hand, youth with ID may not always display the normative behaviors that are crucial to the development of a secure attachment, like eye contact and physical responses (Potharst, Schuengel, Last, van Wassenaer, Kok, & Houtzager, 2012). In addition, due to their more limited cognitive abilities, youth with ID might be more prone to display signs of confusion, which are likely to be interpreted as, and to lead to, a more insecure attachment style (Naber et al., 2007). Taken together, these unexpected behaviors, confusing signals, and signs of confusion are likely to increase the burden placed on parents seeking to meet their child's developmental needs, and thus increasing the risk of emergence of a more troubled early relationship.

Even more worrisome is the fact that quality relationships with primary caregivers may be even more critical to youth with ID, who tend to struggle in their ability to meet same development milestones as their TD peers in an autonomous manner. With adolescence comes the first steps

towards independence from caregivers, as youth look to their friends, social groups, and even teachers for guidance and approval (Priestley, 2003). However, for youth with ID, this independence may be more difficult to acquire as their more limited cognitive skills limits their ability to function in a manner that is autonomous from their primary caregivers (Craven et al., 2015; Schmückle et al., 2017). Even in adulthood, dependence on caregivers remains high amongst individuals with ID, as a large proportion of them still live at home and remain financially dependent from their parents (Wells, Sandefur, Hogan, 2003). Youth with ID also appear to struggle socially (Butcher, & Wilton, 2008). Indeed, when compared to their TD peers, youth with ID tend to display poorer social skills, to experience fewer opportunities to engage in prosocial experiences, and have fewer friends (Tipton, Christensen, & Blacher, 2013; Hudson, 2003; Solish et al., 2010). Furthermore, their social relationships are often characterized by less warmth than those involving their TD peers (Tipton et al., 2013).

Unfortunately, as children with ID transition into the school context, their relationship difficulties tend to spread from the parent-child dyad to the teacher-student one. Indeed, when compared to their TD peers, students with ID tend to display more problem behaviors in the classroom (McIntyre, Blacher, & Baker, 2006), and to experience relationships with their teachers characterized by less warmth, more frequent conflict, and greater dependency (McIntyre et al., 2006). Moreover, for youth with ID, the quality of teacher-student relationships tends to decrease with time (Blacher, Baker, & Eisenhower, 2009), whereas teacher-student relationships are typically quite stable for TD youth (Pianta et al., 1995). This decreasing tendency seems to be explained, at least in part, by the greater behavioural problems and lower social skills displayed by youth with ID, rather than by any deficit related to their intellectual functioning (Blacher et al., 2009; Eisenhower, Baker, & Blacher, 2007; Caplan, Feldman, Eisenhower, & Blacher , 2016).

Parent-Child and Teacher-Student Relationships: Their Role in Psychosocial Adjustment among Youth with ID

Very little research has be conducted to empirically examine the role of parent-child and teacher-student relationships on the psychosocial adjustment of youth with ID. More specifically, we were able to locate eight studies having empirically assessed the nexus between relationship quality and psychosocial adjustment in this population. Among this limited literature, the accumulated evidence suggests that the link between relationship quality and psychosocial adjustment in youth with ID is similar to that observed among TD youth. When we first turn our attention to parent-child relationships, one study found that externalizing behaviors were more common among children with ID whose parents reported sharing highly conflictual and less warm relationships with their children (Totsika, Hastings, Vagenas, & Emerson, 2014). These associations appeared to be both concurrent and predictive (Totsika et al., 2014, Lancaster, Balling, Hastings, & Lloyd , 2014). Similar associations seem to continue into early adolescence, whereby greater parent-child conflict and less warmth as reported by the parents were found to predict more severe externalizing problems in youth with ID (Schuiringa, van Nieuwenhuijzen, de Castro, & Matthys, 2015). Furthermore, children with ID that had a problematic family background and were insecurely attached to their parents were found to display more severe internalizing and externalizing problems as well as less frequent prosocial behaviors as reported by teachers and parents (Muris & Maas, 2004). Interestingly, this last study (Muris & Maas, 2004) reported very little overlap between parental and teachers' reports of children's attachment styles and behavioral outcomes, reinforcing the need for research to integrate the perspectives of multiple informants.

Two other studies examining the role of parent-child relationships among youth with ID, albeit informative, focus on even more specific subpopulations of youth with ID. Thus, Baker,

Fenning, Howland and Huynh (2019) noted that exposure to that parents perceiving greater conflict in their relationship with their child was linked to higher levels of externalizing problems among youth with autism spectrum disorders. In addition, the role of parent-child conflict in the prediction of youth levels of internalizing behaviors appeared to be substantially reduced among children exposed to warmer relationships with their parents (Baker et al., 2019). Finally, one study found evidence of a link between observational third-party reports of low parental warmth and the development of internalizing symptoms among children with ID whose father suffered from depression (Rodas, Zeedyk, & Baker, 2016).

Two additional studies focused on the role of teacher-student relationships, as reported by the students, in relation to depression. These two studies found that the quality of the teacher-student relationship mediated the association between exposure to victimization and depression. More specifically, higher quality relationships (high warmth and low conflict) with teachers helped to protect youth with ID from the negative effects of online and traditional forms of victimization (Olivier et al., 2020; Wright, 2017).

The Need for Comprehensive Measures of Relationship Quality Adapted to the Reality of Youth with ID

Taken together, these observations highlight the need to allocate increased scientific attention to the quality of the relationship youth with ID share with their adult caregivers, especially during adolescence. Indeed, current results suggest that these critical relationships might be even more important for youth with ID than for their TD peers, but that achieving quality relationships with adult caregivers might prove to be even more challenging among this population. However, few studies have been conducted to systematically investigate the role of these relationships for youth psychosocial adaptation, which could possibly be explained by the

lack of systematic multi-informant measures of relationship quality validated specifically for use among youth with ID.

This limitation can be explained by the many challenges posed by seeking to assess relationship quality among youth with ID. Thus, on the one hand, adaptation of these measures for self-report is complex due to the need to account for the more limited cognitive and verbal skills typically demonstrated by youth with ID, who often fail to correctly grasp the meaning of items created for TD populations (Turk et al., 2012). As a result, there is a lack of validated self-report measures and the majority of the literature for this population relies on parent or teacher reports (Stringer & Heath, 2008; Schuiringa et al., 2015). Of all the research reviewed above on relationship quality in youth with ID, most relied on parent, teacher or third party reports (Totsika et al., 2014; Schuiringa et al., 2015; Baker et al., 2019; Lancaster et al., 2014; Rodas et al., 2016).

On the other hand, parental and teachers' reports make it possible to rely on measures validated among TD populations, but are unable to accurately capture the child's perspective. Indeed, although parents and teachers generally have greater success in understanding traditional questionnaire items, their perspectives differ from that of youth, with or without ID (Bear et al., 2002; Turk et al., 2012; Scott & Havercamp, 2018). Indeed, research has shown that whereas youth self-reports tend to agree with parental reports on indicators of subjective health, they tend to diverge on subjects that involve internal subjective content, like social support (Scott & Havercamp, 2018) and parenting behaviors (Ratelle, Morin, Guay, & Duchesne, 2018). Likewise, when it comes to student-teacher relationships, large differences between perceptions have been observed across youth self-reports and teachers' reports (Hughes, 2011). However, some evidence has also been provided for convergence among samples of TD youth (Prewett, Bergin, & Huang, 2019), albeit this convergence is sometimes limited to the conflict dimension (Li, Hughes, Kwok,

& Hsu, 2012). The presence of more frequent interrater disagreement over the warmth dimension was theorized to be caused by a lack of understanding of each other's feelings and needs (Zee & Koomen, 2017), which is likely to be complicated by the presence a dyad member presenting an ID. Therefore, any differences observed as a function of the informant (youth, parent, or teacher) are likely to reflect different, and complementary, perspectives on the same reality rather than a simple artefact of methodological differences.

Finally, since research on teacher-student and parent-student relationships remains separate in the literature, the measures developed for each also differ, making it impossible to compare results obtain in one area (e.g., parent-child) to results obtain in the other area (e.g., teacher-student). For instance, studies on relationship quality in youth with ID have relied on a variety of different instruments: the Student-Teacher Relationship Scale, the Five Minute Speech Sample, the Parenting Stress Index, the Child and Adolescent Social Support Scale, and the Parent-Child Interaction Rating System (Totsika et al., 2014; Schuiringa et al., 2015; Baker et al., 2019; Lancaster et al., 2014; Rodas et al., 2016; McIntyre et al., 2006; Blacher et al., 2009; Olivier et al., 2019). This diversity makes it hard to integrate results, especially when considering the fact that most of these studies have ignored the child's perspective when assessing these relationships.

The Present Study

The present study seeks to address these limitations by the development and validation of a comprehensive measure allowing for the assessment of relationship quality incorporating youth (parent-child and teacher-student relationships), parents (parent-child relationships), and teacher (teacher-student relationships) reports on the same set of items. For an even more complete coverage, two matching sets of questions were developed to obtain parents and teachers reports of their relationships with the target children from their own perspective, and from the perspective of

the children. Integrating all three perspectives (youth, parent, and teacher) should help researchers to achieve a more complete picture of these relationships and their key role in influencing youth psychosocial development. In terms of measurement, we expect: (a) youth, parents, and teachers to be able to reliably assess the warmth and conflict dimensions of teacher-student and parent-child relationships; (b) parents and teachers reports of their own perspective will match their reports of the youth perspective; (c) each informant rating of warmth and conflict will be sufficiently distinct from one another (with $r < .500$) to provide complementary sources of information.

A second objective of the present study will be to ascertain that the psychometric properties of the resulting instrument will remain essentially unchanged as a function of various youth characteristics (i.e., sex, ID level, country/language and comorbidities). This verification will involve tests of Differential Item Functioning (DIF) seeking to verify whether participants' characteristics affect (i.e., bias) the pattern of response to specific items over and above the effects of these characteristics on the latent constructs being assessed (Wang & Shih, 2010). Consistent with our expectation that the resulting instrument will be generalizable to all youth with ID, we expect items to function in the same manner regardless of youth's sex, ID level, country/language and comorbidities. However, in terms of discriminant validity, we expect to observe mean-level differences on the various latent constructs considered here as a function to these individual characteristics matching differences previously reported in in prior research. In relation to sex, given that adolescent girls tend to be more attuned to social cues (Brown & Gilligan, 1993) may facilitate the development of closer and less conflictual relationships with teachers (Birch & Ladd, 1997; Hajovsky, Mason, & McCune, 2017), we thus expected females to experience less conflictual and warmer relationships with their teachers relative to males. This expectation is

consistent with results reported by Blacher et al. (2009) among a sample of children with ID. However, recent findings fail to detect a sex difference in parent-child relationship quality (Claes, Lacourse, Bouchard & Perucchini, 2003). In accordance with aforementioned results, we also expected youth with more pronounced levels of ID and comorbid conditions to display poorer relationships (i.e., less warmth, more conflict) relative to their peers with less pronounced levels of ID and no comorbid conditions (Blacher et al., 2009; Eisenhower et al., 2007; Totsika et al., 2014). However, no effect of country/language was expected on any of the constructs considered here, consistent with the full equivalence of the linguistic versions of the resulting instrument and of the similarity in the general life and educational conditions of people with ID observed in Canada and Australia.

A third objective of this study was to assess the convergent validity of the proposed instrument via the investigation of associations between relationship quality and youth's psychosocial adjustment (i.e., depression, anxiety, externalizing behaviors, and prosocial behaviors). For all indicators of psychosocial adjustment, just like for all indicators of relationship quality, youth self-reports were considered in combination with teachers and parents reports of the same indicators. On the basis of research results reviewed previously, evidence of convergent validity would come from the observation of associations between relational warmth and lower levels of depression, anxiety and externalizing problems, as well as higher levels of prosocial behaviors (Babore, Trumello, Candelori, Paciello, & Cerniglia, 2016; Boutelle, Eisenberg, Gregory, & Neumark-Sztainer, 2009; Eisenberg et al., 2005; Putnick et al., 2018). Likewise, evidence of convergent validity would come from the observation of associations between relational conflict and higher levels of depression, anxiety, and externalizing problems, as well as lower levels of prosocial behaviors (Ostrov & Bishop, 2008; Weaver et al., 2015; Muris & Maas, 2004). Although the

literature comparing effects of relational warmth and conflict on psychosocial adjustment in adolescence is not in complete agreement, most studies suggest that the negative effects of relational conflict should be stronger than the benefits of relational warmth (Putnick et al., 2018; Longobardi et al., 2019; Hoeve et al., 2009; Baker et al., 2008). Therefore, we expect the relationship between relational conflict and the outcomes to be stronger than the corresponding relationship between relational warmth and the same outcome variables. Furthermore, and despite the relative dearth of studies in which the relative role played by parents and teachers on child adjustment has been considered, given the critical and persistent role played by parents in all spheres of life for youth with ID, we expect parent-child relationships to play a stronger role in children psychosocial adjustment than teacher-student relationships (Verschueren & Koomen, 2012). Finally, and supporting the idea that each informant will provide a unique perspective of the reality under investigation, we expect associations between relationship quality and the outcomes to be stronger when they involve the same rater. For example, self-reports of relationship quality should be more strongly related to self-reports of depression, anxiety and externalizing behaviors than teachers' reports of relationship quality (Turk et al., 2012).

A fourth objective of the present study was to investigate the extent to which the psychometric properties of the proposed instrument would generalize over a period of one year (i.e., measurement invariance; Millsap, 2017) and the test-retest stability of the ratings obtained on this instrument over the same period of time. Since parents rarely get replaced over time, whereas homeroom teachers change annually, we expect indicators of parent-child relationships to demonstrate higher test-retest stability than indicators of teacher-student relationships.

Methods

Participants

The current study analyses data obtained among a sample of 395 students with mild (49.15%) and moderate (50.85%) levels of ID, aged 11–22 years old (M = 15.82, SD = 2.97), and enrolled in secondary schools located in Canada (French speaking, N = 142, 49.30% males) and Australia (English speaking; N = 253, 67.20% males). ID classifications were determined using IQ scores (moderate ID corresponds to an IQ of 35 to 49; mild ID corresponds to an IQ of 50 to 70). Of those participants, 258 (81 in Canada and 177 in Australia) were then retested one year later following the same procedures (61.24% males; 45.49% mild ID; 54.51% Moderate ID). In addition, the parents (the mother, 79.3% of the time) from 179 students (95 in Canada and 84 in Australia) also completed a questionnaire related to the target child (55.06% males; 42.13% mild ID; 57.87% Moderate ID). Likewise, the homeroom teachers (81.9% of whom were females) from 282 students (119 in Canada and 163 in Australia) also completed a questionnaire related to the target student (59.93% males; 45.53% mild ID; 54.47% Moderate ID).

Procedure

In Australia, all participants were recruited within schools who agreed to support this research proposal. In Canada, participants were recruited either via schools agreeing to support this research in a manner similar to that used in Australia, or within Community organizations for youth with disabilities and/or parent of youth with disabilities. No compensation was offered for participation in Australia, whereas Canadian participants were eligible to win one out of 40 gift certificates ($30 CAD) annually. The parents of all participating students actively provided signed informed consent for their own, and their children, participation. For parents of children recruited via participating schools, this consent form was directly sent to the parents by the school, together with an information letter, and the signed consent form was returned directly to the school where it was recuperated by members of the research team. Parents recruited outside

of the participating schools received this material directly from the research team, and returned the signed consent form to the researchers using reply paid envelope.

The consent procedure granted the researchers access to school records, including youth's most recent level of intellectual functioning (only students with an official school-based ID classification were recruited). This information was transmitted to a research team member who was a registered psychologist. The Wechsler (2003) Intelligence Scale for Children – Fourth Edition (WISC-IV) was the IQ test most frequently used by the schools in both countries. However, when the last IQ assessment in the school records was older than four years, a new IQ assessment was conducted by a registered psychologist using the WISC-IV, the Wechsler Adult Intelligence Scale – Fourth Edition (Weschler, 2008), or the Leiter international performance scale-revised (Roid & Miller, 1997), depending on youth age and verbal ability level.

Participating students were met at their schools by members of the research team or trained research assistants (graduate students or trained professional in psychology, education or psychoeducation) who explained, using a structured PowerPoint presentation, the goals and procedures of the study, as well as youth's right not to participate or to withdraw from the study without any consequences. Thus, students were asked to actively and voluntarily consent to the study. The trained research assistants, using sample questions for each questionnaire section, explained how to use the response scales (all involving graphical displays and pictograms). Testing was realized in small groups including up to 8 students with mild level of ID or including 1 or 2 students with moderate levels of ID. A read-aloud assisted procedure was utilized to maximise understanding, and students were encouraged to ask questions. All assistants were already experienced in working with populations with ID and were trained in the proper administration of this study's testing materials. As part of this training, they were

provided with extensive support material, including examples on how to help youth understand questionnaire items without influencing their responses. Sometimes, despite the available support, students remained unable to understand a question. In these instances, students were instructed to select the "do not understand" option. Those responses (1.8% to 7.3%; $M = 4.2\%$) were treated as missing values. For students recruited outside of the participating schools or who had change school over the course of the study, parents were directly contacted by members of the research in order to plan and organize a data collection at a time and location most convenient for them.

Parents of children enrolled in the targeted schools were asked to complete a questionnaire which was sent to them by the school, each year of the study. For parents of students recruited outside of the target schools or who had change school over the course of the study, the research assistant provided the parent with the questionnaire at the time of data collection involving the child. Parents could complete the questionnaire at a time convenient for them, and return either to the schools or the researchers using a reply paid envelope.

Participating schools also agreed to distribute and collect teacher consent forms and questionnaires each year of the study. Teachers were encouraged to complete the questionnaire during the data collection process (questionnaires were then directly recuperated by members of the research team), or at a time more convenient for them (questionnaires were then directly sent to the research team using a reply paid envelope). For students recruited outside of the participating schools or who had change school over the course of the study, the questionnaire was mailed to the teacher at the school frequented by the children at the time of data collection. Teachers returned the completed questionnaire to the research team using a reply paid envelope.

Measures

The measures of depression and anxiety used in the present study were already validated for a population of youth with ID. This was not the case for the measures of teacher-student and parent-student relationships and externalizing behaviors. These measures went through an extensive process of adaptation for self-reports by youth with ID using procedures matching those used to adapt other self-report measures for this population (Maïano et al., 2009, 2011a, 2011b). More precisely, questionnaire items were maximally simplified, item redundancy was kept to a minimum, and response scales were accompanied by graphical depictions to facilitate understanding. This adaptation was realized via a collaborative process including bilingual researchers familiar with this process and population, as well as teachers, psychologists, and psycho-educators all experienced in working with youth with ID. A first version of the adapted measures were pre-tested as part of a first pilot study conducted among youth (13 to 21 years old; n = 8 in Canada and 10 in Australia) with mild to severe ID, their teachers and their parents. This first pilot study was used to contrast different formulations of the questions and response scales, and alternative response format (verbal only, pictorial only, and combination). This initial pilot led to an improved version of the questionnaires (using a combination of graphical and verbal response scales). This improved version was trialed in a second pilot study (n = 6 youth in Canada and 10 in Australia, as well as parents and teachers), to conform the adequacy of the resulting questionnaires and fine-tune the final versions used in the main study.

Teacher-Student and Parent-Child Relationships. Students' reports on the quality of their relationship with their teachers were measured using an adapted version of the short version (Morin, Janosz & Larivée, 2009; Morin, Maïano, Marsh, Nagengast, & Janosz, 2013) of the Teacher-Student Relationship Scale (Pianta & Steinberg, 1992). This specific measure was selected for its simplicity, for the straightforward manner with which the referent of the items

could be modified to refer to the parents, with for the fact that it was already available in French and English. The 13 items included in this scale items were designed to assess students' perception of the quality of their relationship with their teachers in terms of warmth (6 items; "My teacher is nice and friendly to me"; α = .724 in Canada and .843 in Australia) and conflict (7 items "Sometimes, my teacher is unfair with me"; α = .796 in Canada and .862 in Australia). Using the items developed for students' self-reports as the starting point, two matching sets of 13 items were adapted to teachers, one asking them to assess the quality of their relationship with the target student from their own perspective and one asking them to assess the quality of the same relationship from the perspective of the target student: (a) warmth – teacher's report of student's perspective (6 items; "This student shares a warm and friendly relationship with me"; α = .770 in Canada and .777 in Australia); (b) warmth – teacher's report of teacher's perspective (6 items; "I have a warm and friendly relationship with this student"; α = .824 in Canada and .790 in Australia); (c) conflict – teacher's report of student's perspective (7 items "Sometimes, this student feels unfairly treated by me."; α = ..803 in Canada and .786 in Australia); (d) conflict – teacher's report of teacher's perspective (7 items "I sometimes feel unfairly treated by this student"; α = .865 in Canada and .853 in Australia).

Matching sets of 13 items were developed to ask students' to report on the quality of their relationship with their parents (these items were presented in another section of the questionnaire than the previous set of items), as well as to ask the parents to report on the quality of their relationship with the target student, once from the perspective of the target student, and once from the perspective of the parents: (a) warmth – student's self-report (6 items; "I trust my parents"; α = .808 in Canada and .872 in Australia); (b) warmth – parental report of student's perspective (6 items; "My child feels close to me and trusts me"; α = .674 in Canada and .802 in

Australia); (c) warmth – parental report of parents' perspective (6 items; "I feel close to my child and trust him/her."; α = .686 in Canada and .747 in Australia); (d) conflict– student's self-report (7 items "I often ague with my parents"; α = .739 in Canada and .671 in Australia); (e) conflict – parental report of student's perspective (7 items "It takes my child a lot of energy to discuss and negotiate with me"; α = .724 in Canada and .763 in Australia); (f) conflict – parental report of parents' perspective (7 items "I need a lot of energy to discuss and negotiate with my child"; α = .796 in Canada and .828 in Australia).

All self-report items were rated on a five-point scale ranging from "totally disagree" to "totally agree." All informant-reported items were rated on a five-point scale ranging from "strongly disagree" to "strongly agree." These measures are reported in Appendices A to F.

Depression. Manifestations of depression were measured using the Glasgow Depression Scale for People with Intellectual Disabilities (GDSID; Cuthill et al., 2003). Students were asked to indicate, using 21 items, the feelings they had been experiencing over the past week (e.g., "I feel sad or depressed"; α = .875 in Canada and .890 in Australia). These items were rated on a five-point response scale ranging from "Never" to "Always." Teachers (e.g., "Has your student appeared depressed"; α = .791 in Canada and .846 in Australia) and parents (e.g., "Has your child appeared depressed"; α = .742 in Canada and .845 in Australia) were also asked to report on the severity of depressive symptoms manifested by the target students over the past week using the 16 items from informant version of the same questionnaire. These items were rated on a five-point response scale ranging from "Never" to "Very often." In addition, parents and teachers were asked to complete the depressive mood subscale (7 items; e.g., "Please describe the general behaviour of this student/of your child over the last month … Sad"; α = .746 in Canada and .860 in Australia for teachers' reports and α = .805 in Canada and .837 in Australia

for parental reports) of the Anxiety, Depression and Mood Screen (ADAMS; Esbensen et al., 2003) in relation to the target student. These items were rated using a five-point response scale ranging from "Not a problem" to "Major problem."

Anxiety. Manifestations of anxiety experienced over the past week were self-rated by the students using the 27 items (e.g., "I worry a lot"; α = .937 in Canada and .916 in Australia) from the Glasgow Anxiety Scale for People with Intellectual Disabilities (GAS-ID; Mindham & Espie 2003). These items were rated on a four-point scale ranging from "Never" to "Always." Parents and teachers were also asked to rate the severity of the manifestations of anxiety presented by the target student using the general anxiety (7 items; e.g., "Please describe the general behaviour of this student/of your child over the last month … Nervous"; α = .881 in Canada and .882 in Australia for teachers' reports and α = .872 in Canada and .927 in Australia for parental reports) and social avoidance (7 items; e.g., "Please describe the general behaviour of this student/of your child over the last month … Withdraws from other people"; α = .804 in Canada and .860 in Australia for teachers' reports and α = .820 in Canada and .922 in Australia for parental reports) subscales of the ADAMS (Esbensen et al., 2003). These items were rated using a five-point response scale ranging from "Not a problem" to "Major problem."

***Externalizing Behaviors*.** Items taken from the Quebec Longitudinal Study of Child Development (Institut de la Statistique du Québec, 2006, 2008) were used to assess manifestations of externalizing behaviors: (a) student self-reports (5 items; e.g., "Over the past week… You became physically aggressive when teased"; α = .720 in Canada and .843 in Australia); (b) parental reports (8 items; e.g., "During the last month, my child has… scared other children to get what he/she wanted"; α = .862 in Canada and .912 in Australia); (c) teachers' reports (8 items; e.g., "During the last month, this student has… Physically attacked

other students"; α = .885 in Canada and .923 in Australia). All self-reported items were rated on a 6-point response scale ranging from "Never" to "5 times or more". All informant-reported items were rated using a 5-point response scale ranging from "Never" to "Very often".

Prosocial Behaviors. Items from the prosocial subscale of the Strength and Difficulties Questionnaire (SDQ; Goodman, 1997; Goodman et al., 1998) were used to assess prosocial behaviors manifested by the target student: (a) student self-reports (5 items; e.g., "Over the past week… You helped others"; α = .786 in Canada and .781 in Australia); (b) parental reports (8 items; e.g., "During the last month, my child has… often volunteered to help others"; α = .833 in Canada and .868 in Australia); (c) teachers' reports (8 items; e.g., "During the last month, this student has… was kind to other students"; α = .845 in Canada and .900 in Australia). All self-reported items were rated on a 6-point response scale ranging from "Never" to "5 times or more." All informant-reported items were rated using a 5-point response scale ranging from "Never" to "Very often."

Covariates. Students' gender (0 = male; 1 = female), country of residence (0 = Canada; 1 = Australia), and ID level (0 = mild; 1 = moderate) were obtained via official school records. Among participants, 108 (27.3%) had a reported comorbidity (coded 0=none; 1=yes; 54 presented a comorbid autism spectrum disorder, 48 a comorbid genetic syndrome, and 6 both comorbid conditions).

Analyses

Model Estimation

All analyses were conducted using Mplus version 8.3 (Muthén & Muthén, 2019) and the robust weight least square estimator using a mean and variance adjusted (WLSMV) diagonal weight matrix. This estimator is specifically designed to handle ordinal ratings scales following

asymmetric response thresholds, such as those used in the present study (Li, 2016; Finney & DiSefano, 2013), in addition to providing a closer representation of participants underlying response process (e.g., Freund, Tietjens, & Strauss, 2013). All models were estimated using the full information available in the sample, without relying on the suboptimal deletion of participants having responded to only a subset of items or time waves (Enders, 2010), using missing data algorithm implemented in Mplus for WLSMV estimation (Asparouhov & Muthén, 2010). Although these algorithms are slightly less efficient than those implemented for maximum-likelihood-based estimators, they still rely on missing at random assumptions (allowing missing responses to be conditioned on all variables included in the models, including the same variables rated by other informants or reported at the previous time point in longitudinal models; Enders, 2010). In addition, for participants having completed each specific measurement occasion, missing data remained relatively low at the item level (encompassing true missingness and the "do not understand" option described above). More precisely, at Time 1, missing responses ranged from 5.90% to 16.80% (M = 11.38%) for students' reports, from .35% to 4.26% (M = 1.74%) for teachers' reports, and from .56% to 7.26% (M = 2.70%) for parents' reports. At Time 2, missing responses ranged from 7.36% to 13.57% (M = 10.05%) for students' reports, from .68% to 1.37% (M = .85%) for teachers' reports and from 4.5% to 9.1% (M = 6.12%) for teachers' reports.

Alternative Measurement Models

Alternative confirmatory factor analytic (CFA) measurement models were first estimated to identify the optimal measurement structure of the multi-informant relationship questionnaire at Time 1 (the same procedure was later repeated at Time 2). Given the complexity of these models in relation to the sample size, we first conducted this examination separately for the teacher-

student and parent-student relationship components, before merging the two optimal models.

In a first model, separate CFA factors were used to represent each alternative perspective (students' reports, students' perspective rated by the caregiver and caregivers' perspective) of both relationship dimensions (warmth and conflict), resulting in a six-factor model. In a second model, separate CFA factors were used to represent the report of each rater (student reports versus caregiver reports combining the two perspectives reported by the caregiver) of both relationship dimensions (warmth and conflict), resulting in a four-factor model. In a third model, an orthogonal method factor was added to Model 2 to account for the shared variance in the caregiver reported-items reflecting the student's perspective. In relation to the caregivers rated factors, this model corresponded to a correlated trait correlated method minus one (CTCM-1; Eid et al., 2008) model, resulting in the estimation of caregiver's factors anchored into their own perspective of warmth and conflict, and in the estimation of a method factor reflecting the extent to which caregiver's feel that the youth's perspective deviate from their own. In this model, the student's own reports remained modeled via separate factors.

In a fourth model, we relied on a more complete CTCM-1 model, including two main factors reflecting relational warmth and conflict, and two method factors (uncorrelated with the main factors but allowed to correlate between them) to reflect caregivers reports of (1) their own and (2) the child perspective. This model thus resulted in the estimation of two main factors reflecting students' reports of relational warmth and conflict, and of two method factors reflecting deviations in caregivers' report of their, and the student, perspectives relative to these main factors. A final model, similar to Model 4, incorporated a single method factor to reflect caregiver's ratings. The optimal measurement models retained to depict teacher-student and parent-child, relationships were combined into a single model for further analyses. In all of these

models, all factors were only defined by their a priori indicators, and a priori correlated uniquenesses were included to reflect the parallel wording of the items used to assess relational warmth and conflicts across informants and caregivers' perspective (Marsh et al., 2013).

Tests of Differential Item Functioning and Discriminant Validity

To ascertain that the resulting questionnaire was equally suitable for the assessment of relationships involving distinct types of students with ID, tests of differential item functioning (DIF; i.e., measurement bias) were conducted on Time 1 responses using a multiple-indicator multiple cause (MIMIC) approach (e.g., Morin, Marsh, & Nagengast, 2013). More precisely, students' characteristic (gender, country, ID level, and comorbidity) were incorporated to the final measurement model and specified as exogenous predictors. Tests of DIF involved the comparison of three alternative models. The first model (Null) assumes that the predictors are unrelated to the latent factors and to the item responses. The second (Saturated) model freely estimates associations between the predictors and item responses, but not between the predictors and the latent factors. Comparison of these two models reveals whether the predictors have some form of influence on item responses. The third (Invariant) model allows the predictors to influence the latent factors, but not the item responses. This model is thus consistent with an effect of the demographic characteristics on the latent factors as a (i.e., discriminant validity) that do not translate into DIF. The comparison of the Saturated and Invariant models provides a direct test of DIF by revealing: (a) whether the effects of predictors on item responses can be assumed to occur entirely at the level of the latent factors (consistent with an effect of the predictors on the latent factor, providing a test of discriminant validity: This happens when the Invariant model fits the data as well as the Saturated model) or (b) whether they also influence item responses beyond their effects on the latent factors (consistent with DIF: This happens when the Saturated

model fits the data better than the Invariant model). When DIF is identified, alternative solutions of partial invariance can then be explored to locate the specific source of DIF (i.e., revealing the effects of specific predictors on specific item response beyond their effect on the latent factors).

Tests of Convergent Validity

Convergent validity of the relationship measures was assessed at Time 1 by evaluating correlations between the factors estimated as part of the final measurement models with scores obtained on the various measures of youth's psychosocial adjustment considered in this study (i.e., depression, anxiety, externalizing behaviors, and prosocial behaviors).

Longitudinal Measurement Invariance and Test-Retest Stability

After verifying the extent to which the measurement models estimated using Time 1 responses could be replicated at Time 2, the longitudinal measurement invariance of the final models obtained at the two time points was systematically assessed (Millsap, 2011). These tests were conducted in the following sequence (Millsap, 2011; Morin et al., 2011): (a) configural invariance (i.e., the same model, with no added constraint); (b) weak invariance (the invariance of the factor loadings over time); (c) strong invariance (the invariance of the factor loadings and response thresholds over time), (d) strict invariance (the invariance of the factor loadings, response thresholds, and item uniquenesses over time); (e) the invariance of the latent variance and covariances (the invariance of the factor loadings, response thresholds, item uniquenesses, and factor variances and covariances over time); (d) latent means invariance (the invariance of the factor loadings, response thresholds, item uniquenesses, and factor variances, covariances and means over time). Whereas the first four steps specifically test the presence of measurement bias limited to specific measurement parameters, the last two steps simply assess the presence of meaningful types of change occurring at the level of the latent constructs over time. The most

invariant model was then used to obtain estimates of test-retest correlations for each latent factor.

Model Fit Assessment

The chi-square test of model fit presents a known oversensitivity to sample size and minor (substantively unimportant) misspecifications (Marsh, Hau, & Grayson, 2005). For this reason, model fit assessment relied on sample-size independent goodness-of-fit indices (Hu & Bentler, 1999; Yu, 2002): The Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI). Current guidelines (Hu & Bentler, 1999; Marsh, Hau, & Grayson, 2005; Yu, 2002) suggest excellent model fit is reflected in RMSEA values of .06 or lower and CFI/TLI values of .95 or higher, whereas acceptable model fit is reflected in lower than RMSEA values of .08 or lower and CFI/TLI values of .90 or higher. In the comparison of alternative models, such as those used in tests of DIF and measurement invariance, differences of .010 on the TLI and CFI, and of .015 on the RMSEA are taken to reflect meaningful differences (Chen, 2007; Cheung & Rensvold, 2002). In addition, we report omega (ω; McDonald, 1970) coefficient of composite reliability associated with each factors form the standardized parameter estimates of final retained measurement model:

$$\omega = \frac{\left(\sum_{i=1}^{k} \lambda_i\right)^2}{\left(\sum_{i=1}^{k} \lambda_i\right)^2 + \left(\sum_{i=1}^{k} \theta_{ii}\right)}$$

where λ_i are the standardized factor loadings, and θ_{ij} are the standardized uniquenesses.

Results

Time 1 Measurement Models

The goodness-of-fit indices of the alternative CFA measurement models estimated at Time 1 are reported in Table 1. Beginning with teacher-student relationships, Model 1 resulted in an acceptable level of fit to the data (CFI and TLI ≥.90 & RMSEA ≤.08). However, examination of the results associated with this model revealed some very high factor correlations. More

specifically, the correlation between the two teacher-rated conflict factors (i.e., student's perspective and teacher's perspective) was r =.941. Likewise, the correlation between the two teacher-rated warmth factors (i.e., student's perspective and teacher's perspective) was r = .764. These results suggest that teachers did not seem to be able to fully discriminate between their perspective and the students' perspective when completing these two sets of questions. In Model 2, these two perspectives were collapsed. However, Model 2 resulted in a slight decrease in model fit relative to Model 1, suggesting the need to at account for these two perspectives present in the teachers' reports in some manner. This was done in Model 3, where an orthogonal method factor was used to reflect the items on which the teachers were asked to report on the student perspective. This Model (3) resulted in a meaningful increase in model fit relative to Models 1 (ΔCFI and ΔTLI = + .012) and 2 (ΔCFI = + .015 and ΔTLI = + .014).

The next models (4 and 5) collapsed teachers' and students' reports into a single overarching warmth factor and a single overarching conflict factor, while accounting from the different informants and perspectives via the incorporation of a partial (Model 4) or complete (Model 5) set of method factors. These two models failed to achieve a satisfactory level of model fit, suggesting that teachers' and students' reports are too different to be combined into a single estimate of relational warmth or conflict.

Taken together, these results thus appear to support the superiority of Model 3. The parameter estimates from this model are reported in Table 2 (left hand side) and reveal well-defined and reliable, factors reflecting students' reports of relational warmth (λ = .605 to .852; ω = .883) and conflict (λ = .701 to .836; ω = .910), as well as teachers' reports of relational warmth (λ = .370 to .810; ω = .916) and conflict (λ = .663 to .885; ω = .964). This model was thus retained for further stages of analyses.

Turning our attention to the models reflecting parent-child relationships, the results reported in the bottom section of Table 1 appear to converge on similar conclusions than those obtained for teacher-student relationships. More precisely, both Model 1 and 2 failed to achieve an acceptable level of fit to the data according to the TLI. Examination of the results from Model 1 further revealed high factor correlations between the two parent-rated (i.e., child's perspective and parent's perspective) conflict (r =.939) and warmth (r = .837) factors, suggesting the need to collapse these factors, but also to find an alternative way to account for these two perspectives. This was achieved in Model 3, which resulted in an acceptable and superior (ΔCFI = .014; ΔTLI = .014 to .016) fit to the data, in which an orthogonal method factor was incorporated to account for parental reports of the child's perspective. In contrast, both models 4 and 5 (in which all reports or warmth and conflict were combined), failed to achieve a satisfactory level of fit to the data, thus supporting the superiority of Model 3, which was retained for further analyses. The parameters estimates from this model are reported in Table 2 (right hand side) and reveal well-defined and reliable, factors reflecting students' reports of relational warmth (λ = .735 to .868; ω = .912) and conflict (λ = .629 to .810; ω = .888), as well as parental reports of relational warmth (λ = .182 to .954; ω = .895) and conflict (λ = .441 to .953; ω = .942). This model was thus retained for further analyses.

The resulting model, formed by combining Model 3 for teacher-student and parent-child relationships, achieved a satisfactory model fit (reported in the bottom row of Table 1). The parameter estimates from this model are reported in Tables 3 (factor loadings and uniquenesses) and 4 (latent correlations). These results reveal fully comparable, and satisfactory, parameter estimates revealing well-defined and reliable factors reflecting: (a) students' reports of teacher's warmth (λ = .619 to .848; ω = . 885) and conflict (λ = .713 to .841; ω = .909); (b) children's

reports of parental warmth (λ = .731 to .867; ω = .912) and conflict (λ = .653 to .794; ω = .888); (c) teachers' reports of relational warmth (λ = .383 to .806; ω = .917) and conflict (λ = .659 to .885; ω = .964); (d) parental reports of relational warmth (λ = .209 to .959; ω = .895) and conflict (λ = .444 to .991; ω = .943). This model was thus retained for further stages of analyses.

Examination of the latent correlations obtained in this model was also highly informative. These correlations are first consistent with a reasonable degree of differentiation between all factors. Second, these correlations revealed moderate negative correlations between youth's ratings of their relational warmth and conflict with each specific caregiver, although this correlation was markedly lower in relation to their parents (r = -.309) than their teachers (r = -.574), suggestive of more frequent disassociations between warmth and conflict at home than at school. In contrast, teachers seemed to be more able to differentiate between the presence of warmth and conflict in their relationships involving a specific student (r = -.364), relative to parents (r = -.585). It is, however, interesting to note that youth self-reports were consistent with a moderate degree of similarity between their report of relational warmth (r = .509) and conflict (r = .563) that characterized their relationship with their parents and teachers. The remaining correlations were generally consistent with the relative independence of ratings obtained from distinct sources in relation to distinct dimensions of relationship quality ($|r|$ = .011 to .297).

Tests of Differential Item Functioning and Discriminant Validity

The results from the MIMIC models estimated from adding youth's demographic characteristics to the complete model of relationship quality estimated at Time 1 are reported in Table 5. The null effects model resulted in an acceptable fit according to the CFI and TLI (≥.90), and in an excellent fit according to RMSEA the (≤.06). However, the saturated effects model resulted in substantial improvement in fit relative to this null effects model according the CFI

and TLI (ΔCFI = +.018; ΔTLI = +.012), suggesting that the sex, ID level, country and comorbidity have some form of effect on ratings of relationship quality. Furthermore, these effects did not seem to be entirely captured by associations located at the factor level (i.e., discriminant validity), but also seemed to involve some degree of DIF, as indicated by the substantially reduced level of model fit associated with in Invariant model relative to the Saturated model (ΔCFI = -.019). A series of alternative models were then estimated in which the effects of three, out of four, predictors was specified as invariant, while the effects of the remaining predictor were allowed to be saturated (suggestive of DIF). These results revealed that DIF was limited to comorbidity, as releasing invariance constraints in relation to this specific characteristic brought the model fit to a level that was almost identical to that of the Saturated model according to the CFI (ΔCFI = -.003), and even showed an improvement in fit according to the TLI (ΔTLI = +.008).

Parameter estimates from this model, as well as modification indices from the Invariant model, were inspected to locate the specific items involved in this comorbidity-related DIF. This examination revealed that DIF was limited to five items rated by the teachers and reflecting relational warmth from the teacher's perspective (items 1a, 2a, 4a, and 6a) and from the student's perspective (item 3b). A final model was thus estimated in which comorbidity was only allowed to influence ratings on these items over and above its effect on the latent factors. The resulting model was able to achieve a level of fit to the data that was comparable to that of the Saturated model and was retained for interpretation.

The effects of youth characteristics on the latent factors (discriminant validity) and of comorbidity on these five items (i.e., DIF) are reported in Table 6. These results first revealed a lack of statistically significant associations between sex and comorbidity and any of the

relationship factors. Country demonstrated a small positive association with teachers' reports of relational warmth, suggesting that Australian teachers tend to describe their relationships with their students as warmer than Canadian teachers (corresponding to a small increase of .022 on the standardized latent factor). Finally, ID level demonstrated three statistically significant positive associations and two statistically significant negative associations involving specific relationship factors. More precisely, youth with moderate levels of ID displayed higher scores than their peers with mild levels of ID on children's self-reports of relational warmth involving their parents (.409 SD) and teachers' (.686 SD), and teachers' reports of relational warmth (.335 SD). Youth with moderate levels of ID also reported lower levels of parent-child conflict (-.237 SD), and seemed to be exposed to lower levels of teacher-students conflict according to their teachers' reports (-.408 SD), relative to youth with mild level of ID.

In relation to the DIF observed in relation to specific responses, the results showed that teachers' tended to indicate being less likely to share their feelings (item 2a), spend their free time (item 4a), talk about themselves spontaneously (item 6a), and think about (items 1a) students presenting comorbid disorders (i.e., greater warmth) relative to their peers without a comorbid condition. In contrast, they also describe these students as experiencing greater feelings of closeness and trust (item 3b).

Convergent Validity

The correlations between relationship factors from the final complete measurement model at Time 1 and the measures of youth's psychosocial adjustment (i.e., depression, anxiety, externalizing behaviors, and prosocial behaviors) are reported in Table 7. Focusing on the teacher-student relationship first, students' reports of warmth correlated positively with students' reports of prosocial behaviors and negatively with students' reports of physical aggressiveness

and with parental reports of depression (GDSID). No correlation was observed between students' reports of relational warmth with their teacher and teachers' reports of depression (GDSID or ADAMS), anxiety, prosocial behaviors, and physical aggressiveness, or with parental reports of anxiety, prosocial behaviors, physical aggressiveness, and depressive mood (ADAMS).

However, consistent with the idea that students suffering from internalizing difficulties feel more supported by their teachers, students' reports of relational warmth with their teacher correlated positively with their reports of anxiety and depression. Conversely, students' reports of relational conflict with their teacher were positively correlated with students' reports of depression, anxiety, and physical aggressiveness, and with teachers' reports of depression (GDSID) and physical aggressiveness. In contrast, teachers' and students' reports of teacher-student relational conflict were positively correlated with parental reports of general anxiety. Moreover, teachers' reports of relational conflict were positively related to students' reports of prosocial behaviors. No correlations were observed between students' reports of relational conflict with their teacher and students' reports of prosocial behaviors, teachers' reports of anxiety and depressive mood (ADAMS), and parental reports of depression (GDSID and ADAMS), social avoidance, prosocial behaviors, and physical aggressiveness.

When teachers' reports on the same relationships were considered, a similar pattern of associations emerged, but revealing fewer outcome associations involving the warmth dimension than the conflict dimension. Thus, teachers' reports of warmth were negatively associated with students' reports of depression as well as with teachers' and parents' reports of social avoidance, and positively associated with teachers' reports of prosocial behaviors. No associations between teachers' reports of warmth were found in relation to students' reports of anxiety, prosocial behaviors, or physical aggressiveness, teachers' and parents' reports of depression (GDSID and

ADAMS), general anxiety, and physical aggressiveness, and parents' reports of prosocial behaviors. In contrast, teachers' reports of relational conflict were negatively associated with parents' and teachers' reports of prosocial behaviors, and with parents' reports of general anxiety. These reports were also positively associated with youth's self-reports of depression, anxiety, physical aggressiveness, and prosocial behaviors, with teachers' reports of depression (GDSID and ADAMS), general anxiety, social avoidance, and physical aggressiveness, and with parents' reports of physical aggressiveness. No associations were found between teachers' reports of conflict and parental reports of depression (GDSID and ADAMS).

Turning our attention to the parent-student relationship, children's reports of parental warmth were found to be positively associated with children's and parents' reports of prosocial behaviors, but shared no associations with any of the other outcome variables. In contrast, children's reports of relational conflict with their parents were found to be positively associated with their own reports of depression, anxiety, and physical aggressiveness, as well as with teachers' and parents' reports of depression (GDSID), and teachers' reports of physical aggressiveness. Children's reports of relational conflict with their parents also shared a negative association with their parents' reports of general anxiety. No associations were found with prosocial behaviors (as reported by the children, parents, or teachers), with social avoidance or depressed mood (ADAMS) as reported by the parents or teachers, with teachers' reports of general anxiety, and with parents' reports of physical aggressiveness.

Contrasting with children reports, parental reports of relational warmth shared positive associations with parents' and teachers' reports of prosocial behaviors, and negative associations with children's and parents' reports of physical aggressiveness, and with teachers' reports of social avoidance. No association was found between parental reports of relational warmth and

anxiety or depression (GDSID and ADAMS) reported by any of the informants, children's reports of prosocial behaviors, and parental reports of social avoidance and physical aggressiveness. Finally, parental reports of relational conflict shared negative associations with children's self-reports of anxiety and parental reports of prosocial behaviors, as well as positive associations with children's reports of physical aggressiveness, and parental reports of anxiety, depression (GDSID and ADAMS), and physical aggressiveness. No association was found between parental reports of conflict and any of the teacher-reported outcomes, with children's reports of depression and prosocial behaviors, and with parents' reports of social avoidance.

Replicating Results using Time 2 Measurement Models

As a first attempt to evaluate whether the results from the measurement models would be replicated (i.e., generalizability) at Time 2, we first re-estimated the same series of models (reported in Table 1) using Time 2 responses. The model fit indices obtained from these models essentially replicate those obtained at Time 1. More precisely, these results show that, for teacher-student relationships as well as for parent-child relationships, the best fitting model was Model 3, which was consistent with the relatively high correlations obtained in Model 1 between caregiver reports of their own, relative to youth's, perspective on relational warmth (parents r = .665; teachers r = .766) and conflict (parents r = .927; teachers r = .980). Model 3 was thus retained for both types of relationships, and combined into a single model, which also achieved a fully satisfactory level of fit to the data. The parameter estimates from this final combined model are reported in Tables 9 (factor loadings and uniquenesses) and 10 (latent correlations). Parameter estimates from the separate estimation of these models in relation to parent-child and teacher-student relationships can be consulted in Appendix G.

Matching the results obtained at Time 1, these results reveal fully comparable and

satisfactory, parameter estimates revealing well-defined and reliable factors reflecting: (a) students' reports of teacher's warmth (λ = .505 to .946; ω = .871) and conflict (λ = .683 to .830; ω = .901); (b) children's reports of parental warmth (λ = .667 to .930; ω = .918) and conflict (λ = .571 to .794; ω = .881); (c) teachers' reports of relational warmth (λ = .239 to .863; ω = .891) and conflict (λ = .614 to .952; ω = .963); (d) parental reports of relational warmth (λ = .296 to .908; ω = .891) and conflict (λ = .624 to .939; ω = .954).

Examination of the latent correlations obtained in this model are also consistent with a reasonable degree of differentiation between all factors. Supporting Time 1 results, these correlations revealed moderate negative correlations between youth's ratings of their relational warmth and conflict with each caregiver, although this correlation was lower in relation to their parents (r = -.360) than their teachers (r = -.528). These results support the idea that warmth and conflict tend to be more frequently disassociated at home than at school. Also replicating Time 1 results, teachers' ratings revealed a greater degree of differentiation between the presence of warmth and conflict in their relationships with the target student (r = -.434), relative to parents (r = -.725). Furthermore, youth self-reports were once again consistent with a moderate degree of similarity between their report of relational warmth (r = .600) and conflict (r = .480) in their relationship with their parents and teachers. Finally, the remaining correlations were again consistent with the relative independence of ratings obtained from distinct sources in relation to distinct dimensions of relationship quality ($|r|$ = .003 to .434).

Longitudinal Measurement Invariance and Test Retest Correlations

To more explicitly, and quantitatively, assess the extent to which results obtained at Time 2 were able to replicate those obtained at Time 1, we conducted formal tests of measurement invariance on the basis of the final complete model retained at both time points. These tests

provided a way to verify whether observed variations in the size of some coefficients could be explained as random sampling variations, and to ensure that test-retest correlations were calculated on the basis of completely comparable constructs. The results from these tests of measurement invariance are reported in Table 11. The first model in the sequence (configural invariance), demonstrated adequate fit according to the CFI and TLI (≥ .900) and excellent fit according to the RMSEA (≤ .060). Furthermore, none of the subsequent models resulted in a meaningful decrease in model fit (ΔCFI/ΔTLI ≤ .010 and ΔRMSEA ≤ 0.015), thus supporting the complete equivalence of these ratings over a one-year period. The results from this most invariant measurement model are reported in Appendices H and I, and fully match the aforementioned Time 1 and Time 2 results.

One year test-retest correlation estimates taken from this model were moderately high and statistically significant ($p \leq 0.01$) for students' reports of: (a) teacher-student relational warmth ($r = .546$); (b) teacher-student relational conflict ($r = .613$); (c) parent-child relational warmth ($r = .602$); (d) parent-child relational conflict ($r = .590$). When interpreting these correlations, it is important to note that these cannot be considered to provide a pure reflection of test-retest *reliability*, which is typically assesses over a much shorter time period (i.e., 1 week to a month) over which scores are expected to stay unchanged. In contrast, the coefficients estimated here rather reflect test-retest *stability* and thus capture the extent to which these relational ratings can be expected to demonstrate some stability (encompassing both a lack of random measurement error, and a lack of true change). In this regard, it is interesting to note that test-retests correlations were very high (and statistically significant at $p \leq 0.01$) for parental reports of warmth ($r = .795$) and conflict ($r = .873$), but much smaller (yet still statistically significant at $p \leq 0.01$) for teachers' reports of warmth ($r = .433$) and conflict ($r = .320$).

Discussion

Youth with ID are known to present a higher risk for a variety of psychosocial adjustment difficulties (e.g., Einfeld et al., 2011; Maïano et al., 2018; Tipton-Fisler et al. 2018). Furthermore, these youth tend to depend on adult caregivers to a greater extent than their typically developing peers (e.g., Craven et al., 2015; Schmückle et al., 2017), thus making them more likely to potentially benefit from positive relationships with parents and teachers. Unfortunately, these relationships are all but neglected in research focusing on youth with ID, due to the difficulty of achieving reliable and valid self-report measures with this population (e.g., Turk et al., 2012), and the limits of informant report in accurately capturing their own perceptions (e.g., Bear et al., 2002; Turk et al., 2012; Scott & Havercamp, 2018). The present study sought to contribute to fill this gap by proposing and validating a comprehensive multi-informant measure of relational quality, focused on warmth and conflict, specifically designed for youth with ID. In doing so, we used Pianta and Steinberg's (1992) measure of relationship quality, a measure that has already had a lasting impact in research on teacher-student relationships among TD youth (Pianta et al., 1995). The key advantages of this measure, which made it highly relevant to the present study, stem from the availability of a short version validated in English and French, its simplicity, and the ease with which questions could be converted to reflect parent-child relationships.

Our results supported the psychometric properties of comprehensive measure of relational warmth and conflict. More precisely, our results first showed that youth self-reports provided a distinct and complementary perspective on relationship quality relative to parents' or teachers' reports. Importantly, our results also revealed that parents and teachers were not able to reliably differentiate their own perspective on these relationships from that of the target youth, thus reinforcing the need to incorporate youth self-reports as part of this comprehensive measure. Our

results also generally supported the discriminant validity of this measure in relation to youth characteristics (i.e., sex, ID level, country/language and comorbidities). However, these results also revealed the presence of differential item functioning (i.e., measure bias) in relation to teachers' reports of relational warmth for youth with ID presenting comorbid condition, thus suggesting that teacher reports should be used with caution in the presence of comorbid conditions. Third, our results supported the convergent validity of this measure by revealing the presence of well-differentiated relations between all types of reports of relationship quality and indicators of psychosocial adaptions (anxiety, depression, externalizing behaviors, and prosocial behaviors) reported by parents, teachers and youth. Finally, the results demonstrated that the factor structure of the resulting comprehensive suite of questionnaires could be replicated one year later, and demonstrated moderate to high levels of stability for all informants, although stability was smaller for teachers, potentially due to the fact that youth's teachers changed over time.

Multiple-Informants Reveal Complementary Perspectives

A first noteworthy observation was that when parents and teachers were asked to separately report on their own perspective, relative to that of the target youth, regarding the quality of their interpersonal relationships. These two informants were unable to reliably differentiate these two perspectives, which ended up reflected in the same factors. This result supported observation previously made among TD youth, in supporting the need to rely on self-reports in order to achieve a more accurate reflection of youth's own perspective (e.g., Bear et al., 2002; Turk et al., 2012; Scott & Havercamp, 2018). However, this conclusion does not mean that informants' reports are irrelevant, but rather that their values stems from their ability to provide information from the caregiver perspective in a way that complements youth self-reports.

In fact, our final measurement model of relationship quality suggested that each informant was able to reliably assess their relationships along the dimensions of warmth and conflict, and to provide complementary information in this regard. In particular, the moderate negative correlations observed among ratings of warmth and conflict supported that both dimensions are not mutually exclusive, although the presence of one reduces the likelihood of the other. In this regard, the strongest (negative) correlations were observed between ratings of relational warmth and conflict provided by the same informant. However, perhaps even more informative, was the observation that parents seemed to describe their relationship with the target child in a more either warmth or conflictual manner (with correlations close to -.600 at Time 1 and lower than -.700 at Time 2), while youth were able to report on the warmth and conflict dimensions more independently when describing their relationships with their parents (with correlations close to -.300 at Time 1 and 2). In contrast, students' and teachers' reports seem to be able to converge on a similar level of differentiation between ratings of relational warmth and conflict (with correlations close to -.500 across time points). These observations further reinforce the complementary role of youth self-reports relative to informant reports of relationship quality, especially when parent-child relationships are concerned. However, a final noteworthy observation was related to the relatively high correlations (close to -.500 across time points) in youth self-reports regarding the quality of their relationships with their parents and teachers, thus supporting that youth tend to share similar relationships with various adult caregivers (e.g., Ciarrochi et al., 2017; Sabol & Pianta, 2012). However, this last observation also reinforces the value of combining these self-reports with informant reports in order to best capture similarities and differences between the home and school context (e.g., Jager, 2011; Scholte, et al., 2001).

Discriminant Validity and DIF in Relation to Sex, ID level, Country and Comorbidities

Tests of DIF were conducted in order to verify whether responses obtained on the comprehensive measure of relationship quality would remain unaffected by youth characteristics (i.e., sex, ID level, country/language and comorbidities), and were extended to tests of discriminant validity to verify the extent to which these characteristics would impact the quality of youth relationships with their parents and teachers. The results first revealed that all measurement components could be reliably (i.e., with no evidence of DIF) applied to Australian and Canadian boys and girls with mild or moderate levels of ID. Likewise, self-reports of relational warmth and conflict in relation to parents and teachers, parental reports of relational warmth and conflict and teachers' reports of relational conflict seemed to be unaffected by comorbidity. However, once accounting for the effects of comorbidity on teacher's global reports of relational warmth, teachers reported sharing their feelings less, spending less free time, and not thinking as much about students with comorbid conditions. In contrast, they also described students with comorbid disorders as being closer and more trusting of them. Although these observations may reflect the fact that students with comorbid conditions may require more time and energy from the teacher due to their greater level of dependency, they also indicate that teachers' reports of relational warmth should be used with caution with students with ID presenting a comorbid condition. However, despite these observations and our expectations of poorer relationships (e.g., Blacher et al., 2009; Eisenhower et al., 2007; Totsika et al., 2014), it was promising to note that comorbid conditions did not seem to influence global ratings of relationship quality (i.e., scores on the factors themselves) provided by any of the informants.

Surprisingly, our results also revealed no sex differences in relationship quality among the current sample of students. This result contrasts with previous reports suggesting that girls with ID might tend to experience more positive relationships with their teachers (Blacher et al., 2009),

but is consistent with evidence suggesting that parent-child relationships might be unaffected by sex among TD youth (e.g., Claes et al., 2003). When considering this lack of sex difference in terms of teacher-student relationships it is, however, important to consider that Blacher et al.' (2009) results were obtained among a much younger elementary school sample, suggesting that early differences may fade out over time. Alternatively, this lack of sex effects on relationship quality could also be suggestive a lack of sex differences in social skills among youth with ID (Duffy & Fuller, 2000), relative to the generally greater social skills observed among TD girls relative to boys. If this hypothesis was supported, it would suggest that adolescent girls with ID may not share the social advantage over boys that is typically observed among TD girls (Brown & Gilligan, 1993).

Among youth characteristics, the variable found to have the most widespread effects on relationship quality was ID levels. However, the direction of these observed effects was unexpected. More precisely, our results first showed that youth with moderate levels of ID reported sharing warmer relationships with their parents and teachers relative to youth with mild levels of ID, a result which was echoed in teachers' reports. These youth also reported sharing less conflictual relationships with their parents, whereas their teacher also described their relationship as less conflictual. In contrast, past research has suggested that youth with ID tended to share poorer relationships with their caregivers than their TD peers (Blacher et al., 2009; Eisenhower et al., 2007; Totsika et al., 2014). These studies however, compared youth with ID to TD youth, without also examine relationship quality as a function of ID level. Furthermore, whereas these previous studies relied on samples dominated by youth with mild levels of ID, the current sample included a more even distribution of youth with mild and moderate levels of ID. The present results thus suggest that, as a result of their increased level of dependency on caregivers, youth with

moderate levels of ID may come to share a warmer and more affectionate relationship with their primary caregivers. In contrast, parents' perspective on the quality of their relationship quality with their child remained unaffected by ID level, suggesting that parents themselves might be unaware of the increase time and attention involved in caring for a youth with moderate levels of ID. Alternatively, these results also suggest that the normative increase in caregiver conflict that is typically observed during adolescence (Laursen, Coy, & Collins, 1998) may be stunted, or delayed, among youth with moderate levels of ID due to their more limited levels of autonomy.

Finally, our results revealed that Australian teachers tended to describe their relationships with their students as slightly warmer than their Canadian counterpart. Although unexpected, this difference remained very small in magnitude and limited to teachers' reports of relational warmth. For this reason, this result more likely reflects cultural or educational differences aligned with the common weather-based stereotype of Australians being more open, friendly, and outgoing relative to Canadians being more reserved and courteous. Alternatively, this result could also reflect differences related to the educational system and training, which could possibly value relational warmth in the teacher-student relationship to a greater extent in Australia relative to Canada. Clearly, this specific result would deserve replication, and these various possibilities would themselves require further scientific attention.

Convergent Validity: Relationship Quality and Psychosocial Adjustment

Tests of convergent validity revealed multiple associations between the various indicators of relationship quality and youth's psychosocial adjustment. Although the observed pattern of associations proved to be quite complex, it was also very well-differentiated across relationship indicators, and informants, thus providing support for the convergent validity of these ratings. Importantly, these results supported the value of incorporating multiple informants when seeking

to obtain a clearer, and richer, picture of the role played by interpersonal relationships in the psychosocial adjustments of youth with ID. However, despite the complexity of these results, four core conclusions seem to emerge from the observed patterns of associations.

First, informant reports of the outcome variables were most strongly related to their own perceptions of relationship quality. For example, teachers' reports of all outcome variables were significantly related to teachers' ratings of relational conflict. In contrast, only three (out of six) of the teacher-reported outcomes were significantly related to students' reports of teacher-student relational conflict. This is consistent with previous work which has also tended to demonstrate that each informant provides a specific or unique perspective of the reality under study (e.g., Turk et al., 2012). This unique perspective is likely to be anchored in their ability to observe what happens in a specific life context (the classroom for teachers and the home environment for parents), thus helping to improve predictions specific to that life context. Additionally, since self-report measures tend to better reflect psychosocial adaptation difficulties in adolescence, relative to parental or teachers' reports (DiBartolo & Grills, 2006), it was particularly interesting to note that students' reports of relationship quality better predicted their self-reports of the outcome variables. This last result clearly highlights the value of incorporating self-report measures when studying relationship quality among youth with ID.

Second, in line with previous findings, our results revealed that relational conflict was generally more strongly related than relational warmth to reports of internalizing (e.g., Longobardi et al., 2019; Baker et al., 2008) and externalizing problems (e.g., Hamre & Pianta, 2001; Henricsson & Rydell, 2004; Hoeve et al., 2009; Pinquart, 2017; Drugli, 2013). For instance, associations between same-rater reports of conflict and psychosocial adjustment difficulties were consistently stronger than same-rater associations between relational warmth

and psychosocial adjustment difficulties. In other words, self-reports of relational conflict better predicted depression, anxiety, and externalizing problems as reported by youth, teacher reports of relational conflict better predicted teachers' reports of depression, general anxiety, and externalizing problems, and parental reports of relational conflict better predicted parental reports of depression, anxiety, and externalizing problems. Thus, these results support that relational conflict is more harmful to youth's psychological adjustment than a lack of relational warmth, and highlights once again the fact that these relationships are most apparent when assessed form the same informant perspective. In contrast, reports of prosocial behaviors and social avoidance appeared to be more strongly related to perceptions of relational warmth than to perceptions of relational conflict. This result thus suggests that students sharing high quality relationships with their caregivers might be better equipped with the confidence and trust needed to securely explore their social environments and to engage in helpful behaviors towards others (Birch & Ladd, 1997). These results are highly interesting as they seem to contradict previous findings from research limited to parent-child relationships (Padilla-Walker et al., 2016; Putnick et al., 2018) in suggesting that relational warmth might indeed play a key role in the emergence of socially appropriate behaviors, even though relational conflicts seemed to be a more potent driver of social difficulties.

Third, and as expected (Brière et al., 2013; Smokowski et al., 2015; Drugli, 2013), self-reports of depression and general anxiety were found to be positively associated with self-reports of conflict in the teacher-student and parent-child relationships (as well as with teacher's reports of relational conflict). However, more unexpected in relation to prior research (e.g., Inguglia et al., 2015; Vieno et al., 2009; Babore et al., 2016) was the equally positive association found between self-reports of warmth in the teacher-student relationship and youth's self-reports of depression

and anxiety. It was, however, interesting to note that this association was limited to teacher-student relationships. Keeping in mind that teachers are exposed to many students, this association suggest that reversed causality might be at play whereby teachers could come to provide a greater level of support to youth displaying internalizing behaviors (sadness, stress, withdrawal, etc.). Clearly, future longitudinal research will be needed to better understand the mechanisms underpinning this unexpected association.

Fourth, results related to the prediction of anxiety revealed associations differing greatly across informants. On the one hand, parental reports of relational conflict predicted higher levels of anxiety reported by the parents. Likewise, youth self-reports of conflict with their parents or teachers, as well as teachers' reports of relational conflict, were all associated with higher levels of anxiety as reported by the student. On the other hand, parental reports of relational conflict also predicted lower levels of self-reported anxiety. The first of these results were consistent with our expectations (e.g., Smokowski et al., 2015): Parents who report relational conflict with their children also tend to describe these children as being more anxious. Likewise, exposure to relational conflict, be it self- or other-reported, was found to be associated with higher self-reports of anxiety among children. However, children exposed to parents who describe their relationship as conflictual appear to be less anxious from their own perspective, suggesting that parents may somehow be able to reduce the outward expression and conflict in a way that protects their children against the likely negative consequences of this conflict. More precisely, even though parents may see their relationship with their child as tedious, difficult, or at least demanding, they may generally succeed in not conveying this perception to their offspring. It would be interesting for future studies to verify this interpretation via the incorporation of observational data regarding parent-child interactions. Perhaps more surprising was the fact that youth self-reports of conflict with their

parents or teachers, as well as teachers' reports of relational conflict, were all found to share negative associations with parental reports of children's anxiety. A possible interpretation of this result is that anxious adolescents tend to be more cooperative even after experiencing a provocative interaction with another (McClure-Tone et al., 2011), which could give the parent the impression that they have acted in a less anxious and more proactive, manner after experiencing relational conflict. However, an alternative explanation for these findings would be that parents might have difficulties in providing reliable and valid assessment of their children's levels of anxiety, a possibility that would require further verification in research relying on more objective measures of anxiety (i.e., formal diagnostic interviews).

One-Year Stability

The current study provided replication evidence for the factor structure of the proposed comprehensive multi-informant measure of relationship quality over a one-year period. Indeed, responses obtained one year later by the same youth, their parents, and their teachers were found to match the same factor structure, which proved to be completely invariant over time. These results show that the psychometric properties of the ratings of relationship quality obtained at Time 1 using the newly proposed assessment package were completely equivalent to ratings obtained on the same instrument one year later.

Once the equivalence of the measurement obtained across both time points was established, it became possible to assess the one-year test-retest stability of all constructs measured using this instruments. When turning first our attention to parent-child relationships, youth self-reports of relational warmth and conflict were both found to be equally and moderately stable over the course of a year (with correlations close to .600), whereas parental reports of the same relationships proved to be even more stable (with correlations reaching .800)

(e.g., Barber, Maughan & Olsen, 2005). These results indicate that both types of reports can be expected to remain relatively stable, in accordance with the idea that familial bonds tend to be relatively resilient and stable over time (Laursen & Collins, 2004). However, these results also suggest that children seem to be more perceptive to time-structured fluctuations in the quality of these relationships. These changes might reflect maturation, increases in levels of autonomy, changes in communications, or a combination of these factors. In more practical terms, these results suggest that researchers having to decide whether to maintain the whole assessment package in a longitudinal study could possibly, without losing too much information, decide to eliminate parental reports after the first measurement point, and only bring them back every few years.

Moving to teacher-student relationships, the student perspective again demonstrated moderately high levels of stability (with correlations close to .800). This result may reflect youth's natural tendencies to carrying over their relational working model and expectations from the parent-child relationship to the teacher-student relationship (Bowlby, 1973), but more realistically a tendency to use past experiences with previous teachers as filter via which to consider new relationships. These mechanisms would thus suggest that only marked changes in relationship patterns may result in visible changes in children perceptions. In contrast, and as anticipated, teachers' reports of relationship quality proved to be far less stable over time (with correlations ranging from .300 to .400). This is consistent with the fact that homeroom teachers change annually, and reinforce the value of maintaining teachers' reports over time in the context of longitudinal research, as these might be more sensitive to time-structured fluctuations than students' reports.

Limitations

The results of present study present limitations. First, although we found that our results using a sample of youth with ID were similar to results obtained in studies using samples of TD youth, no comparison sample of TD youth was considered, thus making any claim of generalizability or difference tentative at best. Second, the present study relied on youth from two countries sharing a very similar culture and is thus unable to account for possible cultural differences in relationship quality and in perceptions of what is relationally most desirable. Future work is also clearly needed to verify the generalizability of our findings to more diversified samples of youth with ID, from a greater variety of countries and cultures. Third, while the current study allowed us to verify the extent to which the factor structure could be replicated over a one-year interval, tests of discriminant and convergent validity remained cross-sectional in nature, and thus unable to inform questions related to the directionality of the observed associations. To better understand how relationship quality is predicted by and predicts psychosocial outcomes, future studies should rely on fully longitudinal research designs, which would also make it possible to explicitly consider change, and the shape of change, in variables of interest as it occurs over time.

Conclusion

Youth with ID carry a high-risk of experiencing a variety of psychosocial difficulties (Einfeld et al., 2011; Maïano et al., 2018; Tipton-Fisler et al., 2018). In addition, despite the fact that they are also more likely to benefit from positive relationships with adult caregivers, they also tend to experience poorer relationships with their parents and teachers (Hamadi & Fletcher, 2019; Teague et al., 2018). The ability to develop, maintain, and improve the quality of the relationships that youth with ID share with their primary caregivers thus appears to be a highly valuable avenue for prevention and intervention among this population (Craven et al., 2015; Schmückle et al.,

2017). Unfortunately, very little research is currently available to guide the development of such interventions given the lack of validated measures specifically designed to assess relationship quality among this population. The present study was designed to create and validate a comprehensive multi-informant measure of relationship quality specific to youth with ID.

Our results were very encouraging regarding the ability of this new set of measures to accurately capture relationship quality among boys and girls with mild to moderate levels of ID. Importantly, by being able to rely on a cross-cultural sample of Canadian and Australian youth with ID, the present study was also able to establish the adequacy of a French and English version of this comprehensive measure, showing that it could be confidently used in both languages (with no risk of DIF) to assess relationship quality. This measure proved to be reliable and valid across the various verifications conducted as part of this study, and although the need to replicate the present results remains, this measure can now be confidently used to assess relationship quality among youth with ID. Despite this generic condition, some additional recommendations are in order. First, the results showed that caution is required in relation to use the teacher-reported items assess relational warmth among youth with ID presenting comorbid conditions. Second, longitudinal studies might not need to rely on annual parental reports of relationship quality given the high level of one-year stability of these reports. However, youth self-reports, and more importantly teachers' reports, should be more regularly administered (at least annually) in order to obtain an accurate picture of relationship changes. Third, although not directly related to our key objectives, our results cast doubts on parental ability to reliably assess anxiety among children with ID, suggesting the need to systematically rely on youth self-reports in anxiety research. It is our hope that future research using tools like the one developed here, on relationship quality, will help researchers construct interventions with the goal of protecting youth from psychosocial

adjustment problems.

References

Ackard, D. M., Neumark-Sztainer, D., Story, M., & Perry, C. (2006). Parent–child connectedness and behavioral and emotional health among adolescents. *American journal of preventive medicine*, *30*(1), 59-66.

Adrian, C., & Hammen, C. (1993). Stress exposure and stress generation in children of depressed mothers. *Journal of consulting and clinical psychology*, *61*(2), 354.

Ainsworth, M. S. (1989). Attachments beyond infancy. *American psychologist*, *44*(4), 709.

Ainsworth, M. D. S., & Bell, S. M. (1969). Attachment, exploration, and separation: illustrated by the behavior of one-year-olds in a strange situation.

Alonso-Stuyck, P. (2019). Which parenting style encourages healthy lifestyles in teenage children? Proposal for a model of integrative parenting styles. *International journal of environmental research and public health*, *16*(11), 2057.

American Psychiatric Association (APA). (2013). Diagnostic and Statistical Manual of Mental Disorders (5th ed.). Arlington, VA: American Psychiatric Association.

Asparouhov, T., & Muthén, B. (2010). Weighted least squares estimation with missing data. *Mplus Technical Appendix*, *2010*, 1-10.

Averdijk, M., Eisner, M., & Ribeaud, D. (2013). Do social relationships protect victimized children against internalizing problems? *Journal of School Violence, 13*, 80-99. doi:10.1080/15388220.2013.842175

Babore, A., Trumello, C., Candelori, C., Paciello, M., & Cerniglia, L. (2016). Depressive symptoms, self-esteem and perceived parent–child relationship in early adolescence. *Frontiers in psychology*, *7*, 982

Baker, J. A. (2006). Contributions of teacher-child relationships to positive school adjustment during elementary school. Journal of School Psychology, 44, 211-229.

Baker, J. A., Grant, S., & Morlock, L. (2008). The teacher-student relationship as a developmental context for children with internalizing or externalizing behavior problems. *School Psychology Quarterly, 23*(1), 3-15. doi:10.1037/1045-3830.23.1.3

Baker, J. K., Fenning, R. M., Howland, M. A., & Huynh, D. (2019). Parental criticism and behavior problems in children with autism spectrum disorder. *Autism*, *23*(5), 1249-1261.

Barber, B. K., Maughan, S. L., & Olsen, J. A. (2005). Patterns of parenting across adolescence. *New directions for child and adolescent development*, *2005*(108), 5-16.

Barber, B. K., Olsen, J. E., & Shagle, S. C. (1994). Associations between parental psychological and behavioral control and youth internalized and externalized behaviors. *Child Development*, *65*(4), 1120–1136.

Baumrind, D. (1991). Parenting styles and adolescent development. *The encyclopedia on adolescence*.

Bear, G. G., Minke, K. M., & Manning, M. A. (2002). Self-concept of students with learning disabilities: A meta-analysis. *School Psychology Review*, *31*(3), 405-427.

Berg, K. L., Shiu, C. S., Msall, M. E., & Acharya, K. (2015). Victimization and depression among youth with disabilities in the US child welfare system. *Child: care, health and development*, *41*(6), 989-999.

Brown, L. M., & Gilligan, C. (1993). Meeting at the crossroads: Women's psychology and girls' development. *Feminism & Psychology*, *3*(1), 11-35.

Birch, S. H., & Ladd, G. W. (1997). The teacher-child relationship and children's early school adjustment. *Journal of school psychology*, *35*(1), 61-79.

Birch, S. H., & Ladd, G. W. (1998). Children's interpersonal behaviors and the teacher–child relationship. *Developmental psychology*, *34*(5), 934.

Blacher, J., Baker, B. L., & Eisenhower, A. S. (2009). Student–teacher relationship stability across early school years for children with intellectual disability or typical development. *American journal on intellectual and developmental disabilities*, *114*(5), 322-339.

Boele, S., Van der Graaff, J., De Wied, M., Van der Valk, I. E., Crocetti, E., & Branje, S. (2019). Linking parent–child and peer relationship quality to empathy in adolescence: a multilevel meta-analysis. *Journal of youth and adolescence*, *48*(6), 1033-1055.).

Boutelle, K., Eisenberg, M. E., Gregory, M. L., & Neumark-Sztainer, D. (2009). The reciprocal relationship between parent–child connectedness and adolescent emotional functioning over 5 years. *Journal of Psychosomatic Research*, *66*(4), 309-316.

Bowlby, J. (1973). Attachment and loss: Volume II: Separation, anxiety and anger. In *Attachment and Loss: Volume II: Separation, Anxiety and Anger* (pp. 1-429). London: The Hogarth Press and the Institute of Psycho-Analysis.

Bowlby, J. (1980). Attachment and loss: Vol 3. Loss, sadness, and depression . New York: Basic Books.

Bowlby, J. (2005). *A secure base: Clinical applications of attachment theory* (Vol. 393). Taylor & Francis.

Branje, S. J., Hale, W. W., Frijns, T., & Meeus, W. H. (2010). Longitudinal associations between perceived parent-child relationship quality and depressive symptoms in adolescence. *Journal of abnormal child psychology*, *38*(6), 751-763.

Brière, F. N., Archambault, K., & Janosz, M. (2013). Reciprocal prospective associations between depressive symptoms and perceived relationship with parents in early adolescence. *The*

Canadian Journal of Psychiatry, *58*(3), 169-176.

Bronfenbrenner, U., & Morris, P. A. (1998). The ecology of developmental processes. In W. Damon & R.M. Lerner (Eds.), *Handbook of Child Psychology* (5th ed., Vol. 1 Theoretical models of human development). New York, NY: Wiley.

Butcher, S., & Wilton, R. (2008). Stuck in transition? Exploring the spaces of employment training for youth with intellectual disability. *Geoforum*, *39*(2), 1079-1092.

Calafat, A., García, F., Juan, M., Becoña, E., & Fernández-Hermida, J. R. (2014). Which parenting style is more protective against adolescent substance use? Evidence within the European context. *Drug and alcohol dependence*, *138*, 185-192.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological bulletin*, *56*(2), 81.

Caplan, B., Feldman, M., Eisenhower, A., & Blacher, J. (2016). Student–teacher relationships for young children with autism spectrum disorder: Risk and protective factors. *Journal of autism and developmental disorders*, *46*(12), 3653-3666.

Carlo, G. (2014). The development and correlates of prosocial moral behaviors. *Handbook of moral development*, *2*, 208-234.

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling*, *14*, 464–504.

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of fit indexes for testing measurement invariance. *Structural Equation Modeling*, *9*, 233-255. doi: 10.1207/S15328007SEM0902_5

Chu, P., Saucier, D., & Hafner, E. (2010). Meta-analysis of the relationships between social support and well-being in children and adolescents. *Journal of Social and Clinical*

Psychology, 29, 624-645.

Ciarrochi, J., Morin, A.J.S., Sahdra, B., Litalien, D., & Parker, P.D. (2017). A Longitudinal person-centered perspective on youth social support: Relations with psychological wellbeing. *Developmental Psychology*, *53* (6), 1154-1169.

Claes, M., Lacourse, E., Bouchard, C., & Perucchini, P. (2003). Parental practices in late adolescence, a comparison of three countries: Canada, France and Italy. *Journal of adolescence*, *26*(4), 387-399.

Cornell, D., & Huang, F. (2016). Authoritative school climate and high school student risk behavior: A cross-sectional multi-level analysis of student self-reports. *Journal of youth and adolescence*, *45*(11), 2246-2259.

Craven, R.G., Morin, A.J.S., Tracey, D., Parker, P.D., & Zhong, H.F. (2015). *Inclusive Education for Students with Intellectual Disabilities*. Charlotte, NC: Information Age.

Cummings, E. M., Davies, P. T., & Campbell, S. B. (2000). Developmental psychopathology and family process: Theory, research, and clinical implications. Guilford Press.

Cuthill, F. M., Espie, C. A., & Cooper, S.-A. (2003). Development and psychometric properties of the Glasgow Depression Scale for people with a learning disability. *British Journal of Psychiatry , 182*, 347-353.

Davies, P. T., & Sturge-Apple, M. L. (2014). Family context in the development of psychopathology. In *Handbook of developmental psychopathology* (pp. 143-161). Springer, Boston, MA.

de Jong, E. M., Koomen, H. M., Jellesma, F. C., & Roorda, D. L. (2018). Teacher and child perceptions of relationship quality and ethnic minority children's behavioral adjustment in upper elementary school: A cross-lagged approach. *Journal of school psychology*, *70*, 27-

43.

DiBartolo, P. M., & Grills, A. E. (2006). Who is best at predicting children's anxiety in response to a social evaluative task?: A comparison of child, parent, and teacher reports. *Journal of anxiety disorders*, *20*(5), 630-645.

Donner, N. C., & Lowry, C. A. (2013). Sex differences in anxiety and emotional behavior. *Pflügers Archiv-European Journal of Physiology*, *465*(5), 601-626.

Drugli, M. B. (2013). How are closeness and conflict in student–teacher relationships associated with demographic factors, school functioning and mental health in Norwegian schoolchildren aged 6–13?. *Scandinavian Journal of Educational Research*, *57*(2), 217-225.

Duffy, B., & Fuller, R. (2000). Role of music therapy in social skills development in children with moderate intellectual disability. *Journal of Applied Research in Intellectual Disabilities*, *13*(2), 77-89.

Eccles, J. (1999). The development of children ages 6-14. The Future of Children, 9, 30-44.

Eid, M., Nussbeck, F. W., Geiser, C., Cole, D. A., Gollwitzer, M., & Lischetzke, M. (2008). Structural equation modelling of multitrait–multimethod data: Different models for different types of methods. *Psychological Methods*, *13*, 230–253.

Einfeld, S. L., Ellis, L. A., & Emerson, E. (2011). Comorbidity of intellectual disability and mental disorder in children and adolescents: A systematic review. *Journal of Intellectual and Developmental Disability*, *36*(2), 137-143.

Eisenhower, A. S., Baker, B. L., & Blacher, J. (2007). Early student–teacher relationships of children with and without intellectual disability: Contributions of behavioral, social, and self-regulatory competence. *Journal of School Psychology*, *45*(4), 363-383.

Eisenberg, N., Zhou, Q., Spinrad, T. L., Valiente, C., Fabes, R. A., & Liew, J. (2005). Relations among positive parenting, children's effortful control, and externalizing problems: A three-wave longitudinal study. *Child development*, *76*(5), 1055-1071.

Enders, C.K. (2010). *Applied missing data analysis*. New York, NY: Guilford.

Esbensen, A., Rojahn, J., Aman, M. G., & Ruedrich, S. (2003). Reliability and validity of an assessment instrument for anxiety, depression, and mood among individuals with mental retardation. *Journal of Autism and Developmental Disorders, 33(*6), 617-629.

Finney, S. J., & DiStefano, C. (2013). Non-normal and categorical data in structural equation modeling. In G. R. Hancock & R. O. Mueller (Eds.), Structural equation modeling: A second course (2nd ed., pp. 439–492). Greenwich, CO: IAP.

Freund, P. A., Tietjens, M., & Strauss, B. (2013). Using rating scales for the assessment of physical self-concept: Why the number of response categories matters. *Measurement in Physical Education and Exercise Science*, *17*, 249-263.

Ge, X., Natsuaki, M. N., Neiderhiser, J. M., & Reiss, D. (2009). The longitudinal effects of stressful life events on adolescent depression are buffered by parent–child closeness. *Development and psychopathology*, *21*(2), 621-635.

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry, 38*(5), 581-586.

Goodman, R., Meltzer, H., & Bailey, V. (1998). The Strengths and Difficulties Questionnaire: A pilot study on the validity of the self-report version. *European Child and Adolescent Psychiatry, 7*(3), 125-130.

Gregory, A., Cornell, D., Fan, X., Sheras, P., Shih, T. H., & Huang, F. (2010). Authoritative school discipline: High school practices associated with lower bullying and victimization. *Journal of Educational Psychology*, *102*(2), 483.

Gryczkowski, M., Jordan, S. S., & Mercer, S. H. (2018). Moderators of the relations between mothers' and fathers' parenting practices and children's prosocial behavior. *Child Psychiatry & Human Development*, *49*(3), 409-419.

Guo, Q., & Feng, L. (2017). The associations between perceived parenting styles, empathy, and altruistic choices in economic games: A study of Chinese children. *Frontiers in psychology*, *8*, 1843.

Hajovsky, D. B., Mason, B. A., & McCune, L. A. (2017). Teacher-student relationship quality and academic achievement in elementary school: A longitudinal examination of gender differences. *Journal of school psychology*, *63*, 119-133.

Hamadi, L., & Fletcher, H. K. (2019). Are people with an intellectual disability at increased risk of attachment difficulties? A critical review. *Journal of Intellectual Disabilities*, 1744629519864772.

Hamre, B. K., & Pianta, R. C. (2001). Early teacher–child relationships and the trajectory of children's school outcomes through eighth grade. *Child development*, *72*(2), 625-638.

Hazel, N. A., Oppenheimer, C. W., Technow, J. R., Young, J. F., & Hankin, B. L. (2014). Parent relationship quality buffers against the effect of peer stressors on depressive symptoms from middle childhood to adolescence. *Developmental psychology*, *50*(8), 2115.

Henricsson, L., & Rydell, A. M. (2004). Elementary school children with behavior problems: Teacher-child relations and self-perception. A prospective study. *Merrill-Palmer Quarterly (1982-)*, 111-138.

Hoeve, M., Dubas, J. S., Eichelsheim, V. I., Van der Laan, P. H., Smeenk, W., & Gerris, J. R. (2009). The relationship between parenting and delinquency: A meta-analysis. *Journal of abnormal child psychology*, *37*(6), 749-775.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal*, *6*(1), 1-55.

Huang, F. L., Lewis, C., Cohen, D. R., Prewett, S., & Herman, K. (2018). Bullying involvement, teacher–student relationships, and psychosocial outcomes. *School psychology quarterly*, *33*(2), 223.

Huber, R. S., Sifers, S., Houlihan, D., & Youngblom, R. (2012). Teacher support as a moderator of behavioral outcomes for youth exposed to stressful life events. Educational Research International, 1-10.

Hudson, B. (2003). From adolescence to young adulthood: the partnership challenge for learning disability services in England. *Disability & Society*, *18*(3), 259-276.

Hughes, J. N. (2011). Longitudinal effects of teacher and student perceptions of teacher-student relationship qualities on academic adjustment. *The Elementary school journal*, *112*(1), 38-60.

Hughes-McCormack, L. A., Rydzewska, E., Henderson, A., MacIntyre, C., Rintoul, J., & Cooper, S. A. (2018). Prevalence and general health status of people with intellectual disabilities in Scotland: a total population study. *J Epidemiol Community Health*, *72*(1), 78-85.

Inguglia, C., Ingoglia, S., Liga, F., Coco, A. L., & Cricchio, M. G. L. (2015). Autonomy and relatedness in adolescence and emerging adulthood: Relationships with parental support and psychological distress. *Journal of Adult Development*, *22*(1), 1-13.

Institut de la Statistique du Québec (2006, 2008). *Quebec Longitudinal Study of Child Development*. Quebec, Canada, www.jesuisjeserai.stat.gouv.qc.ca/default.htm

Jager, J. (2011). Convergence and nonconvergence in the quality of adolescent relationships and its association with adolescent adjustment and young-adult relationship quality. International Journal of Behavioral Development, 35, 497-506.

Kerstis, B., Åslund, C., & Sonnby, K. (2018). More secure attachment to the father and the mother is associated with fewer depressive symptoms in adolescents. *Upsala journal of medical sciences*, *123*(1), 62-67.).

Koomen, H.M.Y., & Hoeksma, J.B. (2003). Regulation of emotional security by children after entry to special and regular kindergarten classes. Psychological Reports, 93, 1319–1334.

Labella, M. H., & Masten, A. S. (2018). Family influences on the development of aggression and violence. *Current opinion in psychology*, *19*, 11-16.

Lancaster, R. L., Balling, K., Hastings, R., & Lloyd, T. J. (2014). Attributions, criticism and warmth in mothers of children with intellectual disability and challenging behaviour: a pilot study. *Journal of Intellectual Disability Research*, *58*(11), 1060-1071.

Lau, C., Wong, M., & Dudovitz, R. (2018). School disciplinary style and adolescent health. *Journal of Adolescent Health*, *62*(2), 136-142.

Laursen, B., & Collins, W. A. (2004). Parent-child communication during adolescence. *The Routledge handbook of family communication*, *2*, 333-348.

Laursen, B., Coy, K. C., & Collins, W. A. (1998). Reconsidering changes in parent-child conflict across adolescence: A meta-analysis. *Child development*, *69*(3), 817-832.

Lewis, C. (1981). The effects of parental firm control: A reinterpretation of findings. *Psychological Bulletin*, *90*, 547-563.

Li, C. H. (2016). Confirmatory factor analysis with ordinal data: Comparing robust maximum likelihood and diagonally weighted least squares. *Behavior research methods*, *48*(3), 936-949.

Li, Y., Hughes, J. N., Kwok, O. M., & Hsu, H. Y. (2012). Evidence of convergent and discriminant validity of child, teacher, and peer reports of teacher–student support. Psychological Assessment, 24, 54–65.

Liu, Y., Li, X., Chen, L., & Qu, Z. (2015). Perceived positive teacher–student relationship as a protective factor for Chinese left-behind children's emotional and behavioural adjustment. *International Journal of Psychology*, *50*(5), 354-362.

Longobardi, C., Settanni, M., Prino, L. E., Fabris, M. A., & Marengo, D. (2019). Students' Psychological Adjustment in Normative School Transitions From Kindergarten to High School: Investigating the Role of Teacher-Student Relationship Quality. *Frontiers in psychology*, *10*, 1238.

Luyckx, K., Tildesley, E. A., Soenens, B., Andrews, J. A., Hampson, S. E., Peterson, M., & Duriez, B. (2011). Parenting and trajectories of children's maladaptive behaviors: A 12-year prospective community study. *Journal of Clinical Child & Adolescent Psychology*, *40*(3), 468-478.

Madigan, S., Brumariu, L. E., Villani, V., Atkinson, L., & Lyons-Ruth, K. (2016). Representational and questionnaire measures of attachment: A meta-analysis of relations to child internalizing and externalizing problems. *Psychological Bulletin*, *142*(4), 367.

Maïano, C., Bégarie, J., Morin, AJ.S., & Ninot, G. (2009). Assessment of Physical Self-Concept in Adolescents with intellectual disability: Content and Factor validity of the very short

form of the Physical Self-Inventory. *Journal of Autism and Developmental Disorders*, *39*(5), 775-787.

Maïano, C., Coutu, S., Tracey, D., Bouchard, S., Lepage, G., Morin, A. J., & Moullec, G. (2018). Prevalence of anxiety and depressive disorders among youth with intellectual disabilities: A systematic review and meta-analysis. *Journal of affective disorders*, *236*, 230-242.

Main, M., & Solomon, J. (1990). Procedures for identifying infants as disorganized/disoriented during the Ainsworth Strange Situation. *Attachment in the preschool years: Theory, research, and intervention*, *1*, 121-160.

Marsh, H.W., Abduljabbar, A.S., Abu-Hilal, M., Morin, A.J.S., Abdelfattah, F., Leung, K.C., Xu, M.K., Nagengast, B., & Parker, P. (2013). Factor structure, discriminant and convergent validity of TIMSS math and science motivation measures: A comparison of USA and Saudi Arabia. *Journal of Educational Psychology, 105*, 108-128.

Marsh, H. W., Hau, K.-T., & Grayson, D. (2005). Goodness of fit evaluation in structural equation modeling. In A. Maydeu-Olivares & J. McArdle (Eds.), *Contemporary psychometric* (pp. 275-340). Mahwah NJ: Erlbaum.

McClure-Tone, E. B., Nawa, N. E., Nelson, E. E., Detloff, A. M., Fromm, S. J., Pine, D. S., & Ernst, M. (2011). Preliminary findings: neural responses to feedback regarding betrayal and cooperation in adolescent anxiety disorders. *Developmental neuropsychology*, *36*(4), 453-472.

McDonald, R.P. (1970). Theoretical foundations of principal factor analysis and alpha factor analysis. *British Journal of Mathematical and Statistical Psychology, 23*, 1-21.

McElwain, N. L., & Booth-LaForce, C. (2006). Maternal sensitivity to infant distress and nondistress as predictors of infant-mother attachment security. *Journal of family Psychology*, *20*(2), 247.

McIntyre, L. L., Blacher, J., & Baker, B. L. (2006). The transition to school: Adaptation in young children with and without intellectual disability. *Journal of Intellectual Disability Research*, *50*(5), 349-361.

McLeod, B. D., Weisz, J. R., & Wood, J. J. (2007). Examining the association between parenting and childhood depression: A meta-analysis. *Clinical psychology review*, *27*(8), 986-1003.

Millsap, R. (2011). Statistical approaches to measurement invariance. New York, NY: Taylor & Francis

Mindham, J., & Espie, C.A. (2003). Glasgow anxiety scale for people with an intellectual disability (GAS-ID): Development and psychometric properties of a new measure for use with people with mild intellectual disability. *Journal of Intellectual Disability Research, 47*(1), 22-30.

Modecki, K.L., Minchin, J., Harbaugh, A.G., Guerra, N.G., & Runions, K.C. (2014). Bullying prevalence across contexts: A meta-analysis measuring cyber and traditional bullying. Journal of Adolescent Health, 55, 602-611.

Morin, A. J., Janosz, M., & Larivée, S. (2009). The Montreal Adolescent Depression Development Project (MADDP): School life and depression following high school transition. *Psychiatry Research Journal*, *1*(3), 1-50.

Morin, A. J., Maïano, C., Marsh, H. W., Nagengast, B., & Janosz, M. (2013). School life and adolescents' self-esteem trajectories. *Child development*, *84*(6), 1967-1988.

Morin, A. J. S., Marsh, H. W., & Nagengast, B. (2013). Exploratory structural equation modeling. In Hancock, G. R., & Mueller, R. O. (Eds.). *Structural equation modeling: A second course*

(2nd ed., pp. 395-436). Charlotte, NC: Information Age.

Morin, A. J. S., Moullec, G., Maïano, C., Layet, L., Just, J.F., & Ninot, G. (2011). Psychometric properties of the center for epidemiologic studies depression scale (CES-D) in French clinical and nonclinical adults. *Epidemiology & Public Health*, *59*¸ 327-340.

Mounts, N. S. (2011). Parental management of peer relationships and early adolescents' social skills. *Journal of youth and adolescence*, *40*(4), 416-427.

Muris, P., & Maas, A. (2004). Strengths and difficulties as correlates of attachment style in institutionalized and non-institutionalized children with below-average intellectual abilities. *Child Psychiatry and Human Development*, *34*(4), 317-328.

Murray, C., & Murray, K. M. (2004). Child level correlates of teacher–student relationships: An examination of demographic characteristics, academic orientations, and behavioral orientations. *Psychology in the Schools*, *41*(7), 751-762.

Muthén, L., & Muthén, B. (2019). *Mplus user's guide*. Los Angeles, CA: Muthén & Muthén.

Naber, F. B., Swinkels, S. H., Buitelaar, J. K., Bakermans-Kranenburg, M. J., Van IJzendoorn, M. H., Dietz, C., ... & Van Engeland, H. (2007). Attachment in toddlers with autism and other developmental disorders. *Journal of Autism and Developmental Disorders*, *37*(6), 1123-1138.

Obsuth, I., Murray, A. L., Malti, T., Sulger, P., Ribeaud, D., & Eisner, M. (2017). A non-bipartite propensity score analysis of the effects of teacher–student relationships on adolescent problem and prosocial behavior. *Journal of youth and adolescence*, *46*(8), 1661-1687.

Olivier, E., Azarnia, P., Morin, A. J., Houle, S. A., Dubé, C., Tracey, D., & Maïano, C. (2020). The moderating role of teacher-student relationships on the association between peer

victimization and depression in students with intellectual disabilities. *Research in Developmental Disabilities*, *98*, 103572.

Olsson, M. B., & Hwang, C. P. (2008). Socioeconomic and psychological variables as risk and protective factors for parental well-being in families of children with intellectual disabilities. *Journal of Intellectual Disability Research*, *52*(12), 1102-1113.

Ostrov, J. M., & Bishop, C. M. (2008). Preschoolers' aggression and parent–child conflict: A multiinformant and multimethod study. *Journal of Experimental Child Psychology*, *99*(4), 309-322.

Padilla-Walker, L. M., Nielson, M. G., & Day, R. D. (2016). The role of parental warmth and hostility on adolescents' prosocial behavior toward multiple targets. *Journal of Family Psychology*, *30*(3), 331.

Pastorelli, C., Lansford, J. E., Luengo Kanacri, B. P., Malone, P. S., Di Giunta, L., Bacchini, D., ... & Tapanya, S. (2016). Positive parenting and children's prosocial behavior in eight countries. *Journal of Child Psychology and Psychiatry*, *57*(7), 824-834.

Pérez-Fuentes, M. D. C., Molero Jurado, M. D. M., Gázquez Linares, J. J., Oropesa Ruiz, N. F., Márquez, S., Del Mar, M., & Saracostti, M. (2019). Parenting Practices, Life Satisfaction, and the Role of Self-Esteem in Adolescents. *International journal of environmental research and public health*, *16*(20), 4045.

Pianta, R. C. (1999). *Enhancing relationships between children and teachers*. American Psychological Association.

Pianta, R. C., & Steinberg, M. (1992). Teacher-child relationships and the process of adjusting to school. *New Directions for Child and Adolescent Development*, *1992*(57), 61-80.

Pianta, R. C., Steinberg, M. S., & Rollins, K. B. (1995). The first two years of school: Teacher-child relationships and deflections in children's classroom adjustment. *Development and psychopathology*, *7*(2), 295-312.

Pinquart, M. (2017). Associations of parenting dimensions and styles with externalizing problems of children and adolescents: An updated meta-analysis. *Developmental psychology*, *53*(5), 873.

Polanczyk, G. V., Salum, G. A., Sugaya, L. S., Caye, A., & Rohde, L. A. (2015). Annual research review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *Journal of Child Psychology and Psychiatry*, *56*(3), 345-365.

Pössel, P., Rudasill, K. M., Sawyer, M. G., Spence, S. H., & Bjerg, A. C. (2013). Associations between teacher emotional support and depressive symptoms in Australian adolescents: a 5-year longitudinal study. *Developmental Psychology*, *49*(11), 2135.

Potharst, E. S., Schuengel, C., Last, B. F., van Wassenaer, A. G., Kok, J. H., & Houtzager, B. A. (2012). Difference in mother–child interaction between preterm-and term-born preschoolers with and without disabilities. *Acta paediatrica*, *101*(6), 597-603.

Prewett, S. L., Bergin, D. A., & Huang, F. L. (2019). Student and teacher perceptions on student-teacher relationship quality: A middle school perspective. *School Psychology International*, *40*(1), 66-87.

Priestley, M. (2003). *Disability: A life course approach*. Cambridge: Polity.

Putnick, D. L., Bornstein, M. H., Lansford, J. E., Chang, L., Deater-Deckard, K., Di Giunta, L., ... & Skinner, A. T. (2018). Parental acceptance–rejection and child prosocial behavior: Developmental transactions across the transition to adolescence in nine countries, mothers and fathers, and girls and boys. *Developmental psychology*, *54*(10), 1881.

Raaska, H., Elovainio, M., Sinkkonen, J., Matomäki, J., Mäkipää, S., & Lapinleimu, H. (2012). Internationally adopted children in Finland: parental evaluations of symptoms of reactive attachment disorder and learning difficulties–FINADO study. *Child: care, health and development*, *38*(5), 697-705.

Ratelle, C.F., Morin, A.J.S., Guay, F., & Duchesne, S. (2018). Sources of evaluation of parental behaviors as predictors of achievement outcomes. Motivation and Emotion, 42, 513-526.

Richman, J., Rosenfeld, L., & Bowen, G. (1998). Social support for adolescents at risk of school failure. Social work, 43, 309-323.

Rodas, N. V., Zeedyk, S. M., & Baker, B. L. (2016). Unsupportive parenting and internalising behaviour problems in children with or without intellectual disability. *Journal of Intellectual Disability Research*, *60*(12), 1200-1211.

Rohner, R. P. (2004). The parental" acceptance-rejection syndrome": universal correlates of perceived rejection. *American psychologist*, *59*(8), 830.

Sabol, T. J., & Pianta, R. C. (2012). Recent trends in research on teacher–child relationships. *Attachment & human development*, *14*(3), 213-231.

Schmückle, D., Schmolz, G.K., & Lindert, J. (2017). Mental health in adults with intellectual disabilities: Protective and risk factors for depression & anxiety. *Gesundheitswesen*, *79*, 415-418.

Scholte, R., Lieshout, C., & Aken, M. (2001). Perceived relational support in adolescence: Dimensions, configurations, and adolescent adjustment. Journal of research on adolescence, 11, 71-94.

Schuiringa, H., van Nieuwenhuijzen, M., de Castro, B. O., & Matthys, W. (2015). Parenting and the parent–child relationship in families of children with mild to borderline intellectual disabilities and externalizing behavior. *Research in developmental disabilities*, *36*, 1-12.

Scott, H. M., & Havercamp, S. M. (2018). Comparisons of self and proxy report on health-related factors in people with intellectual disability. *Journal of Applied Research in Intellectual Disabilities*, *31*(5), 927-936.

Seltzer, M. M., Floyd, F., Song, J., Greenberg, J., & Hong, J. (2011). Midlife and aging parents of adults with intellectual and developmental disabilities: Impacts of lifelong parenting. *American journal on intellectual and developmental disabilities*, *116*(6), 479-499.

Shaver, P. R., Mikulincer, M., & Cassidy, J. (2019). Attachment, caregiving in couple relationships, and prosocial behavior in the wider world. *Current opinion in psychology*, *25*, 16-20.

Shemmings, D. (2006). Using adult attachment theory to differentiate adult children's internal working models of later life filial relationships. *Journal of Aging Studies*, *20*(2), 177-191.

Smokowski, P. R., Bacallao, M. L., Cotter, K. L., & Evans, C. B. (2015). The effects of positive and negative parenting practices on adolescent mental health outcomes in a multicultural sample of rural youth. *Child Psychiatry & Human Development*, *46*(3), 333-345.

Solish, A., Perry, A., & Minnes, P. (2010). Participation of children with and without disabilities in social, recreational and leisure activities. *Journal of Applied Research in Intellectual Disabilities*, *23*(3), 226-236.

Steele, H., & Steele, M. (2014). Attachment disorders: Theory, research, and treatment considerations. In *Handbook of developmental psychopathology* (pp. 357-370). Springer, Boston, MA.

Sulkowski, M. L., & Simmons, J. (2018). The protective role of teacher–student relationships against peer victimization and psychosocial distress. *Psychology in the Schools*, *55*(2), 137-150.

Taylor, C. (2012). Attachment. In *Empathic Care for Children with Disorganized Attachments: A model for mentalizing, attachment and trauma-informed care* (pp. 42-43). Jessica Kingsley Publishers.

Teague, S. J., Newman, L. K., Tonge, B. J., & Gray, K. M. (2018). Caregiver mental health, parenting practices, and perceptions of child attachment in children with autism spectrum disorder. *Journal of autism and developmental disorders*, *48*(8), 2642-2652.).

Tipton, L. A., Christensen, L., & Blacher, J. (2013). Friendship quality in adolescents with and without an intellectual disability. *Journal of Applied Research in Intellectual Disabilities*, *26*(6), 522-532.

Tipton-Fisler, L. A., Rodriguez, G., Zeedyk, S. M., & Blacher, J. (2018). Stability of bullying and internalizing problems among adolescents with ASD, ID, or typical development. *Research in developmental disabilities*, *80*, 131-141.

Totsika, V., Hastings, R. P., Vagenas, D., & Emerson, E. (2014). Parenting and the behavior problems of young children with an intellectual disability: Concurrent and longitudinal relationships in a population-based study. *American journal on intellectual and developmental disabilities*, *119*(5), 422-435.

Tu, K. M., Marks, B. T., & El-Sheikh, M. (2017). Sleep and mental health: the moderating role of

perceived adolescent-parent attachment. *Sleep health*, *3*(2), 90-97.

Turk, V., Khattran, S., Kerry, S., Corney, R., & Painter, K. (2012). Reporting of health problems and pain by adults […] *Journal of Applied Research in Intellectual Disabilities, 25*, 155-165.

Verschueren, K., & Koomen, H. M. (2012). Teacher–child relationships from an attachment perspective. *Attachment & human development*, *14*(3), 205-211.

Vieno, A., Nation, M., Pastore, M., & Santinello, M. (2009). Parenting and antisocial behavior: A model of the relationship between adolescent self-disclosure, parental closeness, parental control, and adolescent antisocial behavior. *Developmental psychology*, *45*(6), 1509.

Wang, M. (2019). Harsh parenting and adolescent aggression: Adolescents' effortful control as the mediator and parental warmth as the moderator. *Child abuse & neglect*, *94*, 104021.

Wang, W. C., & Shih, C. L. (2010). MIMIC methods for assessing differential item functioning in polytomous items. *Applied Psychological Measurement*, *34*(3), 166-180.

Weaver, C. M., Shaw, D. S., Crossan, J. L., Dishion, T. J., & Wilson, M. N. (2015). Parent–child conflict and early childhood adjustment in two-parent low-income families: Parallel developmental processes. *Child Psychiatry & Human Development*, *46*(1), 94-107.

Wells, T., Sandefur, G., Hogan, D., 2003. What happens after the high school years among young persons with disabilities. Social Forces 82 (2), 803–832.

Wikle, J. S., & Hoagland, A. (2019). Adolescent interactions with family and emotions during interactions: Variation by family structure. *Journal of Family Psychology*.

Wissink, I. B., Deković, M., Stams, G. J., Asscher, J. J., Rutten, E., & Zijlstra, B. J. (2014). Moral orientation and relationships in school and adolescent pro-and antisocial behaviors: A multilevel study. *The journal of school nursing*, *30*(3), 216-225.

Withers, M. C., McWey, L. M., & Lucier-Greer, M. (2016). Parent–adolescent relationship factors

and adolescent outcomes among high-risk families. *Family Relations*, *65*(5), 661-672.

Wright, M. F. (2017). Cyber victimization and depression among adolescents with intellectual disabilities and developmental disorders: The moderation of perceived social support. *Journal of Mental Health Research in Intellectual Disabilities*, *10*(2), 126-143.

Yap, M. B. H., Pilkington, P. D., Ryan, S. M., & Jorm, A. F. (2014). Parental factors associated with depression and anxiety in young people: A systematic review and meta-analysis. *Journal of affective disorders*, *156*, 8-23.

Yoo, H., Feng, X., & Day, R. D. (2013). Adolescents' empathy and prosocial behavior in the family context: A longitudinal study. *Journal of youth and adolescence*, *42*(12), 1858-1872.

Yu, C.Y. (2002). *Evaluating cutoff criteria of model fit indices for latent variable models with binary and continuous outcomes*. Los Angeles, CA: University of California.

Zee, M., & Koomen, H. M. (2017). Similarities and dissimilarities between teachers' and students' relationship views in upper elementary school: The role of personal teacher and student attributes. *Journal of School Psychology*, *64*, 43-60.

Tables

Table 1

Goodness-of-Fit Results for the Alternative Time 1 Measurement Models

Models	χ^2	df	CFI	TLI	RMSEA (90% CI)
Teacher-Student Relationships					
Model 1	1750.415*	654	.922	.912	.066 (.062, .069)
Model 2	1799.164*	663	.919	.910	.066 (.063, .070)
Model 3	1581.516*	648	.934	.924	.061 (.057, .065)
Model 4	2235.744*	641	.887	.869	.080 (.076-.083)
Model 5	2249.321*	642	.886	.868	.080 (.077-.084)
Parent-Child Relationship					
Model 1	1268.965*	654	.907	.894	.051 (.047-.055)
Model 2	1277.232*	663	.907	.896	.051 (.046-.055)
Model 3	1168.683*	648	.921	.910	.047 (.043-.051)
Model 4	1225.522*	641	.911	.897	.050 (.046-.054)
Model 5	1228.974*	642	.911	.897	.050 (.046-.054)
Complete Model	3705.939*	2687	.935	.928	.031 (.029-.033)

Note. *$p < .01$; χ^2: WLSMV chi-square; df: Degrees of freedom; CFI: Comparative fit index; TLI: Tucker-Lewis index; RMSEA: Root mean square error of approximation; 90% CI: RMSEA 90% confidence interval.

Table 2

Results from Model 3 Estimated Separately for Parents and Teachers at Time 1

		Self-report: Teacher		Teacher report			Self-report: Parent		Parent report		
		λ	δ	λ	MF λ	δ	λ	δ	λ	MF λ	δ
Warmth											
Item	1a	.605**	.578**	.534**		.715**	.735**	.460**	.441**		.806**
	1b			.370**	.370**	.726**			.182**	.456**	.759**
Item	2a	.697**	.513**	.787**		.381**	.737**	.457**	.424**		.821**
	2b			.482**	.637**	.362**			.525**	.527**	.447**
Item	3a	.823**	.323**	.810**		.344**	.826**	.318**	.714**		.490**
	3b			.739**	.554**	.147**			.799**	.17	.332**
Item	4a	.634**	.598**	.689**		.526**	.805	.352**	.664**		.559**
	4b			.496**	.373**	.615**			.597**	.460**	.433**
Item	5a	.829**	.313**	.763**		.417**	.868	.246**	.954**		.090**
	5b			.755**	.169**	.401**			.909**	.157*	.149**
Item	6a	.852**	.275**	.774**		.400**	.803	.355**	.483**		.767**
	6b			.488**	.601**	.401**			.508**	.577**	.409**
ω		.883		.916			.912		.895		
Conflict											
Item	1a	.734**	.461**	.852**		.274**	.629**	.605**	.868**		.247**
	1b			.762**	-.083	.412**			.730**	-.003	.466**
Item	2a	.737**	.457**	.805**		.352**	.795**	.368**	.953**		.092**
	2b			.754**	-.511**	.170**			.756**	-.174	.398**
Item	3a	.787**	.380**	.868**		.247**	.677**	.541**	.684**		.532**
	3b			.663**	-.511**	.300**			.636**	-.149	.573**
Item	4a	.810**	.344**	.885**		.217**	.650**	.578**	.836**		.301**
	4b			.867**	-.017	.247**			.756**	.163*	.402**
Item	5a	.764**	.416**	.813**		.339**	.810**	.344**	.729**		.468**
	5b			.743**	.223**	.398**			.661**	.393**	.408**
Item	6a	.701**	.508**	.848**		.280**	.781**	.391**	.670**		.551**
	6b			.769**	.038	.408**			.441**	.454**	.600**
Item	7a	.836**	.301**	.719**		.482**	.743**	.448**	.644**		.585**
	7b			.695**	.267**	.446**			.591**	.408**	.484**
ω		.910		.964			.888		.942		

Note. *$p < .05$; **$p < .01$; λ: Factor loading; δ: Item uniqueness; ω = Omega coefficient of composite reliability; items labelled a: informant report of the perspective of the informant toward the child; items labelled b: informant reports of the perspective of the child toward the informant; MF: Method factor.

Table 3

Results from the Complete Model Estimated at Time 1

		Self-report: Teacher		Teacher report			Self-report: Parent		Parent report		
		λ	δ	λ	MF λ	δ	λ	δ	λ	MF λ	δ
Warmth											
Item	1a	.649**	.579**	.529**		.720**	.732**	.464**	.448**		.799**
	1b			.384**	.379**	.709**			.209**	.438**	.765**
Item	2a	.694**	.518**	.784**		.385**	.731**	.465**	.405**		.836**
	2b			.489**	.640**	.351**			.511**	.521**	.467**
Item	3a	.840**	.295**	.806**		.350**	.817**	.332**	.699**		.512**
	3b			.738**	.546**	.156**			.796**	.187*	.332**
Item	4a	.619**	.617**	.692**		.521**	.818**	.331**	.679**		.539**
	4b			.504**	.354**	.621**			.594**	.425**	.467**
Item	5a	.828**	.315**	.758**		.425**	.867**	.248**	.959**		.080**
	5b			.770**	.130*	.390**			.918**	.176*	.126**
Item	6a	.848**	.282**	.775**		.399**	.807**	.349**	.492**		.758**
	6b			.504**	.577**	.413**			.478**	.614**	.394**
ω		.885		.917			.912		.895		
Conflict											
Item	1a	.721**	.480**	.848**		.281**	.679**	.539**	.870**		.243**
	1b			.765**	-.054	.412**			.742**	-.036	.449**
Item	2a	.721**	.481**	.804**		.353**	.794**	.370**	.991**		.018**
	2b			.760**	-.518**	.155**			.750**	-.243*	.379**
Item	3a	.800**	.360**	.864**		.254**	.681**	.536**	.689**		.525**
	3b			.659**	-.510**	.305**			.627**	-.196*	.569**
Item	4a	.813**	.339**	.885**		.217**	.653**	.573**	.834**		.305**
	4b			.867**	-.008	.248**			.763**	.127	.401**
Item	5a	.753**	.433**	.816**		.334**	.793**	.371**	.726**		.472**
	5b			.743**	.238**	.391**			.664**	.421**	.381**
Item	6a	.713**	.492**	.850**		.278**	.758**	.425**	.665**		.558**
	6b			.767**	.039	.410**			.444**	.369**	.667**
Item	7a	.841**	.293**	.721**		.480**	.738**	.456**	.632**		.600**
	7b			.699**	.280**	.432**			.592**	.443**	.454**
ω		.909		.964			.888		.943		

Note. *$p < .05$; **$p < .01$; λ: Factor loading; δ: Item uniqueness; ω = Omega coefficient of composite reliability; items labelled a: informant report of the perspective of the informant toward the child; items labelled b: informant reports of the perspective of the child toward the informant; MF: Method factor.

Table 4

Latent Factor Correlations from the Complete Model Estimated at Time 1

	1	2	3	4	5	6	7	8
1. Student's perspective on the warmth dimension of teacher-student relationship quality.	—							
2. Student's perspective on the conflict dimension of teacher-student relationship quality.	-.574**	—						
3. Teacher's perspective on the warmth dimension of teacher-student relationship quality.	.185**	-.267**	—					
4. Teacher's perspective on the conflict dimension of teacher-student relationship quality.	-.150*	.227**	-.364**	—				
5. Child's perspective on the warmth dimension of the parent-child relationship quality.	.509**	-.225**	-.011	-.098	—			
6. Child's perspective on the conflict dimension of the parent-child relationship quality.	-.168**	.563**	-.035	.168**	-.309**	—		
7. Parents' perspective on the warmth dimension of the parent-child relationship quality.	.243**	-.170*	.174	-.171	.297**	-.154	—	
8. Parents' perspective on the conflict dimension of the parent-child relationship quality.	-.246**	.127	-.057	.116	-.216*	.221*	-.585**	—

Note. *$p < .05$; **$p < .01$.

Table 5

Goodness-of-Fit Results for the Multiple-Indicators Multiple-Causes Tests of Differential Item Functioning and Discriminant Validity

Models	χ^2	df	CFI	TLI	RMSEA (90% CI)	CM	$\Delta\chi^2$	Δdf	ΔCFI	ΔTLI	ΔRMSEA
1. Null	4359.884*	3081	.916	.907	.032 (.030-.035)	—	—	—	—	—	—
2. Saturated	3757.239*	2769	.934	.919	.030 (.028-.032)	1			+.018	+.012	-.002
3. Invariant	4314.531*	3041	.915	.904	.033(.030-.035)	2	700.182*	272	-.019	-.003	+.003
4. Partial Invariance (DIF Sex)	4125.715*	2973	.923	.912	.031(.029-.034)	2	481.712*	204	-.011	-.007	+.001
5. Partial Invariance (DIF ID level)	4062.932*	2973	.927	.916	.030(.028-.033)	2	422.905*	204	-.007	-.003	.000
6. Partial Invariance (DIF Country)	4065.504*	2973	.927	.916	.031(.028-.033)	2	411.281*	204	-.007	-.003	+.001
7. Partial Invariance (DIF Comorbidity)	4003.084*	2973	.931	.921	.030(.027-.032)	2	333.677*	204	-.003	+.008	.000
8. Partial Invariance (Final)	4095.696*	3036	.929	.920	.030(.027-.032)	2	474.214*	267	-.005	+.001	.000

Note. *$p < .01$; ID: Intellectual disability; DIF: Differential item functioning; χ^2: WLSMV chi-square; df: Degrees of freedom; CFI: Comparative fit index; TLI: Tucker-Lewis index; RMSEA: Root mean square error of approximation; 90% CI: RMSEA 90% confidence interval; CM: Comparison model; Δ: Change in model fit relative to the comparison model.

Table 6

Effects of Youth's Characteristics on the Latent Factors and Item Responses.

	Sex			ID Level			Country			Comorbidity		
	b	*s.e.*	*β*	*b*	*s.e.*	*β*	*b*	*s.e.*	*β*	*b*	*s.e.*	*β*
Latent Factors												
Parental Warmth (Youth Report)	-.086	.237	-.041	.409	.117**	.219	.004	.007	.055	.103	.251	.047
Parental Warmth (Parental Report)	-.158	3.430	-.054	.435	.158	.166	-.072	.047	-.765	.765	.915	.249
Teacher Wamth (Youth Report)	-.208	.447	-.093	.686	.123**	.346	.008	.015	.110	-.432	.337	-.185
Teacher Wamth (Teacher Report)	-.011	1.080	-.005	.335	.153*	.169	.022	.009*	.310	-.818	.746	-.351
Parental Conflict (Youth Report)	.012	.145	.006	-.237	.117*	-.129	.002	.003	.034	-.281	.233	-.130
Parental Conflict (Parental Report)	.067	.516	.032	-.279	.153	-.150	-.010	.021	-.150	-.033	.395	-.015
Teacher Conflict (Youth Report)	.037	.333	.018	-.180	.109	-.098	-.006	.005	-.089	.159	.270	.074
Teacher Conflict (Teacher Report)	.057	.628	.025	-.408	.155**	-.201	.014	.010	.186	-1.096	.631	-.460
Item Responses (Teacher Responses)												
Item 1a (Warmth; Teacher perspective)										-1.612	.645*	-.525
Item 2a (Warmth; Teacher Perspective)										-1.501	.568**	-.439
Item 4a (Warmth; Teacher Perspective)										-1.231	.493*	-.384
Item 6a (Warmth; Teacher Perspective)										-2.037	.814	-.519
Item 3b (Warmth; Student Perspective)										2.077	.882*	.435

Note. *$p < .05$; **$p < .01$; ID: Intellectual disability; *b*: Unstandardized regression coefficient; s.e.: Standard error of the coefficient; *β*: Standardized regression coefficient.

Table 7

Correlations between Outcomes and Relationship Quality Indicators at Time 1

	Teacher-Student Relationship				Parent-Child Relationship			
	Student's perspective		Teacher's perspective		Child's perspective		Parent's perspective	
Outcomes	Warmth	Conflict	Warmth	Conflict	Warmth	Conflict	Warmth	Conflict
Student Report								
Glasgow Depression Scale for youth with ID	.186**	.258**	-.141*	.269**	.097	.397**	.092	-.133
Glasgow Anxiety Scale for youth with ID	.145**	.285**	-.090	.187**	.022	.444**	.056	-.238**
Prosocial	.215**	.055	-.064	.188**	.300**	.044	.093	-.030
Physical Aggressiveness	-.101*	.318**	-.079	.238**	-.073	.343**	-.221*	.315**
Teacher Report								
Glasgow Depression Scale for youth with ID	-.004	.157*	.001	.453**	-.003	.152*	-.173	.145
General Anxiety	.031	.077	.065	.159**	-.006	.065	-.055	.069
Social Avoidance	.024	.105	-.227**	.116*	-.018	.105	-.231**	.165
Depressed Mood	.013	.053	.069	.222**	.025	.117	-.154	.166
Prosocial	.111	-.233**	.312**	-.296**	.092	-.077	.247**	-.090
Physical Aggressiveness	-.120	.224**	-.098	.382**	-.041	.180**	-.228*	.146
Parent Report								
Glasgow Depression Scale for youth with ID	-.174*	.139	.106	-.067	-.071	.188*	-.074	.350**
General Anxiety	.020	-.194**	.074	-.223*	.075	-.159*	.116	.241**
Social Avoidance	-.089	.015	-.272**	-.117	-.171	.051	-.128	.128
Depressed Mood	-.011	-.006	.085	-.123	.107	-.047	.115	.222**
Prosocial	-.003	-.114	-.055	-.218*	.189*	-.118	.403**	-.228**
Physical Aggressiveness	.145	-.027	.134	.188*	.059	.017	.074	.268**

Note. *$p < .05$; **$p < .01$.

Table 8

Goodness-of-Fit Results for the Alternative Time 2 Measurement Models

Models	χ^2	df	CFI	TLI	RMSEA (90% CI)
Teacher-Student Relationship					
Model 1	1251.153*	654	.911	.900	.059 (.054, .064)
Model 2	1265.045*	663	.911	.900	.059 (.054, .064)
Model 3	1134.518*	648	.928	.917	.053 (.048, .059)
Model 4	1213.027*	641	.915	.902	.058 (.053-.063)
Model 5	1215.960*	642	.915	.902	.058 (.053-.063)
Parent-Child Relationship					
Model 1	953.858*	654	.931	.922	.043 (.037-.048)
Model 2	984.291*	663	.926	.917	.044 (.038-.049)
Model 3	883.115*	648	.946	.938	.038 (.031-.044)
Model 4	1001.575*	641	.917	.904	.047 (.041-.053)
Model 5	1011.149*	642	.915	.902	.048 (.042-.053)
Complete Model	3219.361*	2687	.931	.923	.027 (.023-.030)

Note. *$p < .01$; χ^2: WLSMV chi-square; df: Degrees of freedom; CFI: Comparative fit index; TLI: Tucker-Lewis index; RMSEA: Root mean square error of approximation; 90% CI: RMSEA 90% confidence interval;

Table 9

Results from the Complete Model Estimated at Time 2

		Self-report: Teacher		Teacher report			Self-report: Parent		Parent report		
		λ	δ	λ	MF λ	δ	λ	δ	λ	MF λ	δ
Warmth											
Item	1a	.638**	.593**	.455**		.793**	.717**	.486**	.684**		.532**
	1b			.239**	.582**	.604**			.296**	.480**	.682**
Item	2a	.690**	.523**	.667**		.555**	.667**	.555**	.614**		.623**
	2b			.445**	.613**	.427**			.363**	.688**	.394**
Item	3a	.946**	.104**	.863**		.255**	.875**	.234**	.908**		.175**
	3b			.723**	.599**	.119**			.633**	.616**	.220**
Item	4a	.505**	.745**	.697**		.514**	.787**	.380**	.462**		.787**
	4b			.551**	.390**	.544**			.347**	.309**	.784**
Item	5a	.837**	.299**	.585**		.657**	.930**	.136**	.824**		.320**
	5b			.634**	.321**	.495**			.748**	.315**	.341**
Item	6a	.710**	.496**	.753**		.433**	.841**	.292**	.634**		.598**
	6b			.343**	.620**	.498**			.416**	.617**	.447**
ω		.872		.891			.917		.890		
Conflict											
Item	1a	.746**	.444**	.826**		.318**	.794**	.370**	.939**		.119**
	1b			.700**	-.377**	.368**			.840**	-.154*	.271**
Item	2a	.718**	.484**	.725**		.474**	.783**	.387**	.851**		.276**
	2b			.614**	-.577**	.291**			.712**	-.495**	.248**
Item	3a	.738**	.455**	.835**		.303**	.667**	.555**	.793**		.371**
	3b			.631**	-.495**	.356**			.794**	-.140*	.350**
Item	4a	.830**	.310**	.865**		.252**	.571**	.674**	.720**		.481**
	4b			.824**	.053	.318**			.781**	.193*	.353**
Item	5a	.769**	.408**	.795**		.368**	.766**	.413**	.710**		.497**
	5b			.832**	.245**	.248**			.726**	.414**	.302**
Item	6a	.683**	.533**	.952**		.094**	.744**	.446**	.760**		.423**
	6b			.849**	.159*	.254**			.633**	.236*	.543**
Item	7a	.776**	.398**	.655**		.571**	.677**	.542**	.624**		.611**
	7b			.765**	.229**	.362**			.660**	.208*	.521**
ω		.902		.963			.880		.955		

Note. *$p < .05$; **$p < .01$; λ: Factor loading; δ: Item uniqueness; ω = Omega coefficient of composite reliability; items labelled a: informant report of the perspective of the informant toward the child; items labelled b: informant reports of the perspective of the child toward the informant; MF: Method factor.

Table 10

Latent Factor Correlations from the Complete Model Estimated at Time 2

	1	2	3	4	5	6	7	8
1. Student's perspective on the warmth dimension of teacher-student relationship quality.	—							
2. Student's perspective on the conflict dimension of teacher-student relationship quality.	-.528**	—						
3. Teacher's perspective on the warmth dimension of teacher-student relationship quality.	.318**	-.170	—					
4. Teacher's perspective on the conflict dimension of teacher-student relationship quality.	.003	.006	-.434**	—				
5. Child's perspective on the warmth dimension of the parent-child relationship quality.	.600**	-.264**	.248**	.174	—			
6. Child's perspective on the conflict dimension of the parent-child relationship quality.	-.301**	.480**	-.168	-.021	-.360**	—		
7. Parents' perspective on the warmth dimension of the parent-child relationship quality.	.350**	-.139	.027	-.219	.188	-.059	—	
8. Parents' perspective on the conflict dimension of the parent-child relationship quality.	-.244*	.124	.007	.434**	-.267**	.164	-.725**	—

Note. *$p < .05$; **$p < .01$.

Table 11

Goodness-of-Fit Results for the Longitudinal Tests of Measurement Invariance

Models	χ^2	df	CFI	TLI	RMSEA (90% CI)	CM	$\Delta\chi^2$	Δdf	ΔCFI	ΔTLI	ΔRMSEA
1. Configural	12415.129*	11280	.931	.926	.016 (.014, .018)	—	—	—	—	—	—
2. Weak	12509.315*	11374	.931	.927	.016 (.014, .018)	1	133.606*	94	.000	+.001	.000
3. Strong	12694.294*	11565	.932	.928	.016 (.014, .018)	2	208.936	191	+.001	+.001	.000
4. Strict	12771.769*	11643	.932	.929	.016 (.014, .018)	3	124.157*	78	.000	+.001	.000
5. Variance-covariance	12786.824*	11694	.934	.932	.015 (.013, .017)	4	69.959	51	+.002	+.003	-.001
6. Latent means	1281.395*	11704	.933	.931	.015 (.013, .017)	5	3.213*	10	-.001	-.001	.000

Note. *$p < .01$; χ^2: WLSMV chi-square; df: Degrees of freedom; CFI: Comparative fit index; TLI: Tucker-Lewis index; RMSEA: Root mean square error of approximation; 90% CI: RMSEA 90% confidence interval; CM: Comparison model; Δ: Change in model fit relative to the comparison model.

Appendices

Appendix A

Student Self-Report of Relationships with Teachers

English Version

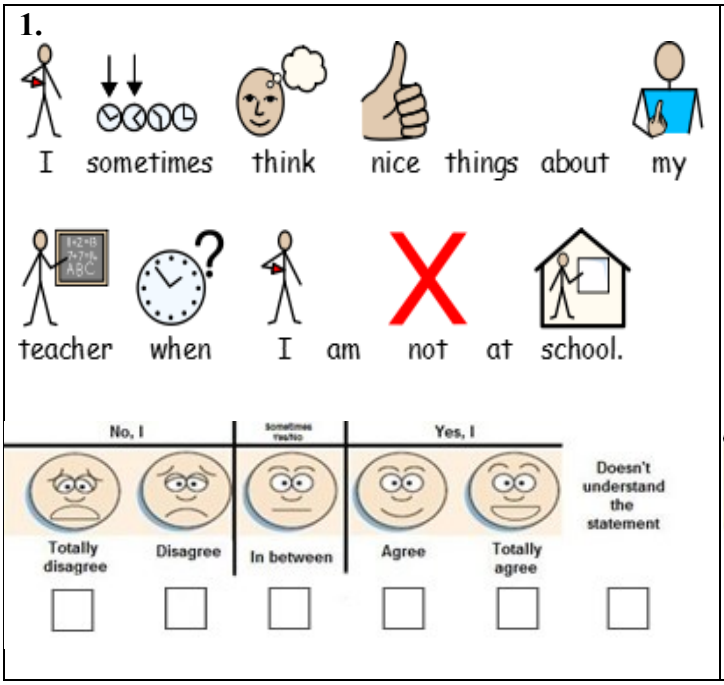
YOUR TEACHER

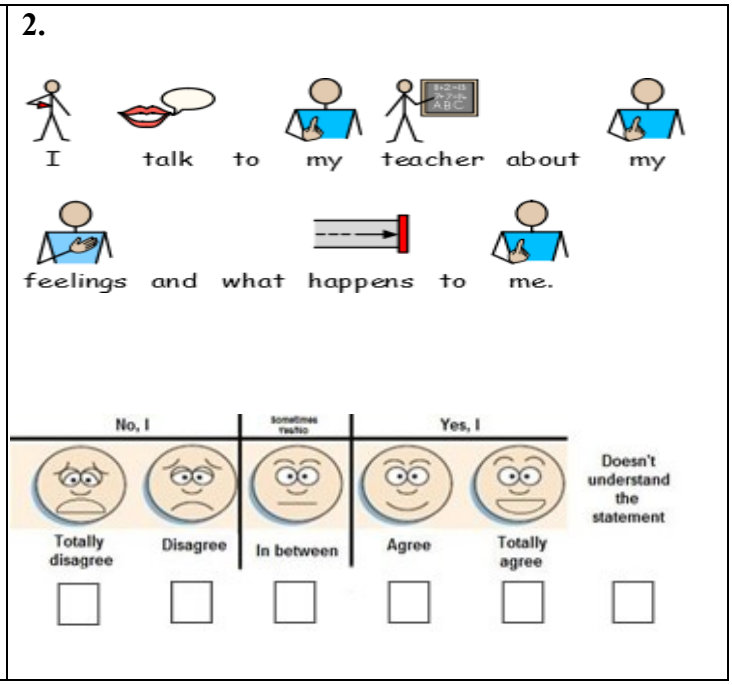
INSTRUCTIONS

I will read you sentences about **YOUR RELATIONSHIP with YOUR TEACHER**. This is not an exam. There is no right or wrong answer, and everyone's answers will be different. After reading the sentence, I will ask you to tell me whether **'yes' you agree** or **'no' you disagree** with this sentence. You must answer according to what **YOU THINK of YOUR RELATIONSHIP with YOUR TEACHER**. There are a few sentences that you may have trouble understanding. If you do not understand a sentence or a word in a sentence, tell me, **'I don't know what that means'**. It's okay; I will try to explain it to you or find other words.

After each sentence, you must **CROSS or TICK** the box that corresponds to **YOUR ANSWER**. You must **CROSS or TICK**: the **1st box** if your answer is 'No, I totally disagree'; the **2nd box** if your answer is 'No, I disagree'; the **3rd box** if your answer is 'Sometimes Yes, Sometimes No'; the **4th box** if your answer is 'Yes, I agree'; or the **5th box** if your answer is 'Yes, I totally agree'. I will explain to you the meaning of 'No, I totally disagree'; 'No, I disagree'; 'Sometimes Yes, Sometimes No'; 'Yes, I agree'; 'Yes, I totally agree'.

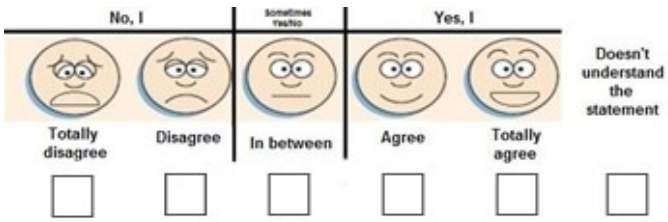
Now, we will begin the questionnaire. I will read you the sentence slowly. Ask me if you would like me to repeat it.





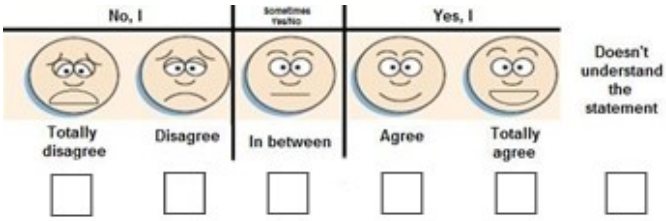
3.


I
trust
my
teacher.


No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

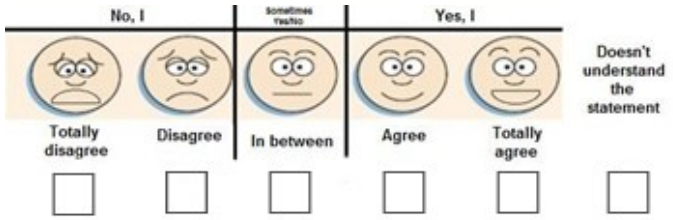
4.


I
don't
really
like
my
teacher.

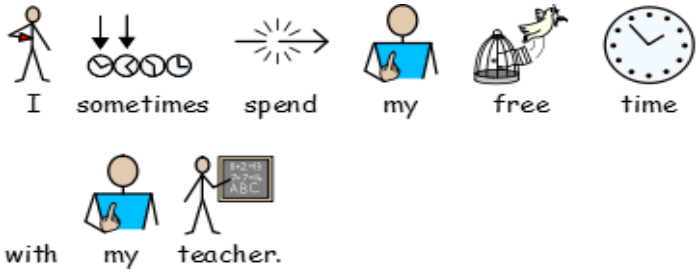

No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

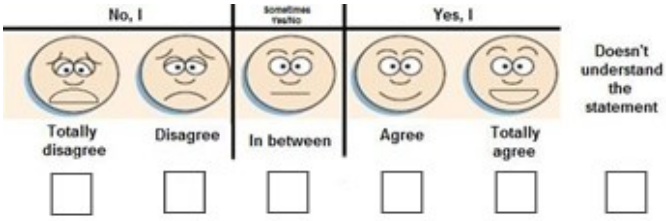
5.


My
teacher
does
not
respect
me.


No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

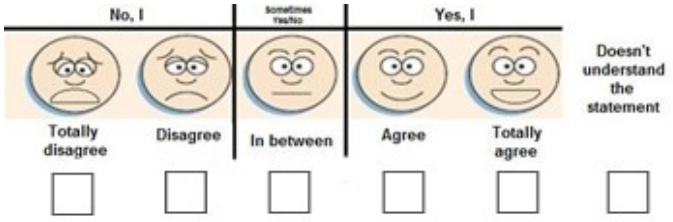
6.


I
sometimes
spend
my
free
time
with
my
teacher.


No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

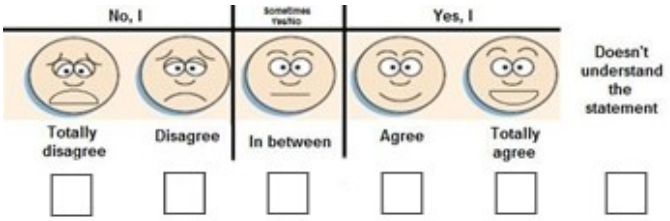
7.


My
teacher
is
nice
and
friendly
to
me.

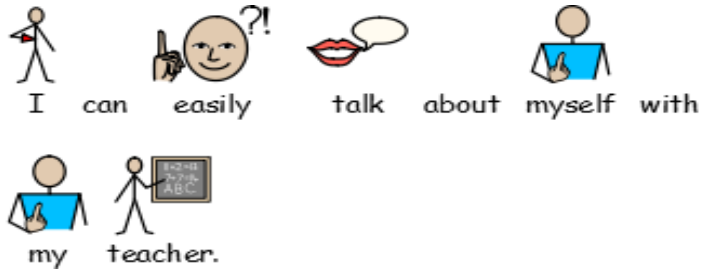

No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

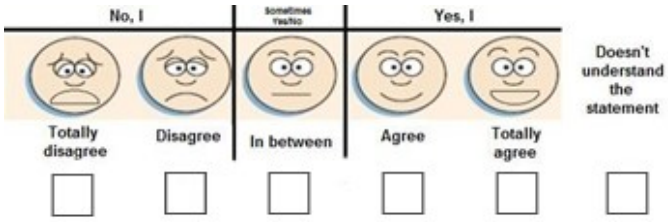
8.


I
often
argue
with
my
teacher.


No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

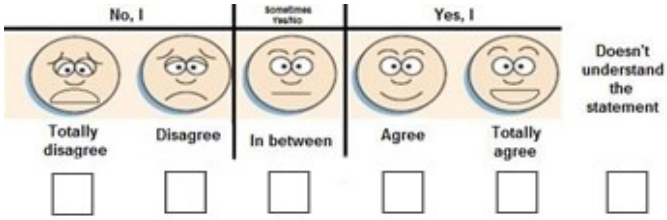
9.


I can easily talk about myself with my teacher.


No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

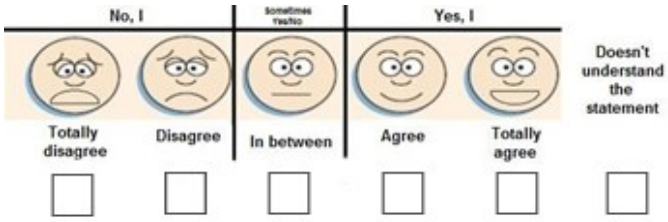
10.


I often get angry at my teacher.

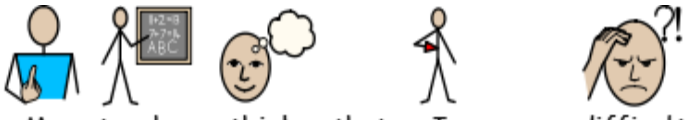

No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

11.

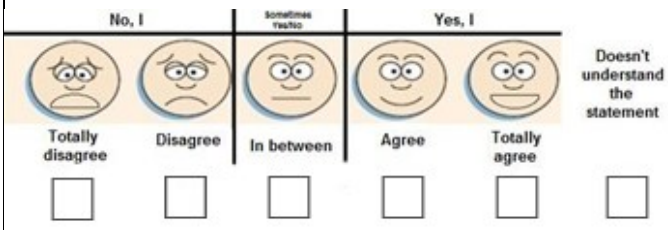

Sometimes, my teacher is unfair with me.


No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

12.

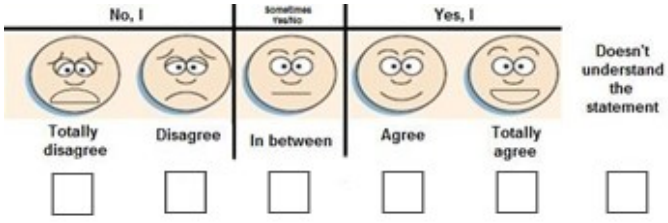

My teacher thinks that I am a difficult


or disobedient student.


No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

13.


My teacher often gets angry at me.


No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

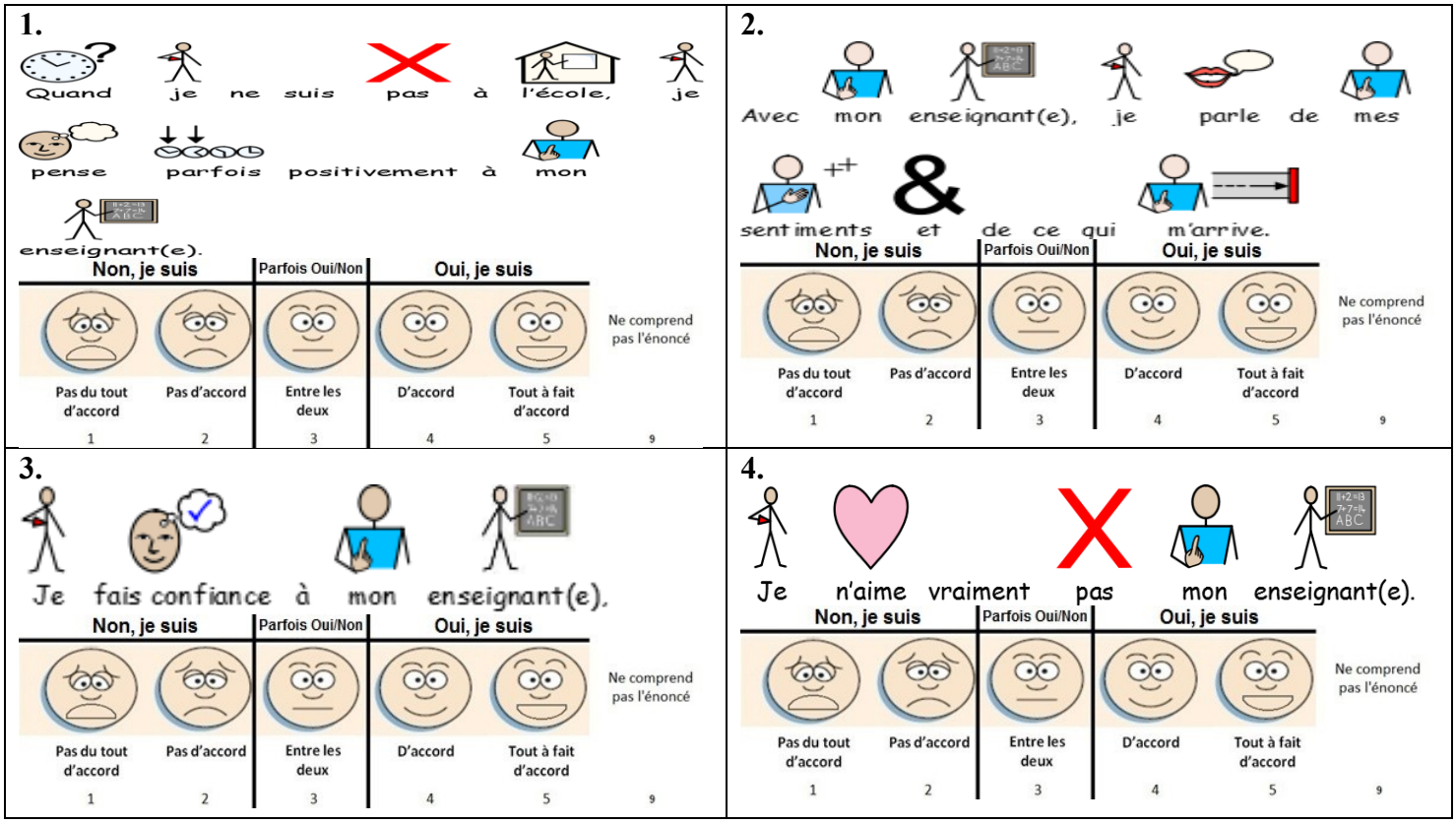
French Version

TON ENSEIGNANT(E)

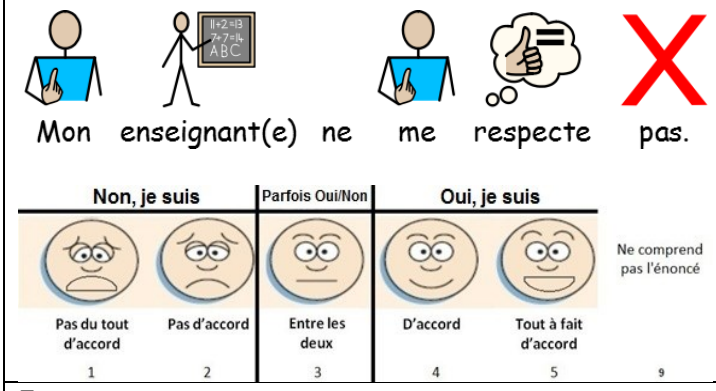
CONSIGNES

Je vais te lire des phrases sur **TA RELATION avec TON ENSEIGNANT(E)**. Ce n'est pas un examen. Il n'y a pas de bonne ou de mauvaise réponse, et tout le monde va avoir des réponses différentes. Après avoir lu la phrase, je vais te demander de me dire si **« oui » tu es d'accord** ou **« non » tu n'es pas d'accord** avec cette phrase. Tu dois répondre en fonction de ce que **TU PENSES de TA RELATION avec TON ENSEIGNANT(E)**. Il y a quelques phrases que tu peux avoir de la difficulté à comprendre. Si tu ne comprends pas une phrase ou un mot dans une phrase dis-moi **« Je ne sais pas ce que cela veut dire »**. Ce n'est pas grave, je vais essayer de te les expliquer ou de trouver d'autres mots. Après chaque phrase, tu dois **ENTOURER** la figure qui correspond à **TA RÉPONSE**. Tu dois **ENTOURER** la : **1ère figure** si ta réponse c'est « Non, je suis pas du tout d'accord », la **2ème figure** si ta réponse c'est « Non, je suis vraiment pas d'accord, la **3ème figure** si ta réponse c'est « Parfois oui, Parfois non », la **4ème figure** si ta réponse c'est « Oui, je suis d'accord », la **5ème figure** si ta réponse c'est « Oui, je suis tout à fait d'accord ». Je vais t'expliquer ce que ça veut dire « Non, je suis pas du tout d'accord », « Non, je suis pas d'accord », « Parfois oui, Parfois non », « Oui, je suis d'accord », « Oui, je suis tout à fait d'accord ».

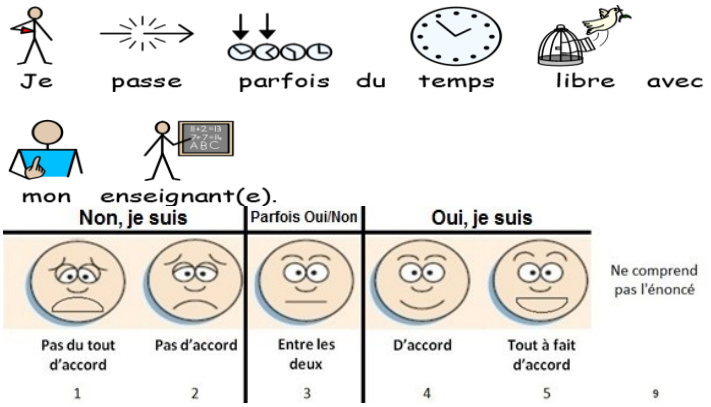
Maintenant, nous allons passer au questionnaire. Je vais te lire la phrase lentement. Demande-moi si tu veux que je la répète.



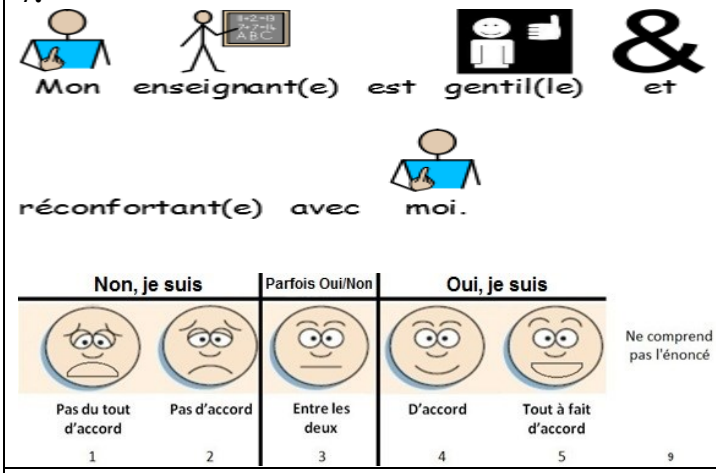
5.


Mon enseignant(e) ne me respecte pas.
Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
1
2
3
4
5
Ne comprend pas l'énoncé
9

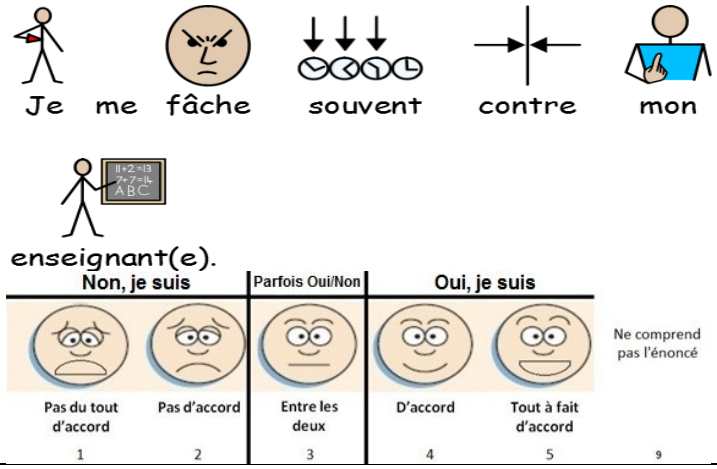
6.


Je passe parfois du temps libre avec mon enseignant(e).
Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
1
2
3
4
5
Ne comprend pas l'énoncé
9

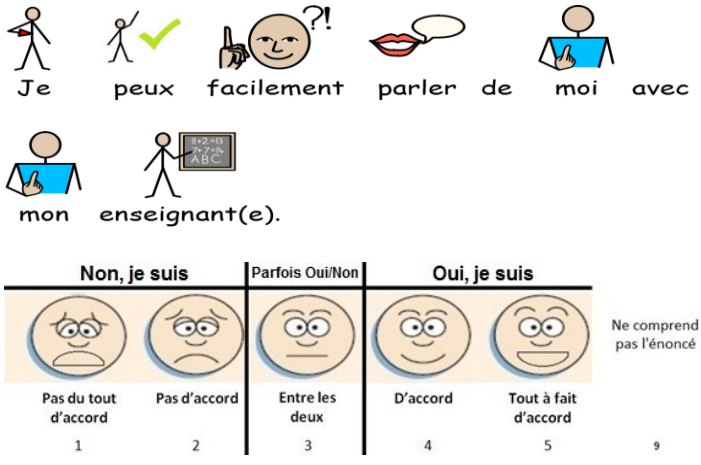
7.


Mon enseignant(e) est gentil(le) et réconfortant(e) avec moi.
Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
1
2
3
4
5
Ne comprend pas l'énoncé
9

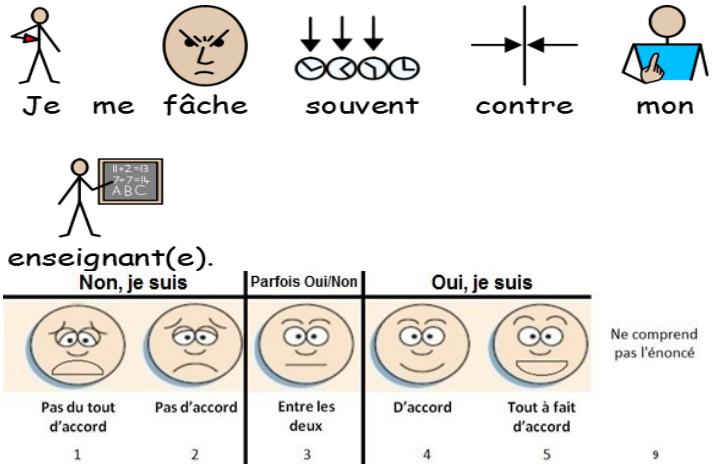
8.


Je me fâche souvent contre mon enseignant(e).
Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
1
2
3
4
5
Ne comprend pas l'énoncé
9

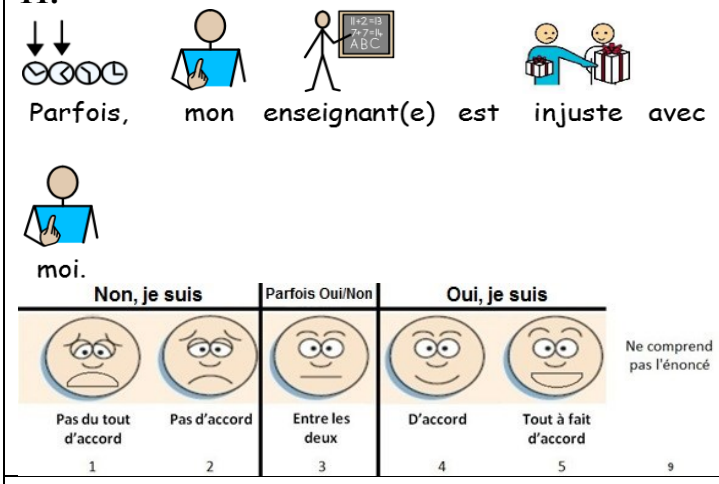
9.


Je peux facilement parler de moi avec mon enseignant(e).
Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
1
2
3
4
5
Ne comprend pas l'énoncé
9

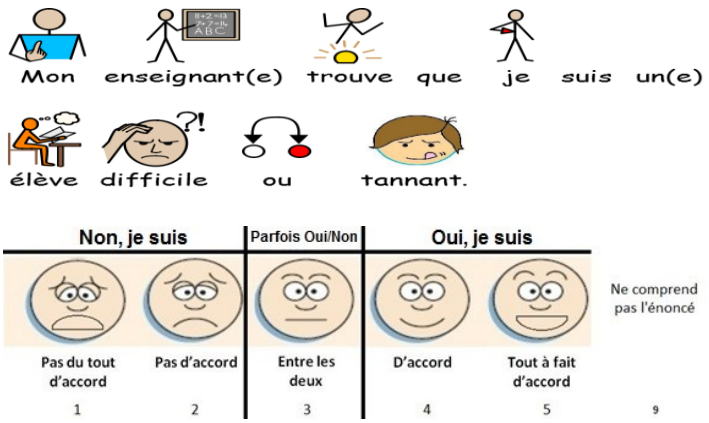
10.


Je me fâche souvent contre mon enseignant(e).
Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
1
2
3
4
5
Ne comprend pas l'énoncé
9

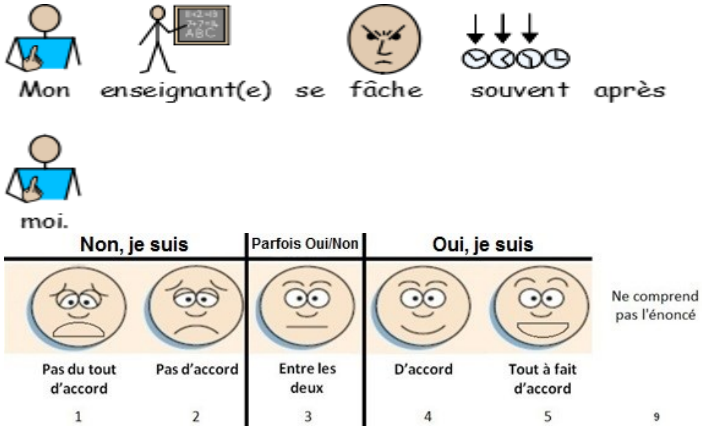
11.


Parfois, mon enseignant(e) est injuste avec
moi.
Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
Ne comprend pas l'énoncé
1
2
3
4
5
9

12.


Mon enseignant(e) trouve que je suis un(e)
élève difficile ou tannant.
Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
Ne comprend pas l'énoncé
1
2
3
4
5
9

13.


Mon enseignant(e) se fâche souvent après
moi.
Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
Ne comprend pas l'énoncé
1
2
3
4
5
9

Appendix B

Student Self-Report of Relationships with Parents

English Version

YOU AND YOUR PARENTS

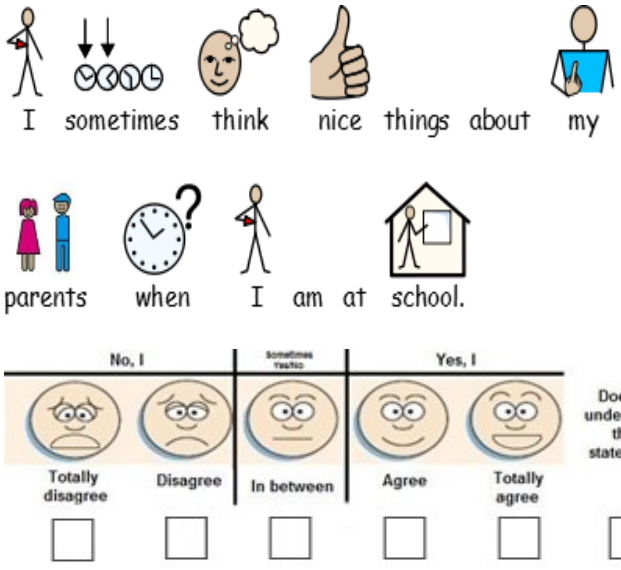
INSTRUCTIONS

I will read you sentences that best describe **what YOUR PARENTS DO at HOME in GENERAL and your RELATIONSHIP with them**. This is not an exam. There is no right or wrong answer, and everyone's answers will be different. After reading the sentence, I will ask you to tell me whether **'yes' you agree** or **'no' you disagree** with this sentence. You must answer according to what **YOU THINK OF YOUR RELATIONSHIP WITH YOUR PARENTS** or of what **YOUR PARENTS DO at HOME in GENERAL**. There are a few sentences that you may have trouble understanding. If you do not understand a sentence or a word in a sentence, tell me, **'I don't know what that means'**. It's okay; I will try to explain it to you or find other words.

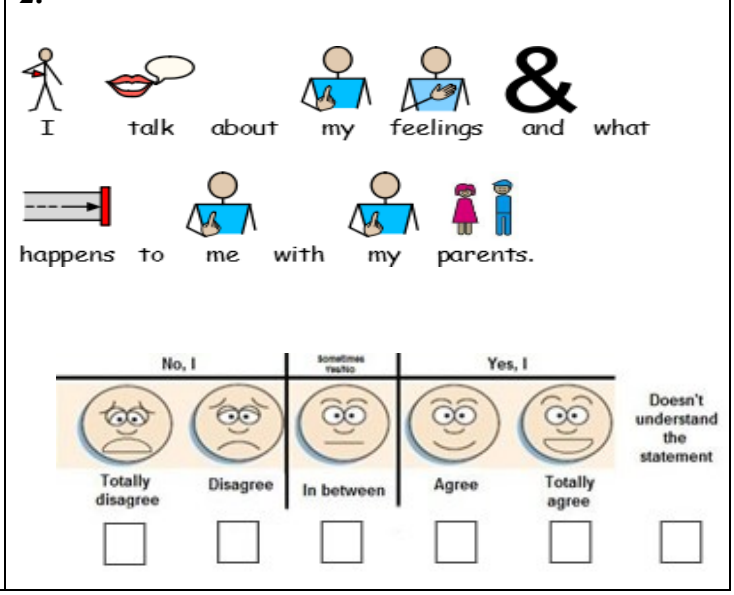
After each sentence, you must **CROSS or TICK** the figure that corresponds to **YOUR ANSWER**. You must **CROSS or TICK**: the **1st box** if your answer is 'No, I totally disagree'; the **2nd box** if your answer is 'No, I disagree'; the **3rd box** if your answer is 'Sometimes Yes, Sometimes No'; the **4th box** if your answer is 'Yes, I agree'; or the **5th box** if your answer is 'Yes, I totally agree'. I will explain to you the meaning of 'No, I totally disagree'; 'No, I disagree'; 'Sometimes Yes, Sometimes No'; 'Yes, I agree'; 'Yes, I totally agree'.

Now, we will begin the questionnaire. I will read you the sentence slowly. Ask me if you would like me to repeat it.

1.

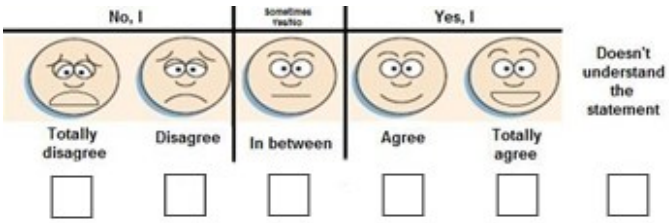


2.

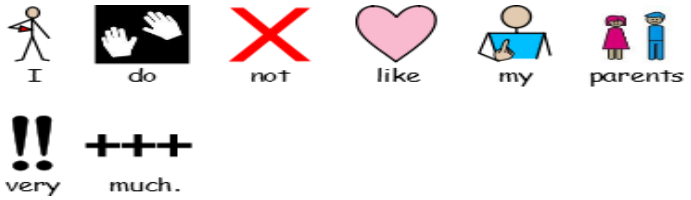


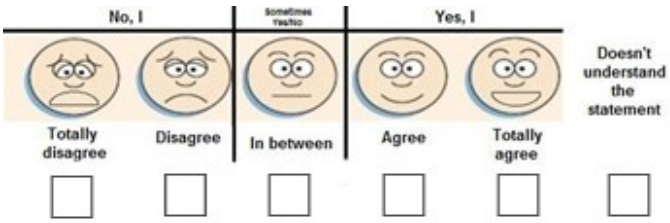
3.


I
trust
my
parents.

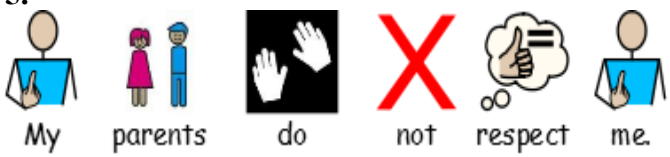

No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

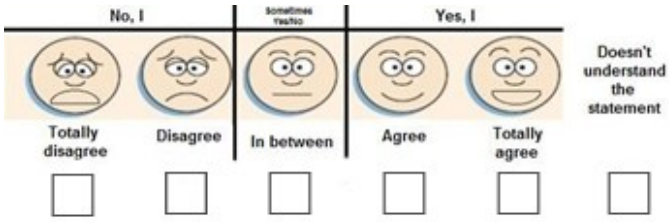
4.


I
do
not
like
my
parents
very
much.

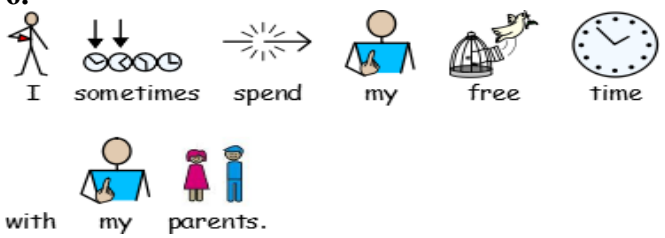

No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

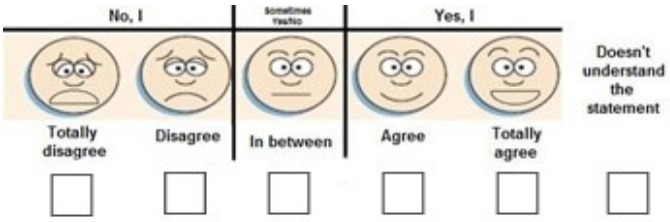
5.


My
parents
do
not
respect
me.


No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

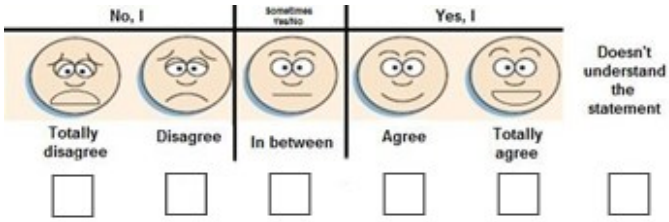
6.


I
sometimes
spend
my
free
time
with
my
parents.


No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

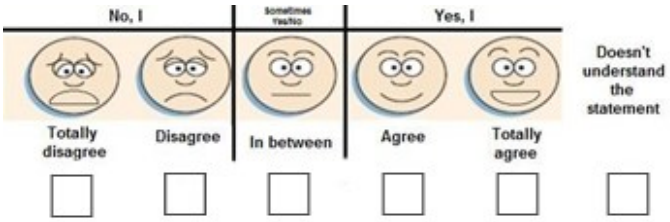
7.


I
have
a
good
relationship
with
my
parents.

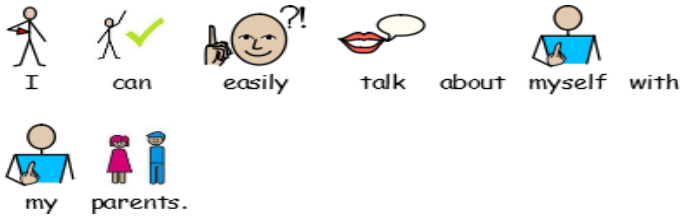

No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

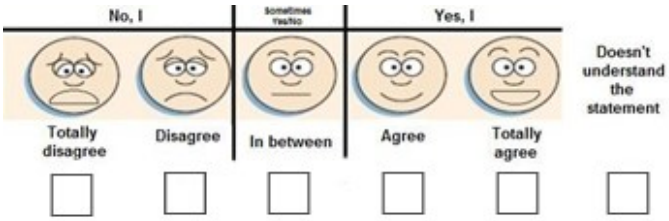
8.


I
often
argue
with
my
parents.

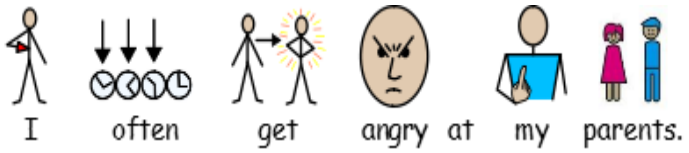

No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

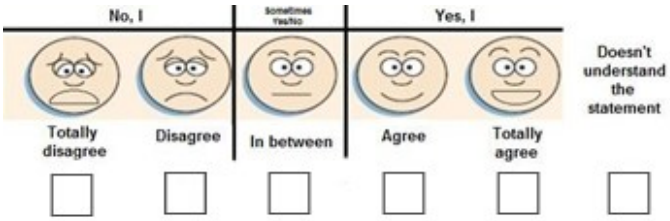
9.


I
can
easily
talk
about
myself
with
my
parents.

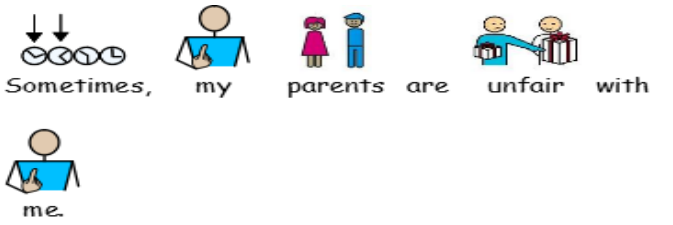

No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

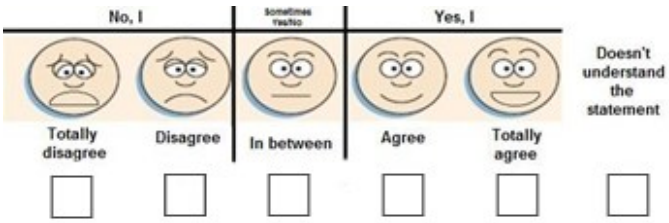
10.


I
often
get
angry
at
my
parents.

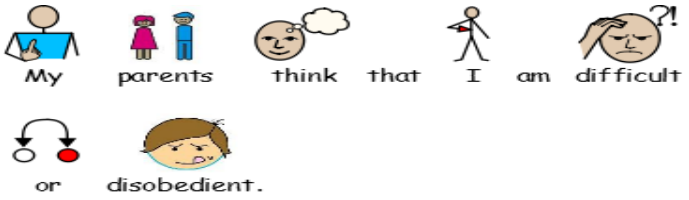

No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

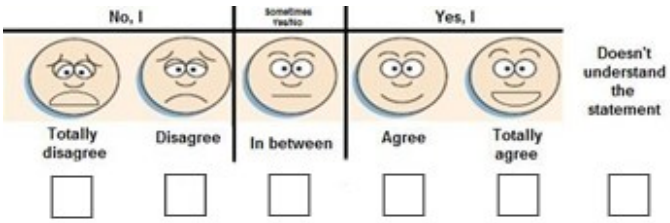
11.


Sometimes,
my
parents
are
unfair
with
me.

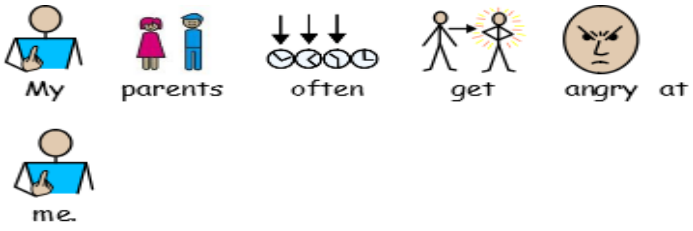

No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

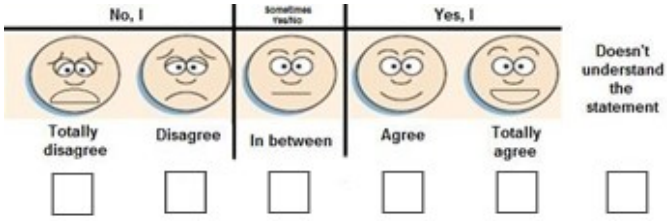
12.


My
parents
think
that
I
am
difficult
or
disobedient.


No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

13.


My
parents
often
get
angry
at
me.


No, I
Yes, I
Totally disagree
Disagree
In between
Agree
Totally agree
Doesn't understand the statement

French Version

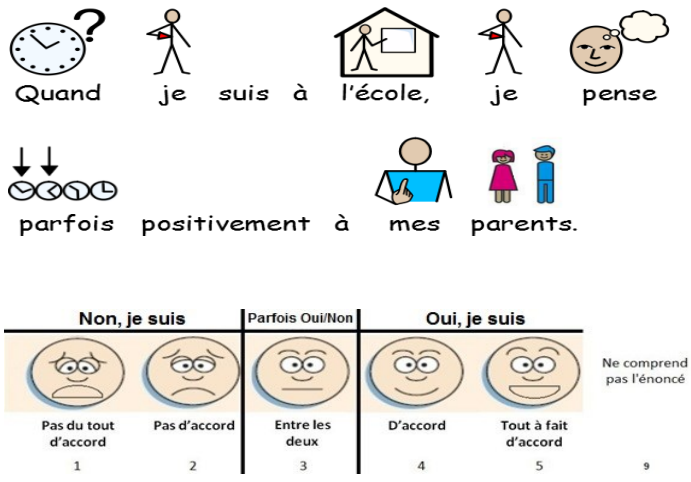
CONSIGNES

Je vais te lire des phrases qui décrivent le mieux **ce que TES PARENTS FONT à la MAISON en GÉNÉRAL et ta RELATION avec EUX**. Ce n'est pas un examen. Il n'y a pas de bonne ou de mauvaise réponse, et tout le monde va avoir des réponses différentes. Après avoir lu la phrase, je vais te demander de me dire si **« oui » tu es d'accord** ou **« non » tu n'es pas d'accord** avec cette phrase. Tu dois répondre en fonction de ce que **TU PENSES DE TA RELATION AVEC TES PARENTS** ou de ce que **TES PARENTS FONT à la MAISON en GÉNÉRAL**. Il y a quelques phrases que tu peux avoir de la difficulté à comprendre. Si tu ne comprends pas une phrase ou un mot dans une phrase dis-moi **« Je ne sais pas ce que cela veut dire »**. Ce n'est pas grave, je vais essayer de te les expliquer ou de trouver d'autres mots.

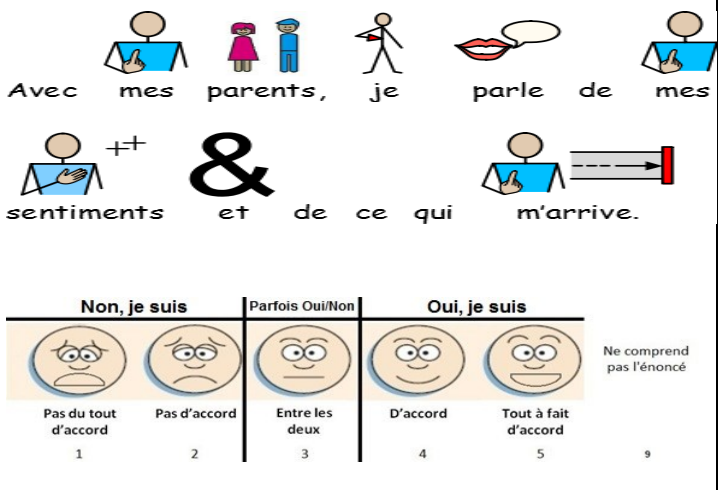
Après chaque phrase, tu dois **ENTOURER** la figure qui correspond à **TA RÉPONSE**. Tu dois **ENTOURER** la : **1ère figure** si ta réponse c'est « Non, je suis pas du tout d'accord », la **2ème figure** si ta réponse c'est « Non, je suis vraiment pas d'accord, la **3ème figure** si ta réponse c'est « Parfois oui, Parfois non », la **4ème figure** si ta réponse c'est « Oui, je suis d'accord », la **5ème figure** si ta réponse c'est « Oui, je suis tout à fait d'accord ». Je vais t'expliquer ce que ça veut dire « Non, je suis pas du tout d'accord », « Non, je suis pas d'accord », « Parfois oui, Parfois non », « Oui, je suis d'accord », « Oui, je suis tout à fait d'accord ».

Maintenant, nous allons passer au questionnaire. Je vais te lire la phrase lentement. Demande-moi si tu veux que je la répète.

1.

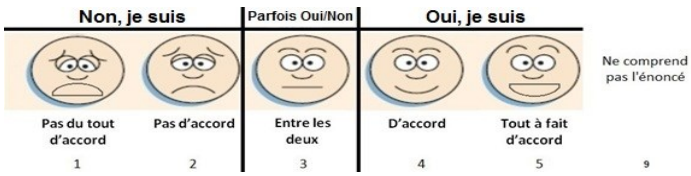


2.

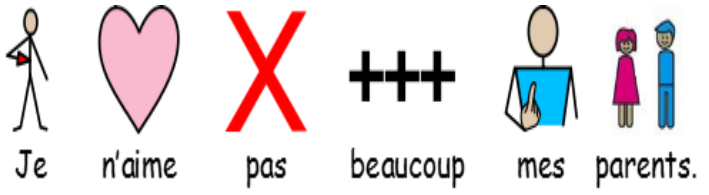


3.


Je fais confiance à mes parents.

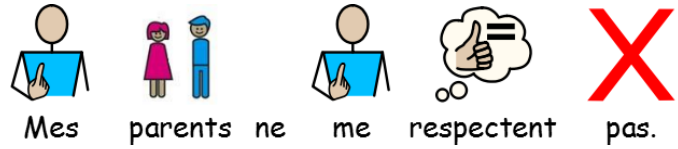

Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
Ne comprend pas l'énoncé
1
2
3
4
5
9

4.


Je n'aime pas beaucoup mes parents.

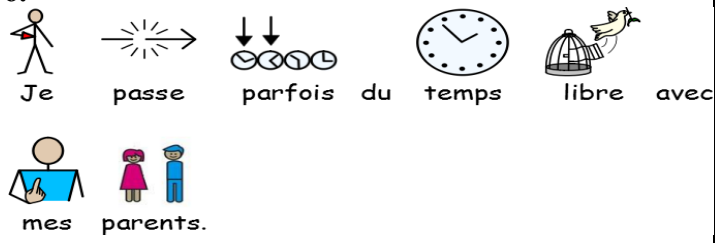

Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
Ne comprend pas l'énoncé
1
2
3
4
5
9

5.


Mes parents ne me respectent pas.


Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
Ne comprend pas l'énoncé
1
2
3
4
5
9

6.


Je passe parfois du temps libre avec mes parents.

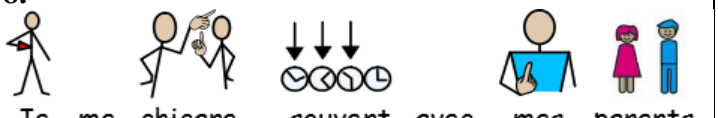

Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
Ne comprend pas l'énoncé
1
2
3
4
5
9

7.


J'ai une bonne relation avec mes parents.

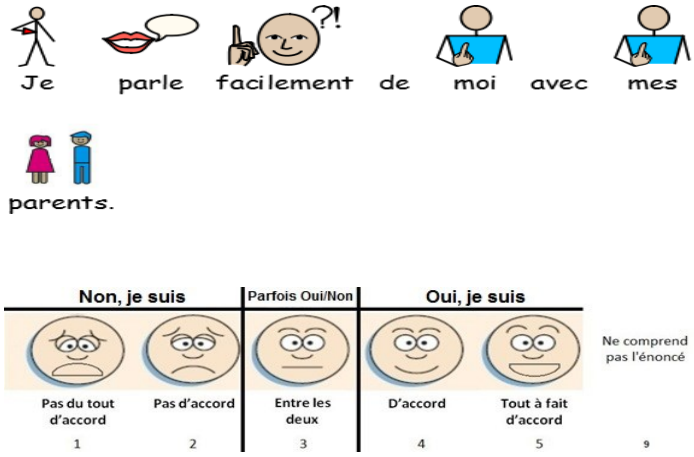

Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
Ne comprend pas l'énoncé
1
2
3
4
5
9

8.

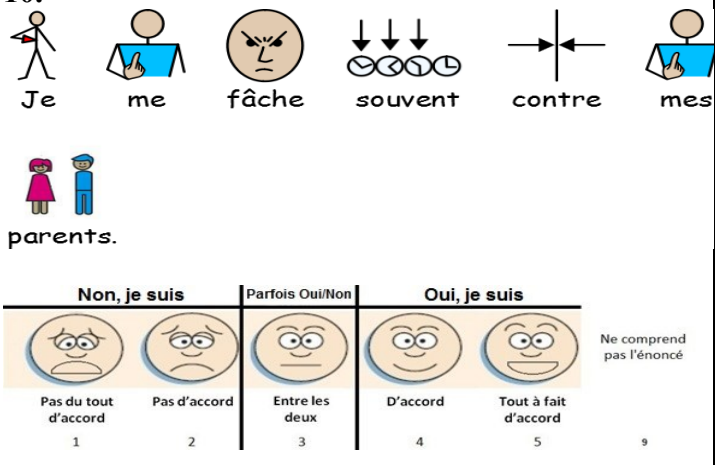

Je me chicane souvent avec mes parents.


Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
Ne comprend pas l'énoncé
1
2
3
4
5
9

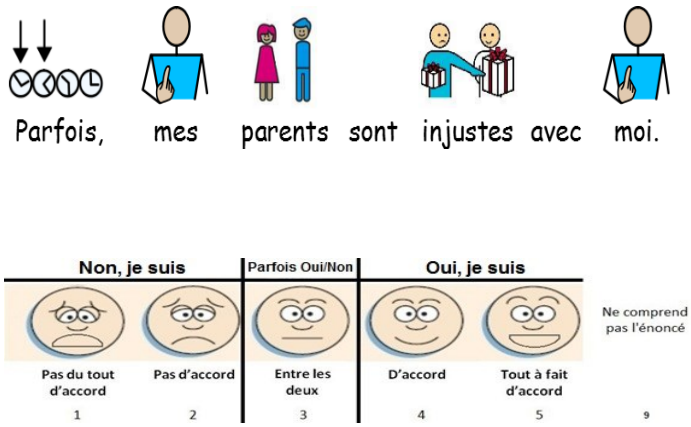
9.


Je parle facilement de moi avec mes parents.
Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
1
2
3
4
5
Ne comprend pas l'énoncé
9

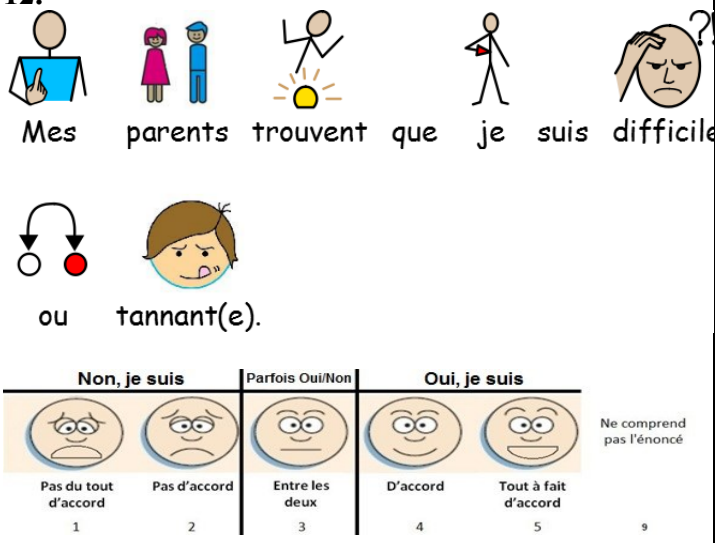
10.


Je me fâche souvent contre mes parents.
Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
1
2
3
4
5
Ne comprend pas l'énoncé
9

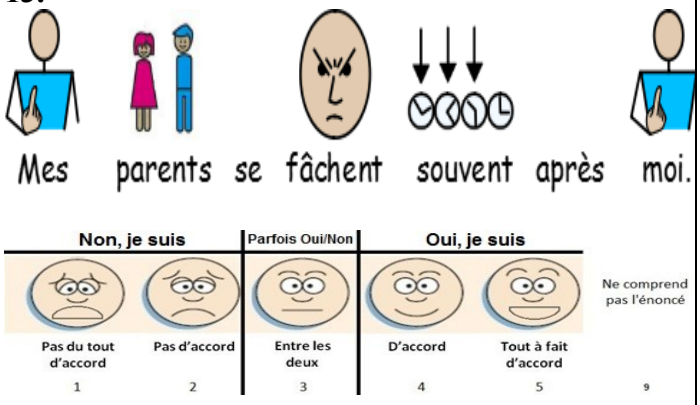
11.


Parfois, mes parents sont injustes avec moi.
Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
1
2
3
4
5
Ne comprend pas l'énoncé
9

12.


Mes parents trouvent que je suis difficile ou tannant(e).
Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
1
2
3
4
5
Ne comprend pas l'énoncé
9

13.


Mes parents se fâchent souvent après moi.
Non, je suis
Parfois Oui/Non
Oui, je suis
Pas du tout d'accord
Pas d'accord
Entre les deux
D'accord
Tout à fait d'accord
1
2
3
4
5
Ne comprend pas l'énoncé
9

Appendix C

Teachers' reports of Relationships with Student: Student Perspective

English Version

INSTRUCTIONS

Indicate how much you agree with each of the following sentences. Note that 'Neutral' means that you are not sure. There is no "right" or "wrong" answer. Simply give your general impression about each statement. **Please cross or tick one answer for each statement in the appropriate column.**

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	This student tells me that he/she sometimes thinks about me when he/she is not at school.	☐	☐	☐	☐	☐
2	This student sometimes shares his/her feelings and personal experiences with me.	☐	☐	☐	☐	☐
3	This student feels close to me and trusts me.	☐	☐	☐	☐	☐
4	This student doesn't seem to like me very much.	☐	☐	☐	☐	☐
5	This student doesn't feel respected by me.	☐	☐	☐	☐	☐
6	Sometimes, this student shares his/her free time with me.	☐	☐	☐	☐	☐
7	This student shares a warm and friendly relationship with me.	☐	☐	☐	☐	☐
8	It takes this student a lot of energy to discuss and negotiate with me	☐	☐	☐	☐	☐
9	This student talks about himself/herself spontaneously with me.	☐	☐	☐	☐	☐
10	This student easily gets mad at me.	☐	☐	☐	☐	☐
11	Sometimes, this student feels unfairly treated by me.	☐	☐	☐	☐	☐
12	This student has trouble getting along with me.	☐	☐	☐	☐	☐
13	This student is frequently in conflict with me.	☐	☐	☐	☐	☐

French Version

CONSIGNES

Indiquez à quel point vous êtes d'accord avec chacune des phrases suivantes. ***Attention ! Entre les deux : cela veut dire que vous n'êtes pas certain(ne)*****.** Il n'y a donc pas de « bonne » ou de « mauvaise » réponse. Donnez simplement votre impression générale à propos de chaque énoncé. **S'il-vous-plaît, encerclez une seule réponse pour chaque énoncé dans la colonne appropriée**.

		Pas du tout d'accord	Pas d'accord	Entre les deux	D'accord	Tout à fait d'accord
1	Cet élève me dit qu'il lui arrive parfois de penser à moi quand il n'est pas à l'école.	☐	☐	☐	☐	☐
2	Cet élève partage parfois ses sentiments et ses expériences personnelles avec moi.	☐	☐	☐	☐	☐
3	Cet élève se sent proche de moi et il me fait confiance.	☐	☐	☐	☐	☐
4	En général, cet élève ne semble pas m'aimer beaucoup.	☐	☐	☐	☐	☐
5	Cet élève ne se sent pas respecté par moi.	☐	☐	☐	☐	☐
6	Cet élève arrive parfois à passer un peu de son temps libre avec moi.	☐	☐	☐	☐	☐
7	Cet élève partage des relations chaleureuses et amicales avec moi.	☐	☐	☐	☐	☐
8	Il faut beaucoup d'énergie à cet élève pour discuter et négocier avec moi.	☐	☐	☐	☐	☐
9	Cet élève parle spontanément de lui avec moi.	☐	☐	☐	☐	☐
10	Cet élève se met facilement en colère contre moi.	☐	☐	☐	☐	☐
11	Parfois, cet élève a l'impression que je le traite injustement.	☐	☐	☐	☐	☐
12	Cet élève éprouve de la difficulté à bien s'entendre avec moi.	☐	☐	☐	☐	☐
13	Cet élève est souvent en conflit avec moi.	☐	☐	☐	☐	☐

Appendix D

Teachers' reports of Relationships with Student: Teacher Perspective

English Version

INSTRUCTIONS
Indicate how much you agree with each of the following sentences. **Note that 'Neutral' means that you are not sure.** There is no "right" or "wrong" answer. Simply give your general impression about each statement. **Please cross or tick one answer for each statement in the appropriate column.**

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	I sometimes think about this student when I'm not at school	☐	☐	☐	☐	☐
2	I sometimes share my feelings and personal experiences with this student	☐	☐	☐	☐	☐
3	I feel close to this student and trust him/her	☐	☐	☐	☐	☐
4	I usually don't like this student very much	☐	☐	☐	☐	☐
5	I don't feel respected by this student	☐	☐	☐	☐	☐
6	Sometimes, I share my free time with this student	☐	☐	☐	☐	☐
7	I have a warm and friendly relationship with this student	☐	☐	☐	☐	☐
8	I need a lot of energy to discuss and negotiate with this student.	☐	☐	☐	☐	☐
9	I talk about myself spontaneously with this student	☐	☐	☐	☐	☐
10	I get mad at this student easily	☐	☐	☐	☐	☐
11	I sometimes feel unfairly treated by this student	☐	☐	☐	☐	☐
12	I have difficulty getting along with this student	☐	☐	☐	☐	☐
13	I'm frequently in conflict with this student	☐	☐	☐	☐	☐

French Version

CONSIGNES

Indiquez à quel point vous êtes d'accord avec chacune des phrases suivantes. ***Attention ! Entre les deux : cela veut dire que vous n'êtes pas certain(ne)*****.** Il n'y a donc pas de « bonne » ou de « mauvaise » réponse. Donnez simplement votre impression générale à propos de chaque énoncé. **S'il-vous-plaît, encerclez une seule réponse pour chaque énoncé dans la colonne appropriée**.

		Pas du tout d'accord	Pas d'accord	Entre les deux	D'accord	Tout à fait d'accord
1	Il m'arrive de penser à cet élève quand je ne suis pas à l'école.	☐	☐	☐	☐	☐
2	Je partage parfois mes sentiments et mes expériences personnelles avec cet élève.	☐	☐	☐	☐	☐
3	Je me sens proche de cet élève et je lui fais confiance.	☐	☐	☐	☐	☐
4	En général, je n'aime pas beaucoup cet élève.	☐	☐	☐	☐	☐
5	Je ne me sens pas respecté par cet élève.	☐	☐	☐	☐	☐
6	J'arrive parfois à passer un peu de mon temps libre avec cet élève.	☐	☐	☐	☐	☐
7	Je partage des relations chaleureuses et amicales avec cet élève.	☐	☐	☐	☐	☐
8	Il me faut beaucoup d'énergie pour discuter et négocier avec cet élève.	☐	☐	☐	☐	☐
9	Je parle spontanément de moi avec cet élève.	☐	☐	☐	☐	☐
10	Je me mets facilement en colère contre cet élève.	☐	☐	☐	☐	☐
11	Parfois, j'ai l'impression d'être traité injustement par cet élève.	☐	☐	☐	☐	☐
12	J'éprouve de la difficulté à bien m'entendre avec cet élève.	☐	☐	☐	☐	☐
13	Je suis souvent en conflit avec cet élève.	☐	☐	☐	☐	☐

Appendix E

Parental Reports of Relationships with Student: Student Perspective

English Version

INSTRUCTIONS

Indicate how much you agree with each of the following sentences. Note that 'Neutral' means that you are not sure. There is no "right" or "wrong" answer. Simply give your general impression about each statement. **Please cross or tick one answer for each statement in the appropriate column.**

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	My child sometimes thinks about me when he/she is at school.	☐	☐	☐	☐	☐
2	My child sometimes shares his/her feelings and personal experiences with me.	☐	☐	☐	☐	☐
3	My child feels close to me and trusts me.	☐	☐	☐	☐	☐
4	My child doesn't seem to like me very much.	☐	☐	☐	☐	☐
5	My child doesn't feel respected by me.	☐	☐	☐	☐	☐
6	Sometimes, my child shares his/her free time with me.	☐	☐	☐	☐	☐
7	My child has a warm and friendly relationship with me.	☐	☐	☐	☐	☐
8	It takes my child a lot of energy to discuss and negotiate with me.	☐	☐	☐	☐	☐
9	My child talks about himself/herself spontaneously with me.	☐	☐	☐	☐	☐
10	My child gets mad at me easily.	☐	☐	☐	☐	☐
11	Sometimes, my child feels unfairly treated by me.	☐	☐	☐	☐	☐
12	My child has trouble getting along with me.	☐	☐	☐	☐	☐
13	My child is frequently in conflict with me.	☐	☐	☐	☐	☐

French Version

		Pas du tout d'accord	Pas d'accord	Entre les deux	D'accord	Tout à fait d'accord
1	Il arrive que mon enfant pense à moi quand il est à l'école.	☐	☐	☐	☐	☐
2	Mon enfant partage parfois ses sentiments et ses expériences personnelles avec moi.	☐	☐	☐	☐	☐
3	Mon enfant se sent proche de moi et il me fait confiance.	☐	☐	☐	☐	☐
4	En général, mon enfant ne semble pas m'aimer beaucoup.	☐	☐	☐	☐	☐
5	Mon enfant ne se sent pas respecté par moi.	☐	☐	☐	☐	☐
6	Mon enfant arrive parfois à passer un peu de son temps libre avec moi.	☐	☐	☐	☐	☐
7	Mon enfant partage des relations chaleureuses et amicales avec moi.	☐	☐	☐	☐	☐
8	Il faut beaucoup d'énergie à mon enfant pour discuter et négocier avec moi.	☐	☐	☐	☐	☐
9	Mon enfant parle spontanément de lui avec moi.	☐	☐	☐	☐	☐
10	Mon enfant se met facilement en colère contre moi.	☐	☐	☐	☐	☐
11	Parfois, mon enfant a l'impression d'être traité injustement par moi.	☐	☐	☐	☐	☐
12	Mon enfant éprouve de la difficulté à bien s'entendre avec moi.	☐	☐	☐	☐	☐
13	Mon enfant est souvent en conflit avec moi.	☐	☐	☐	☐	☐

Appendix F

Parental Reports of Relationships with Student: Parent Perspective

English Version

Indicate how much you agree with each of the following sentences. Note that 'Neutral' means that you are not sure. There is no "right" or "wrong" answer. Simply give your general impression about each statement. **Please cross or tick one answer for each statement in the appropriate column.**

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	I sometimes think about my child when he/she is at school.	☐	☐	☐	☐	☐
2	I sometimes share my feelings and personal experiences with my child.	☐	☐	☐	☐	☐
3	I feel close to my child and trust him/her.	☐	☐	☐	☐	☐
4	I usually don't like my child very much.	☐	☐	☐	☐	☐
5	I don't feel respected by my child.	☐	☐	☐	☐	☐
6	Sometimes, I share my free time with my child.	☐	☐	☐	☐	☐
7	I have a warm and friendly relationship with my child.	☐	☐	☐	☐	☐
8	I need a lot of energy to discuss and negotiate with my child.	☐	☐	☐	☐	☐
9	I talk about myself spontaneously with my child.	☐	☐	☐	☐	☐
10	I get mad at my child easily.	☐	☐	☐	☐	☐
11	I sometimes feel unfairly treated by my child.	☐	☐	☐	☐	☐
12	I have difficulty getting along with my child.	☐	☐	☐	☐	☐
13	I'm frequently in conflict with my child.	☐	☐	☐	☐	☐

French Version

CONSIGNES

Indiquez à quel point vous êtes d'accord avec chacune des phrases suivantes. *Attention ! Entre les deux : cela veut dire que vous n'êtes pas certaine*. Il n'y a donc pas de « bonne » ou de « mauvaise » réponse. Donnez simplement votre impression générale à propos de chaque énoncé. **S'il-vous-plaît, encerclez une seule réponse pour chaque énoncé dans la colonne appropriée**.

		Pas du tout d'accord	Pas d'accord	Entre les deux	D'accord	Tout à fait d'accord
1	Il m'arrive de penser à mon enfant quand il est à l'école.	☐	☐	☐	☐	☐
2	Je partage parfois mes sentiments et mes expériences personnelles avec mon enfant.	☐	☐	☐	☐	☐
3	Je me sens proche de mon enfant et je lui fais confiance.	☐	☐	☐	☐	☐
4	En général, je n'aime pas beaucoup mon enfant.	☐	☐	☐	☐	☐
5	Je ne me sens pas respecté par mon enfant.	☐	☐	☐	☐	☐
6	J'arrive parfois à passer un peu de mon temps libre avec mon enfant.	☐	☐	☐	☐	☐
7	Je partage des relations chaleureuses et amicales avec mon enfant.	☐	☐	☐	☐	☐
8	Il me faut beaucoup d'énergie pour discuter et négocier avec mon enfant.	☐	☐	☐	☐	☐
9	Je parle spontanément de moi avec mon enfant.	☐	☐	☐	☐	☐
10	Je me mets facilement en colère contre mon enfant.	☐	☐	☐	☐	☐
11	Parfois, j'ai l'impression d'être traité injustement par mon enfant.	☐	☐	☐	☐	☐
12	J'éprouve de la difficulté à bien m'entendre avec mon enfant.	☐	☐	☐	☐	☐
13	Je suis souvent en conflit avec mon enfant.	☐	☐	☐	☐	☐

Appendix G

Results from Model 3 Estimated Separately for Parents and Teachers at Time 2

		Self-report: Teacher		Teacher report			Self-report: Parent		Parent report		
		λ	δ	λ	MF λ	δ	λ	δ	λ	MF λ	δ
Warmth											
Item	1a	.627**	.607**	.440**		.806**	.713**	.492**	.701**		.509**
	1b			.246**	.524**	.665**			.298**	.524**	.740**
Item	2a	.696**	.516**	.661**		.563**	.676**	.543**	.590**		.652**
	2b			.445**	.614**	.425**			.348**	.614**	.391**
Item	3a	.967**	.066**	.864**		.253**	.882**	.222**	.917**		.159**
	3b			.747**	.607**	.074**			.660**	.607**	.214**
Item	4a	.513**	.737**	.689**		.525**	.770**	.407**	.479**		.771**
	4b			.550**	.357**	.571**			.337**	.357**	.798**
Item	5a	.817**	.333**	.590**		.652**	.945**	.107**	.820**		.328**
	5b			.645**	.316**	.484**			.738**	.316**	.350**
Item	6a	.709**	.497**	.745**		.445**	.822**	.325**	.635**		.596**
	6b			.347**	.621**	.494**			.414**	.621**	.452**
ω		.871		.891			.918		.891		
Conflict											
Item	1a	.735**	.460**	.828**		.315**	.798**	.363**	.946**		.105**
	1b			.694**	-.349**	.397**			.839**	-.349**	.261**
Item	2a	.730**	.467**	.747**		.442**	.789**	.378**	.875**		.235**
	2b			.641**	-.559**	.278**			.722**	-.559**	.213**
Item	3a	.740**	.453**	.836**		.301**	.655**	.572**	.786**		.382**
	3b			.659**	-.476**	.339**			.791**	-.476**	.349**
Item	4a	.814**	.337**	.869**		.244**	.602**	.637**	.697**		.514**
	4b			.820**	.092	.319**			.769**	.092	.388**
Item	5a	.794**	.370**	.792**		.372**	.723**	.477**	.721**		.480**
	5b			.830**	.297**	.223**			.742**	.297**	.230**
Item	6a	.698**	.513**	.933**		.130**	.727**	.471**	.746**		.443**
	6b			.844**	.212**	.242**			.630**	.212**	.527**
Item	7a	.757**	.427**	.651**		.576**	.705**	.503**	.638**		.593**
	7b			.755**	.255**	.365**			.648**	.255**	.524**
ω		.901		.963			.881		.954		

Note. *$p < .05$; **$p < .01$; λ: Factor loading; δ: Item uniqueness; ω = Omega coefficient of composite reliability; items labelled a: informant report of the perspective of the informant toward the child; items labelled b: informant reports of the perspective of the child toward the informant; MF: Method factor.

Appendix H

Longitudinally Invariant Results from the Complete Measurement Model

	Self-Report: Teacher		Teacher Report			Self-Report: Parent		Parent Report		
	λ	δ	λ	MF λ	δ	λ	δ	λ	MF λ	δ
Warmth										
Item 1a	.661**	.563**	.500**		.750**	.732**	.464**	.604**		.636**
1b			.356**	.486**	.637**			.277**	.599**	.564**
Item 2a	.687**	.528**	.735**		.459**	.702**	.508**	.542**		.707**
2b			.465**	.618**	.402**			.459**	.549**	.489**
Item 3a	.880**	.225**	.849**		.279**	.833**	.305**	.776**		.398**
3b			.729**	.557**	.158**			.731**	.382**	.319**
Item 4a	.579**	.665**	.695**		.517**	.808**	.348**	.596**		.645**
4b			.521**	.398**	.570**			.495**	.413**	.584**
Item 5a	.832**	.308**	.706**		.502**	.904**	.183**	.881**		.224**
5b			.729**	.197**	.430**			.830**	.196**	.272**
Item 6a	.805**	.352**	.765**		.414**	.825**	.302**	.620**		.616**
6b			.450**	.562**	.482**			.492**	.540**	.466**
ω	.882		.909			.916		.900		
Conflict										
Item 1a	.739**	.455**	.833**		.305**	.757**	.427**	.906**		.179**
1b			.739**	-.198**	.415**			.773**	-.067	.399**
Item 2a	.723**	.477**	.781**		.390**	.794**	.370**	.944**		.109**
2b			.716**	-.556**	.178**			.705**	-.362**	.372**
Item 3a	.769**	.409**	.853**		.272**	.695**	.516**	.736**		.458**
3b			.631**	-.537**	.313**			.731**	-.200**	.426**
Item 4a	.831**	.309**	.880**		.226**	.590**	.652**	.792**		.373**
4b			.864**	.001	.254**			.787**	.124	.366**
Item 5a	.759**	.423**	.813**		.340**	.775**	.399**	.714**		.490**
5b			.784**	.235**	.329**			.708**	.408**	.331**
Item 6a	.687**	.528**	.885**		.217**	.721**	.480**	.686**		.530**
6b			.798**	.087	.355**			.544**	.260**	.637**
Item 7a	.815**	.335**	.721**		.480**	.720**	.482**	.589**		.653**
7b			.733**	.191**	.426**			.626**	.345**	.489**
ω	.906		.964			.824		.899		

Note. *$p < .05$; **$p < .01$; λ: Factor loading; δ: Item uniqueness; ω = Omega coefficient of composite reliability; items labelled a: informant report of the perspective of the informant toward the child; items labelled b: informant reports of the perspective of the child toward the informant; MF: Method factor.

Appendix I

Longitudinally Invariant Factor Correlations from the Complete Measurement Model

	1	2	3	4	5	6	7	8
1. Student's perspective on the warmth dimension of teacher-student relationship quality.	—							
2. Student's perspective on the conflict dimension of teacher-student relationship quality.	-.552**	—						
3. Teacher's perspective on the warmth dimension of teacher-student relationship quality.	.221**	-.230**	—					
4. Teacher's perspective on the conflict dimension of teacher-student relationship quality.	-.098	.160**	-.379**	—				
5. Child's perspective on the warmth dimension of the parent-child relationship quality.	.538**	-.239**	.074	-.001	—			
6. Child's perspective on the conflict dimension of the parent-child relationship quality.	-.222**	.531**	-.079	.107	-.327**	—		
7. Parents' perspective on the warmth dimension of the parent-child relationship quality.	.278**	-.156*	.109	-.168	.247**	-.112	—	
8. Parents' perspective on the conflict dimension of the parent-child relationship quality.	-.244**	.121	-.041	.238**	-.231**	.198**	-.627**	—

Note. *$p < .05$; **$p < .01$