

JYU DISSERTATIONS 542

Mari Tunkkari

Maternal Homework Involvement

Links to Adolescents' Task Avoidance and
Academic Achievement across the Transition to
Lower Secondary School



UNIVERSITY OF JYVÄSKYLÄ
FACULTY OF EDUCATION AND
PSYCHOLOGY

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ABSTRACT

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The aim of this dissertation was to examine associations between maternal homework involvement, adolescents' task avoidance and academic achievement across the transition from primary to lower secondary school. The dissertation is part of the longitudinal STAIRWAY research project following early adolescents ($n = 848$) and their mothers ($n = 680$) across the educational transition. The data were collected from questionnaires during the fall terms of Grades 6 and 7. Information on adolescents' achievement was received from school registers. Study I examined the correspondence between adolescents' and mothers' perceptions of the quality of homework involvement (autonomy support and psychological control) and the relative importance of various maternal and adolescent factors in these perceptions. The results showed that the congruence between adolescents and mothers' perceptions of autonomy support was low, in contrast to a moderate congruence between their perceptions of psychological control. Adolescent (e.g., task avoidance) and maternal factors (e.g., emotions) played different roles in these perceptions. Study II examined the interplay between maternal homework involvement (quantity, quality, source of initiative), adolescents' task avoidance, and achievement across the educational transition. The results showed that mothers with poor-achieving adolescents exhibited high levels of psychological control and self-initiated monitoring, which in turn were associated with higher levels of adolescents' task avoidance and poorer achievement. Finally, Study III applied a person-oriented approach to examine the stability and change in maternal homework involvement patterns during the transition. Four distinct and relatively stable patterns of maternal homework involvement were identified across the transition, and these stabilities were predicted by adolescents' task avoidance and prior achievement. Overall, the results of this dissertation suggest that mothers with poor-achieving and highly task-avoidant adolescents are at risk of exhibiting highly psychologically controlling and intrusive homework involvement practices, which further play a detrimental role in adolescents' task avoidance and achievement. Thus, mothers would benefit from knowledge and understanding for how to provide autonomy support to struggling adolescents during the educational transition.

Keywords: homework, involvement, task avoidance, achievement

TIIVISTELMÄ (FINNISH ABSTRACT)

Tunkkari, Mari

Äitien osallistuminen kotitehtävien tekemiseen: Yhteydet varhaisnuorten tehtävien välttelyyn ja koulumenestykseen siirryttäessä alakoulusta yläkouluun
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Tämän väitöskirjatutkimuksen tavoitteena oli tarkastella äitien kotitehtäviin osallistumisen yhteyksiä varhaisnuorten tehtävien välttelyyn ja koulumenestykseen nuorten siirtyessä alakoulusta yläkouluun. Tutkimus on osa laajempaa TIKAPUU pitkittäistutkimushanketta, jossa seurattiin varhaisnuoria ($n = 848$) ja heidän äitejään ($n = 680$) koulusiirtymän ajan. Tutkimuksen aineisto perustui nuorille ja heidän äideilleen esitettyihin kyselylomakkeisiin kuudennen ja seitsemännentoista luokan syksyllä. Nuoren koulumenestys perustui rekisteristä saatuihin tietoihin. Ensimmäisessä osatutkimuksessa tarkasteltiin äitien ja nuorten kokemusten yhteneväisyyttä kotitehtäviin osallistumisen laadusta (autonomian tuki ja psykologinen kontrolli) sekä äitiin ja nuoreen liittyvien tekijöiden merkitystä näissä kokemuksissa. Tulokset osoittivat äitien ja nuorten kokemusten äidin tarjoamasta autonomian tuesta kotitehtävätilanteissa olevan heikosti yhteneväisiä, kun taas kokemukset psykologisesta kontrollista osoittivat kohtuullista yhteneväisyyttä. Nuoreen ja äitiin liittyvät tekijät, kuten tehtävien välttely ja tunteet olivat eri tavalla yhteydessä näihin kokemuksiin. Toisessa osatutkimuksessa tarkasteltiin äitien kotitehtäviin osallistumisen (määrä, laatu, aloite), nuoren tehtävien välttelyn ja koulumenestyksen välisiä yhteyksiä koulusiirtymän aikana. Tulokset osoittivat, että heikommin koulussa menestyvien nuorten äidit olivat keskimäärin psykologisesti kontrolloivampia kotitehtävätilanteissa, mikä edelleen oli yhteydessä nuorten runsaampaan tehtävien välttelyyn ja heikompaan koulumenestykseen. Kolmannessa osatutkimuksessa oltiin kiinnostuneita äitien kotitehtäviin osallistumisen tapojen profiileista, niiden pysyvyydestä ja niissä tapahtuvista muutoksista koulusiirtymän aikana. Äitien joukosta tunnistettiin neljä suhteellisen pysyvää kotitehtäviin osallistumisen profiilia koulusiirtymän aikana, joiden pysyvyyttä ennustivat nuoren tehtävien välttely ja aiempi koulumenestys. Väitöskirjan tulosten mukaan nuorten heikko koulumenestys ja tehtäviä välttelevä toimintatapa alakoulussa ovat riskitekijöitä äidin kontrolloiville kotitehtäviin osallistumisen tavoille, mitkä ovat edelleen yhteydessä runsaampaan tehtävien välttelyyn ja heikompaan koulumenestykseen yläkouluissa. Äideille tulisi tarjota konkreettisia keinoja, kuinka tukea nuorten autonomiaa kotitehtävätilanteissa alakoulusta yläkouluun siirtymän aikana.

Avainsanat: kotitehtävät, osallistuminen, tehtävien välttely, koulumenestys

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The author of this dissertation participated in the data collection in the STAIR-WAY research project, wrote the original research plan, performed the statistical analyses, and wrote the three articles with the help of co-authors' comments and suggestions.

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1 INTRODUCTION

Homework is considered essential for building students' learning and academic competence (Cooper, 2007). Homework can be defined as tasks assigned by teachers that should be carried out during non-school hours (Cooper, 1989). Thus, homework serves as a bridge between school and home and hence, provides an excellent opportunity for parents to involve in their children's schooling (Warton, 2001). The focus of this dissertation was on parents' homework involvement practices which should be differentiated from broader and more stable parenting styles. Parenting practices refer to specific parenting behaviors in a particular context, such as in the homework context, whereas parenting styles are understood as a wide range of parenting behaviors and attitudes that parents convey when interacting with their child (Darling & Steinberg, 1993; Pomerantz & Eaton, 2001).

It has been shown that homework involvement is the most common type of parental participation in the home context (Pezdek et al., 2002; Wingard & Forsberg, 2009). Previous literature has indicated that parental involvement with homework is a multidimensional construct that should be conceptualized through its quantity (i.e., how often parents are involved), quality (i.e., how parents are involved), and source of initiative (i.e., whether it is the adolescent or the parent who initiates homework involvement; Grolnick & Slowiaczek, 1994; Moroni et al., 2015). Nevertheless, most previous research has examined either the role of the quantity or quality of parental homework involvement in relation to adolescents' learning outcomes and has rarely included all of these aspects in a single study (as an exception, see Moroni et al., 2015). On top of that, previous research has failed to differentiate the source of initiative for homework involvement (Hoover-Dempsey & Sandler, 1997; Wei et al., 2019). Differentiating these three aspects of parental homework involvement is important because different practices may differentially satisfy or forestall adolescents' psychological needs for autonomy, competence, and relatedness (Deci & Ryan, 1985; Ryan & Deci, 2017). Hence, through their influence on adolescents' psychological need satisfaction, parental practices may also have different consequences for their motivation and academic achievement.

Previous research has suggested that the ways in which parents are involved in their adolescents' homework, as well as the effectiveness of such practices, change as children enter adolescence (Cooper et al., 2000; Gonida & Cortina, 2014; Hill & Tyson, 2009). These changes may stem from various other transformations that are happening simultaneously in their adolescents' lives. For example, changes in the educational context, such as the critical educational transition from primary school to lower secondary school, may be influential for parental homework involvement (for an overview, see Hill & Tyson, 2009). In Finland, the educational transition from primary school (Grade 6) to lower secondary school (Grade 7) takes place during early adolescence. In lower secondary school, adolescents face numerous changes, such as entering a new school environment, meeting new peers, and being taught new subjects. Moreover, instead of there being just one classroom teacher, adolescents begin being taught by multiple subject teachers. As a result of the educational transition, adolescents may receive more academic freedom in exchange for higher expectations that they will be more responsible of their own learning in lower secondary school (Strand, 2019; West et al., 2010). For example, teachers may expect adolescents to be able to master a higher amount and more complicated homework assignments independently in lower secondary school (Núñez et al., 2015; Strand, 2020).

In addition to this educational transition, adolescents simultaneously experience other significant developmental changes, including puberty, heightened need for autonomy, increased cognitive abilities, and identity formation, as well as changes in social relationships, such as increased need for independence from parents and peer orientation (Eccles et al., 1993; Hill & Tyson, 2009). These educational, developmental, and social changes may shape adolescents' motivation and achievement (Barber & Olsen, 2004; Eccles & Roeser, 2011; Tuominen et al., 2020), well-being, as well as adjustment in lower secondary school (West et al., 2010). It is well known that adolescents tend to experience academic and motivational decline during the transition possibly due to a mismatch between adolescents' changing needs and the support they receive from different contexts (e.g., parents, teachers; Barber & Olsen, 2004; Eccles et al., 1993; Eccles & Roeser, 2011). Different educational, developmental, and social changes may also make it challenging for parents to find the best ways to support their adolescents with their homework. As an example, parents may become worried over their adolescents' poor adjustment to lower secondary school and try to involve themselves in their children's homework in ways that are controlling of their psychological needs, which may further decrease their motivation and achievement (Eccles & Roeser, 2011; Grolnick, 2003; Ryan & Deci, 2017). Thus, in this dissertation, maternal homework involvement was examined across adolescents' transition from primary school to lower secondary school.

Parents and adolescents' behavior in a homework situation is influenced by the interpretations they make in those situations (Bandura, 1993; Korelitz & Garber, 2016). These interpretations may, in turn, be dependent on the extent to which the parent and the adolescent experience their psychological needs for

autonomy, competence, and relatedness to be satisfied (Katz et al., 2011; Ryan & Deci, 2017; Van der Kaap-Deeder et al., 2015). There is some evidence showing a moderate congruence between parents and adolescents' perception of the quantity of parental involvement (Grolnick et al., 1997; Pomerantz & Monti, 2015). In contrast, the rare studies on the congruence between such perceptions in the quality of involvement have shown more variety, especially concerning autonomy support (Cheung et al., 2016; Grolnick et al., 1991). Therefore, focusing solely on parents' perceptions, or those of adolescents, on the quality of involvement in the homework context may provide a simplified understanding of its significance in adolescents' learning outcomes (Cheung et al., 2016). Thus, the first aim of this dissertation was to examine the correspondence between adolescents and mothers' perceptions of the quality of maternal homework involvement.

Parental homework involvement that supports adolescents' psychological needs for autonomy, competence, and relatedness may promote achievement by increasing their motivational resources, such as persistence during homework situations (Grolnick et al., 1991; Ryan & Deci, 2017). Nevertheless, previous research has rarely considered the role of adolescents' motivational behavior as a possible mechanism for influencing the associations between aspects of parental homework involvement and adolescents' achievement (for an exception, see Viljaranta et al., 2018). On the other hand, it is well known that parents' homework involvement not only influences their adolescents' achievement, but such achievement might also evoke certain responses from parents concerning their involvement in homework (Bell, 1968; Dumont et al., 2014; Pomerantz & Eaton, 2001) that in turn may play a role in adolescents' subsequent motivational behavior (Ryan & Deci, 2017). Nevertheless, previous research has rarely examined aspects of parental homework involvement as mechanisms influencing the association between adolescents' achievement and motivational behavior (for an exception, see Silinskas & Kikas, 2019b). Because adolescents who struggle academically may evoke parents' highly controlling homework involvement practices, which may in turn have a detrimental effect on their adolescents' motivation, achievement, and overall adjustment in lower secondary school (Dumont et al., 2014; Núñez et al., 2017; Silinskas et al., 2015), there is a need for research investigating the associations between parental homework involvement, adolescents' motivational behavior, and academic achievement. Consequently, the second aim of this dissertation was to increase the understanding of the bidirectional associations between maternal homework involvement, adolescents' motivational behavior, and academic achievement across the educational transition.

It has been suggested that the influence that one parental homework involvement practice has on the satisfaction of adolescents' psychological needs may depend on the level of the other practices (Heberle et al., 2015; Moroni et al., 2016; Ryan & Deci, 2017). Despite this, previous research has rarely attempted to investigate the constellations of homework involvement practices using a person-oriented approach (for exceptions, see Lara & Saracostti, 2019; Moroni et

al., 2016). Consequently, the final aim of this dissertation was to broaden variable-oriented research of parental homework involvement by investigating patterns of maternal homework involvement among early adolescents transitioning from primary school to lower secondary school.

1.1 Parental homework involvement: Quantity, quality, and source of initiative

Parental involvement with homework is a multidimensional construct including quantity (i.e., the frequency of involvement), quality (i.e., how parents are involved), and the source of initiative for the involvement (i.e., whether parental homework involvement is adolescent-initiated or parent-initiated; Grolnick & Slowiaczek, 1994; Hoover-Dempsey & Sandler, 1997; Wei et al., 2019). However, thus far, parental homework involvement has mainly been investigated either in terms of the quantity or quality of involvement, and it has rarely been examined through both aspects (as an exception, see Moroni et al., 2015). Furthermore, previous studies have rarely differentiated the source of initiative as the third dimension of parental homework involvement (see also Green et al., 2007; Pomerantz & Ruble, 1998). In the present dissertation, self-determination theory (SDT) by Deci and Ryan (1985; see also Ryan & Deci, 2017, 2020) is used as a theoretical framework to understand the nature and psychological consequences of different aspects of parental homework involvement. According to this theory, satisfaction of the universal innate psychological needs for autonomy (i.e., volition and sense of control), competence (i.e., mastery), and relatedness (i.e., sense of belonging) are crucial for intrinsic motivation, persistence, and overall well-being (Chen et al., 2015; Ryan & Deci, 2020). Different aspects of social contexts, such as parental involvement, have a central role in satisfying versus suppressing these needs. As such, the ways that parents involve themselves in adolescents' homework can variously satisfy or forestall their child's psychological needs (Deci & Ryan, 2000). This, in turn, may lead to different motivational and achievement-related outcomes (Pomerantz & Grolnick, 2017; Ryan & Deci, 2017).

The quantity of parental homework involvement refers to the frequency of homework involvement practices. Previous research has identified two types of such practices: monitoring and help (Otani, 2020; Pomerantz & Eaton, 2001; Silinskas et al., 2013). Monitoring is defined as making sure homework is done and checking it for mistakes, whereas help is characterized as teaching and guiding (Pomerantz & Eaton, 2001; Silinskas et al., 2013). Previous studies have further characterized monitoring and help either as forms of intrusive support (i.e., parents are involved without being asked to be; Pomerantz & Eaton, 2001) or as forms of direct involvement (Patall et al., 2008; Silinskas et al., 2013, 2015). According to Silinskas et al. (2015), monitoring and help can be differentiated based on the degree of how directly parents are involved in adolescents'

homework. When parents help with homework, they are directly and actively participating in its completion (Patall et al., 2008; Silinskas et al., 2015). In turn, when they monitor homework, they are less directly involved (e.g., the parent asks if the homework is done; Silinskas et al., 2013). Following SDT (Ryan & Deci, 2017), such differences in the degree of direct involvement may in turn have different contributions to the satisfaction of adolescents' psychological needs. In particular, due to adolescents' increasing attempts to be autonomous and independent, they may perceive extensive parental help as a cue for their low ability, and parental help may therefore hinder the satisfaction of adolescents' autonomy, competence, and relatedness by restricting their sense of volition and mastery, causing conflict between the adolescent and their parent (Eccles et al., 1993; Ryan & Deci, 2020; Silinskas et al., 2015). In contrast, due to a lower degree of direct instruction, adolescents may not perceive monitoring to have a similar suppressing effect on their psychological needs (Ryan & Deci, 2017; Silinskas et al., 2015). However, due to the parent's lower level of interaction when monitoring, this approach may leave adolescents' feelings of relatedness unsatisfied (Ryan & Deci, 2017; Silinskas et al., 2015).

In line with SDT (Ryan & Deci, 2017), the quality of parental homework involvement can be conceptualized through autonomy support and control (Moorman & Pomerantz, 2008; Pomerantz et al., 2007). When parents support adolescents' autonomy, they are allowing them to be active and independent when doing homework by understanding their point of view (Pomerantz et al., 2007). However, parents remain available to provide assistance when needed in a way that gives adolescents the tools to solve tasks on their own (e.g., parents give hints without solving a problem; Moorman & Pomerantz, 2008). These behaviors are assumed to increase adolescents' feelings of autonomy, competence, and relatedness (Pomerantz & Grolnick, 2017; Ryan & Deci, 2020). In contrast, when parents are controlling, they apply pressure and take charge of homework situations by giving commands and directives (e.g., the parents provide the right answers), and therefore hinder adolescents from doing homework on their own (Grolnick & Pomerantz, 2009; Moorman & Pomerantz, 2008; Pomerantz et al., 2007). Parental controlling behavior is assumed to hinder adolescents' needs for autonomy, competence, and relatedness (Ryan & Deci, 2017).

Two theoretically and empirically separate aspects of control, behavioral control and psychological control, have been further differentiated (Barber, 1996; Barber & Harmon, 2002; Grolnick & Pomerantz, 2009). The main difference between these aspects lies in the focus of control (Barber, 1996). Behavioral control refers to parents' attempts to manage and monitor adolescent's behavior by setting rules and gaining knowledge of their life (Grolnick & Pomerantz, 2009). Such controlling practices may manifest themselves in homework situations through setting rules about when and how homework should be done (Patall et al., 2008). In contrast, psychologically controlling parents attempt to dominate, manipulate, and intrude into the mind, feelings, and behavior of the adolescent by pressuring and expressing guilt, shame, and love withdrawal when the child

does not live up to parental standards (Barber & Harmon, 2002; Grolnick & Pomerantz, 2009). In homework situations, parental psychologically controlling practices may serve as a means to make the adolescent comply with parental standards for homework and achievement (i.e., achievement-oriented psychological control; Grolnick, 2003; Soenens et al., 2010). Thus, parents may pressure and express disappointment and shame if the adolescent has not done their homework or has gotten a bad grade on a test. While behavioral control is conceptualized as a more appropriate aspect of control, psychological control is assumed to thwart adolescents' self-expression and initiative, create insecurities about their competence, and make them more emotionally dependent on their parent; therefore, it is conceptualized as being extremely detrimental for adolescents' psychological needs, subsequent achievement, and overall well-being (Barber, 1996; Barber & Harmon, 2002; Chorpita et al., 2016; Costa et al., 2016; Soenens & Vansteenkiste, 2010; Soenens et al., 2010). Due to the detrimental role of psychological control on adolescents' overall adjustment, this dissertation investigated psychological control and conceptualized it as a negative form of the quality of parental homework involvement.

In addition to the frequency of involvement (i.e., quantity) and how parents are involved (i.e., quality), invitations for involvement are another crucial part of parental involvement with homework (Green et al., 2007; Hoover-Dempsey & Sandler, 1997; Wei et al., 2019). In this dissertation, this third aspect is defined as the source of initiative. According to the model of parental involvement process, parents may be involved with adolescents' homework on their own initiative due to implicit invitations they perceive from adolescents (e.g., adolescents avoiding tasks or struggling academically) or on the adolescent's initiative due to their explicit requests for involvement (Green et al., 2007; Hoover-Dempsey & Sandler, 1997; Wingard & Forsberg, 2009). Linking this back to SDT (Ryan & Deci, 2017), parental involvement may have different consequences for adolescents' psychological needs depending on whether the initiative for involvement comes from the parent or the adolescent. Parental involvement without the adolescent asking for it may give the latter signals of their own low ability. Despite parents initiating involvement to show interest in their child's schooling, doing so may be perceived as unwanted and restricting their opportunities to do homework independently, create tension between the adolescent and their parent and therefore may hinder the satisfaction of the adolescent's autonomy, competence, and relatedness (Pomerantz & Eaton, 2001; Ryan & Deci, 2017). In contrast, adolescent-initiated involvement is less likely to be perceived as unwanted and hence may not have similar depriving effects on the satisfaction of their psychological needs (Pomerantz & Grolnick, 2017; Ryan & Deci, 2017). To be more specific, when adolescents request parental involvement, parents meet their needs by giving them signals of interest and availability, and experience of being supported, which may better satisfy adolescents' feelings of autonomy, competence, and relatedness (Pomerantz et al., 2007; Ryan & Deci, 2020).

Taken together, the quantity, quality, and source of initiative may variously contribute to the satisfaction of adolescents' psychological needs and further

have different consequences for adolescents' motivation and achievement (Ryan & Deci, 2017). Nevertheless, studies have rarely considered all of these aspects when examining parental homework involvement (for quantity and quality of parental homework involvement, see Moroni et al., 2015). Due to significant developmental changes (e.g., increased need for autonomy), social changes (e.g., seeking independence), and educational changes occurring in early adolescence (i.e., transition to lower secondary school; Eccles & Roeser, 2011; Hill & Tyson, 2009; Wei et al., 2019), it is important to take into account the various ways that parents may attempt to improve adolescents' learning and motivation. Focusing only on one aspect of involvement may give a biased understanding of the relationship between parental homework involvement, adolescents' motivation, and achievement. Consequently, the present dissertation aimed to broaden our understanding of parental involvement in adolescents' homework by considering quantity, quality, and the source of initiative as three central aspects of parental homework involvement.

1.2 Congruence and predictive power of parent and adolescent perceptions of parental homework involvement

It has been suggested that parental involvement with homework creates emotional charge during homework situations whereby both the adolescent and the parent have their own interpretations, and these interpretations can further evoke certain behaviors (Bandura, 1993; Dix, 1991; Korelitz & Garber, 2016). As such, focusing only on one perspective may provide a simplified understanding of parental homework involvement and lead to biased conclusions regarding its significance in adolescents' motivation and achievement (see also Cheung et al., 2016). Some research has shown that parents perceive the quantity of their involvement somewhat similarly to how their elementary school-aged children do (Grolnick et al., 1997). According to Pomerantz and Monti (2015), parents who are the cause of involvement may be able to quite reliably filter out occasions of involvement that are not typical to them and focus rather on estimating the typical frequency of their homework involvement. In turn, following the principles of SDT (Ryan & Deci, 2000, 2017), it can be argued that the interpretations that parents and adolescents have of the quality of parental homework involvement (autonomy support and psychological control) are less objective and more dependent on the degree of need satisfaction (see also Katz et al., 2011; Van der Kaap-Deeder et al., 2015). In other words, how parental autonomy support during homework situations is interpreted may depend on the degree to which raters experience that their own psychological needs for autonomy, competence, and relatedness are fulfilled (Katz et al., 2011; Korelitz & Garber, 2016; Van der Kaap-Deeder et al., 2015). Consequently, the present dissertation focused on examining the congruence between adolescents and mothers' perceptions of the quality of maternal homework involvement.

Previous research on the quality of parental homework involvement has at least a few limitations. First, the quality of such involvement has been measured either by using parents' self-reports (Gonida & Cortina, 2014) or adolescents' reports (Dumont et al., 2014), and so less is known about the congruence of these reports. The perceptions of each party may have critical weaknesses. For example, parents' self-reports may be influenced more by social desirability than those of adolescents (Sessa et al., 2001; Su et al., 2015). In turn, adolescents' evaluations may be influenced by the quality of the adolescent's relationship with their parent because they may lack the skills necessary for evaluating parenting, such as parental control (Cheung et al., 2016; Pomerantz & Monti, 2015; Su et al., 2015). The rare studies that have examined both parents and adolescents' perceptions of the quality of parental involvement in the home context have shown that parents and their children experience this involvement somewhat differently (Cheung et al., 2016; Dinkelman & Buff, 2016; Grolnick et al., 1991; Su et al., 2015). In particular, the correspondence between parents and adolescents' perceptions of autonomy support has been low (Cheung et al., 2016; Grolnick et al., 1991), whereas the correspondence between these perceptions of control has been moderate to high (Cheung et al., 2016; Dinkelman & Buff, 2016; Su et al., 2015). There is also some indication that the difference between parents and adolescents' perceptions of autonomy support may become larger over the course of adolescence (Vrolijk et al., 2020).

Another limitation of the previous research is that the associations between the quality of parental homework involvement and adolescents' achievement have mostly been examined based on either parent's perceptions (Gonida & Cortina, 2014) or adolescent's perceptions (Dumont et al., 2014), and less is therefore known about the predictive power of both perceptions. The few studies that have examined the predictive power of both adolescents and parents' perceptions of parental involvement simultaneously have shown contradictory results (Cheung et al., 2016; Dinkelman & Buff, 2016; Su et al., 2015). In a study by Cheung et al. (2016), adolescents' perceptions were a more significant predictor of their achievement, whereas some other studies have found parent's perceptions to be more a salient predictor of children's achievement (Dinkelman & Buff, 2016; Su et al., 2015). Because of the quite modest correspondence found between parents and adolescents' perceptions, focusing only on one perspective can be considered an important methodological issue that may provide a simplified understanding of the role of the quality of parental homework involvement and lead to biased conclusions about its predictive power (see also Cheung et al., 2016). Hence, this dissertation aimed to increase the understanding of the different roles of mothers and adolescents' perceptions of the quality of maternal homework involvement and their predictive power.

1.3 Relative importance of adolescent-related and parent-related antecedents

It has been suggested that an understanding of different adolescent-related and parent-related antecedents is necessary for understanding why parents utilize certain homework involvement practices (Dumont et al., 2014; Gonida & Cortina, 2014). In this dissertation, Belsky's (1984) model of parenting is used as a theoretical framework to conceptualize different antecedents of the quality of parental homework involvement. According to this model, parenting is variously determined by three types of determinants, namely parent factors, child factors, and contextual factors. Due to contradictory findings on the significance of contextual factors on the quality of parental homework involvement (for parents' education, see Dumont et al., 2012, 2014; Moroni et al., 2015; Su et al., 2015), the main focus in this dissertation was on the relative importance of adolescent and maternal factors in the quality of maternal homework involvement. Among the maternal factors, mothers' emotions during homework situations and beliefs about adolescents' school success were investigated, whereas among the adolescent factors, academic functioning (in terms of task avoidance and academic achievement) and academic emotions were examined. Due to homework being an emotionally charged situation during which adolescents and their parents experience various positive and negative emotions (Dix, 1991; Pekrun, 2006; Pomerantz et al., 2007), the role of maternal emotions and that of adolescents' academic emotions in relation to the quality of maternal homework involvement were examined. Moreover, due to previous suggestions that parents' behavior can be influenced by their beliefs (Darling & Steinberg, 1993; Eccles et al., 1983), as well as adolescent's achievement and behavior during homework situations (Dumont et al., 2014), the role of mothers' beliefs and adolescents' academic functioning in the quality of maternal homework involvement were examined.

Following Belsky's (1984) model of parenting, adolescent factors such as their academic functioning (Dumont et al., 2014) and academic emotions (Pekrun, 2006) may play a role in the quality of parental homework involvement. Studies have shown a link between adolescents' poorer achievement and high levels of parent-perceived and adolescent-perceived intrusive and controlling involvement practices (Dumont et al., 2014; Núñez et al., 2017; Silinskas et al., 2015). However, it has been suggested that adolescents' motivational behavior may play a more significant role in parental homework involvement than achievement due to behavior during homework situations being more visible to parents than distal achievement (Dumont et al., 2014). As an example, Dumont et al. (2014) found adolescents' learning behavior in terms of high effort and low procrastination (but not their achievement) to be related to adolescent-perceived positive involvement practices (i.e., responsiveness and structure). In this dissertation, adolescents' motivational behavior was operationalized as task-avoidant behavior. Task avoidance is a form of maladaptive behavior that

adolescents' may show in achievement and learning situations (Aunola et al., 2002; Diener & Dweck, 1978; Hirvonen, 2013; Jones & Berglas, 1978). Task avoidance is defined as adolescents' tendency to show low determination and focus when facing challenges (Aunola et al., 2002; Georgiou et al., 2010; Onatsu-Arvilommi & Nurmi, 2000). This behavioral tendency manifests itself through their low effort and distractibility, which leads them to give up easily and eventually to perform poorly at school (Aunola et al., 2002; Zhang et al., 2011). It can be assumed that adolescents' low confidence in their own ability may lead them to expect failure when performing a task (Jones & Berglas, 1978). To give an excuse for failure or to cope with low perceived control in that situation, they then engage in task-irrelevant activities during difficult learning situations (Diener & Dweck, 1978; Hirvonen, 2013; Jones & Berglas, 1978).

Similar to adolescents' academic functioning, parents' homework involvement may also be influenced by the emotions that adolescents express during homework situations (Pomerantz et al., 2005a). In this dissertation, adolescents' academic emotions were investigated. According to Pekrun (2006), positive (e.g., enjoyment, pride) and negative (e.g., boredom, frustration) academic emotions refer to emotions that arise in different academic settings related to learning, achievement, and instruction. Adolescents' academic emotions may influence parental homework involvement in various ways. For example, adolescents may feel enjoyment in learning situations when they perceive that putting intensive effort into academic tasks will result in them being able to master the content (Pekrun, 2006; Pekrun et al., 2002). Parents may then interpret adolescents' enjoyment as a sign of interest and motivation (Pekrun & Linnenbrink-Garcia, 2012) that may in turn influence parents' enjoyment during homework situations and promote parental autonomy support (Pekrun et al., 2002; Pomerantz et al., 2007). In contrast, adolescents' negative academic emotions may be interpreted as a lack of interest and motivation that may in turn serve as a risk factor for high parental controlling involvement practices (Pekrun et al., 2002; Pekrun & Linnenbrink-Garcia, 2012; Pomerantz et al., 2005a). Nevertheless, to my best knowledge, adolescents' positive and negative academic emotions have not previously been examined as antecedents of the quality of parental homework involvement.

Following Belsky's (1984) model, parental factors such as the emotions and beliefs they hold for their children's competence are important directors of parenting practices (Darling & Steinberg, 1993; Dix, 1991; Pomerantz et al., 2007) and may thus play a role in the quality of their homework involvement. It has been suggested that due to the affective nature of parenting, parents' positive and negative emotions during homework situations may influence their behavior in such settings (Dix, 1991; Pomerantz et al., 2005a). Positive emotions refer to satisfaction and joy, whereas negative emotions are described as irritation, annoyance, stress, and frustration that parents experience when interacting with their child (Pomerantz et al., 2007). There may be multiple ways that parents' emotions influence their homework involvement (Pomerantz et al., 2007). For example, some studies have shown that parents who experience high levels of

negative emotions during homework situations also provide highly intrusive monitoring of and help for their struggling children (Pomerantz & Eaton, 2001; Pomerantz et al., 2005a; Silinskas et al., 2015). In contrast, parents' positive emotions and lack of negative ones may be in reaction to adolescents' high competence, which is further assumed to evoke more sensitive involvement practices such as autonomy support (Pomerantz et al., 2007; Silinskas et al., 2015). However, previous research has focused on parents' emotions in relation to the quantity of self-perceived homework involvement (e.g., Silinskas et al., 2015). Consequently, the role of parents' emotions as antecedents of the quality of adolescent-perceived and parent-perceived homework involvement is as yet unknown.

In addition to parents' emotions, their beliefs about adolescents' competence may also manifest themselves in different ways, such as through direct conversations as well as more subtle means such as values and attributions made for adolescents' competence, and beliefs may thus play a significant role in parental homework involvement (Eccles et al., 1983; Frome & Eccles, 1998; Jodl et al., 2001; Pomerantz et al., 2005b). However, how parents' beliefs are related to the way in which they are involved in their children's homework has received less attention (as an exception, see Gonida & Cortina, 2014). There is some evidence to suggest that parents' beliefs are influential for their own perceptions of their control, interference, and cognitive engagement during homework situations (Gonida & Cortina, 2014). However, the extent to which parents' beliefs are related to adolescent-perceived quality of parental homework involvement has, to my best knowledge, not been previously investigated.

Thus far, the scarce previous research on adolescent-related and mother-related antecedents has focused on the relative importance of adolescents' academic functioning (in terms of motivational behavior during homework situations and achievement) as antecedents of adolescent-perceived quality of homework involvement (Dumont et al., 2014) or parental factors (in terms of parental beliefs and achievement goals) as antecedents of parent-perceived quality of homework involvement (Gonida & Cortina, 2014). Consequently, less is known about the relative importance of both adolescent and parental factors as antecedents of adolescent-perceived and parent-perceived quality of homework involvement. Given the role that parental homework involvement may play in adolescents' need satisfaction, motivation, and achievement (Pomerantz et al., 2007; Ryan & Deci, 2020; Silinskas & Kikas, 2019a), understanding of the different adolescent and parental factors that influence how each party perceives homework situations may be useful when trying to identify possible risk factors related to perceived controlling involvement practices and factors that may promote autonomy support during homework situations. This dissertation aimed to broaden the understanding of the relative role of maternal and adolescent factors in adolescent-perceived and mother-perceived quality of homework involvement.

1.4 The interplay between parental homework involvement, adolescents' task avoidance, and academic achievement

Despite their best attempts to improve adolescents' learning, motivation, and achievement, parents' involvement with homework may not always be beneficial (Patall et al., 2008; Pomerantz et al., 2007). Following SDT (Ryan & Deci, 2017), the ways that parental involvement influences adolescents' achievement depend on how parents are able to support adolescents' needs to be autonomous, competent, and connected with others. When parental involvement fulfills these needs, adolescents are expected to be intrinsically motivated and show persistence when facing difficult homework tasks, which may in turn manifest itself as higher achievement (Pomerantz et al., 2007; Ryan & Deci, 2017). However, in line with transactional theories (Sameroff, 2010), it can be assumed that adolescents' characteristics, such as their motivational behavior and achievement, are in continuous interplay with parental behavior during homework situations. In other words, adolescents are not only targets of parental behavior but they also actively influence parents' behavior during homework situations (see also Bell, 1968; Scarr & McCartney, 1983). Thus, this dissertation investigated the bidirectional associations between maternal homework involvement (i.e., quantity, quality, source of initiative), adolescents' motivational behavior in terms of task avoidance during homework situations, and achievement across the educational transition from primary school to lower secondary school. Understanding these associations during the educational transition is important because changes in the school environment, adolescents' own development, and social relationships may also be reflected in parental homework involvement as well as in adolescents' motivational and academic adjustment (Barber & Olsen, 2004; Eccles et al., 1993; Eccles & Roeser, 2011; Tuominen et al., 2020).

1.4.1 Adolescents' task avoidance as a mediator between parental homework involvement and academic achievement

Much research has been conducted on how parental involvement directly contributes to children's and adolescents' academic achievement (Barger et al., 2019; Patall et al., 2008; Pomerantz et al., 2007). The results, however, have been quite contradictory, especially among early adolescents (for reviews, see Hill & Tyson, 2009; Jeynes, 2005; Patall et al., 2008; Wilder, 2014). It has been suggested that the effect of parental homework involvement on adolescents' achievement may depend on how parents are able to promote adolescents' motivational resources such as their persistence during homework situations (Grolnick et al., 1991). One reason for contradictory results concerning the significance of parental homework involvement during adolescence may lie in the fact that previous studies have rarely considered adolescents' motivational behavior as a possible element influencing associations between parental homework involvement and adolescents' academic achievement (see also Patall et al., 2008; Viljaranta et al., 2018). Thus, one aim of this dissertation was to examine

adolescents' task avoidance as a mechanism between maternal homework involvement and adolescents' academic achievement.

Organismic integration theory (OIT; Deci & Ryan, 1985; Ryan & Deci, 2017) is a valuable framework that is utilized here to illustrate the interplay between parental homework involvement, adolescents' motivational behavior, and academic achievement. This theory was created as a mini-theory for SDT to describe how different contextual factors (e.g., parental homework involvement) play a role in facilitating or forestalling internalization or integration of different forms of extrinsic motivation into the sense of oneself (Ryan & Deci, 2000, 2017). According to OIT, parents hold different values (e.g., doing well academically is important) and goals related to homework (e.g., the purpose of homework is to build competence) that adolescents may internalize or integrate, or in other words, to fully assimilate into their own values and goals, depending on how parental involvement affects adolescents' psychological needs (Ryan & Deci, 2000). Therefore, it can be assumed that parental involvement that supports adolescents' sense of autonomy, competence, and relatedness can facilitate the internalization and integration of parents' homework-related values and goals into adolescents' selves (Ryan & Deci, 2017). As a consequence of these processes, adolescents are expected to be autonomously motivated, show persistence during homework situations, and subsequently perform better academically (Deci & Ryan, 2000; Ratelle et al., 2007). In contrast, parental involvement that does not satisfy adolescents' psychological needs forestalls internalization and integration processes related to homework and, as a consequence, adolescents may become amotivated, be task-avoidant during homework situations, and perform poorly academically (Deci & Ryan, 2000; Malmberg et al., 2015; Ryan & Deci, 2017).

The results concerning the direct association between the quantity of parental homework involvement and adolescents' achievement have been mixed (for meta-analyses, see Hill & Tyson, 2009; Patall et al., 2008). Overall, previous studies have mostly shown weak negative or nonexistent associations between parental involvement with homework and early adolescents' achievement (Jeynes, 2007; Patall et al., 2008; Wilder, 2014). For example, they have found negative associations between direct parental help and achievement (Cooper et al., 2000; Moroni et al., 2015) and monitoring and achievement (Otani, 2020; Patall et al., 2008). The few studies that have examined the role of the quantity of parental homework involvement and children's motivational behavior have shown different results for monitoring and help (see Viljaranta et al., 2018). In that particular study, parental help negatively predicted elementary school children's persistence, whereas monitoring did not have a similarly detrimental effect on children's motivational behavior. This may suggest that children do not perceive monitoring as controlling of their psychological needs compared to help (Ryan & Deci, 2017). However, it should be noted that due to different developmental stages (e.g., attempts to gain more autonomy and independence, higher academic competence), extensive parental monitoring and help may play a more detrimental role in the motivational behavior of adolescents compared to

that of younger elementary school children (see also Eccles et al., 1993; Wei et al., 2019).

In turn, empirical evidence for a link between the quality of parental homework involvement and adolescents' achievement and motivational behavior has been more consistent. As an example, studies have shown that controlling involvement practices are associated with adolescents' lower achievement (Dumont et al., 2012; Silinskas & Kikas, 2019b) and lower levels of persistence (Dumont et al., 2014; Silinskas & Kikas, 2019b). In turn, supportive parental involvement practices have been positively related to adolescents' achievement (Cooper et al., 2000; Moroni et al., 2015) and higher levels of persistence during homework situations (Silinskas & Kikas, 2019a; Viljaranta et al., 2018). However, not all studies have found a link between autonomy support and adolescents' academic outcomes (for math, see Silinskas & Kikas, 2019a, 2019b). To explain this, it has been suggested that autonomy support plays a larger role in adolescents' motivational behavior than in their achievement, which has received some empirical support (Dumont et al., 2014; Patall et al., 2008; Silinskas & Kikas, 2019a, 2019b).

Studies that have examined the role of the source of initiative for parental homework involvement in students' achievement and motivational behavior are, to my knowledge, rare. As an exception, Pomerantz and Eaton (2001) found that mother-initiated monitoring and help were positively related to elementary school children's subsequent achievement. However, in line with OIT (Ryan & Deci, 2017), it can be assumed that parent-initiated involvement would have more detrimental effects on adolescents' achievement and motivational behavior due to such involvement depriving adolescents' psychological needs. This, in turn, may hinder internalization and integration processes and lead to task-irrelevant activities during homework situations and poorer achievement (Ryan & Deci, 2000). In contrast, when parents are involved based on the request of adolescents, such involvement may not be perceived as controlling and is less likely to inhibit adolescents' initiative and sense of mastery and cause negative tension between the adolescent and their parent (Dumont et al., 2014; Ryan & Deci, 2017). As such, adolescent-initiated involvement can be expected to have more positive consequences for their motivation and achievement. Nevertheless, empirical studies are needed to clarify the role of the source of initiative on adolescents' motivational behavior and achievement.

Despite the theoretical principles of OIT (Ryan & Deci, 2017), studies that have examined motivational behavior as a possible mechanism between parental homework involvement and achievement are rare. One of them, by Viljaranta et al. (2018), examined the extent to which elementary school children's task persistence mediated the associations between three types of maternal homework involvement (i.e., monitoring, help, autonomy support) and children's performance. The researchers found some support for the indirect effects: Higher levels of maternal help and lower levels of autonomy support predicted lower levels of children's persistence, which in turn led to poorer academic performance. However, due to previous research showing a change in

parental homework involvement during adolescence (Cooper et al., 2000; Gonida & Cortina, 2014) and the significance of autonomy over that age period (Eccles et al., 1993; Vroljik et al., 2020), more research is needed to enlighten the role of motivational behavior as a possible mechanism influencing the associations between parental homework involvement and achievement among adolescents. Thus, in the present dissertation, adolescents' motivational behavior was examined as a possible mediator between the associations of maternal homework involvement (i.e., quantity, quality, source of initiative) and adolescents' subsequent achievement.

1.4.2 Parental homework involvement as a mediator between adolescents' academic achievement and task avoidance

Evocative theories (Bell, 1968; Scarr & McCartney, 1983) have suggested that children's characteristics may evoke certain parental behaviors. Previous studies of parental homework involvement have supported these theories by showing that parents react to adolescents' poorer achievement by utilizing high levels of controlling and intrusive involvement practices (Dumont et al., 2014; Høglund et al., 2015; Núñez et al., 2017). In turn, research has shown that high-achieving adolescents receive more support from their parents during homework situations (Cooper et al., 2000; Dumont et al., 2014).

Previous research has shown that students' achievement has a significant role not only in parental homework involvement but also in their own motivational behavior (Aunola et al., 2002; Kiuru et al., 2014; Onatsu-Arviolommi & Nurmi, 2000). Research has shown, for example, that children with poorer skills end up avoiding tasks possibly because they do not trust their own abilities (Eccles, 2005; Hirvonen et al., 2010). In the long run, task avoidance serves as a risk factor for future failure and poor academic development (Aunola et al., 2002; Georgiou et al., 2010). Following evocative theories (Bell, 1968; Scarr & McCartney, 1983) and SDT (Ryan & Deci, 2017), it is possible that adolescents' achievement contributes to parental homework involvement, which in turn has different consequences for adolescents' motivational behavior depending on whether parental involvement supports or undermines adolescents' psychological needs for autonomy, competence, and relatedness. Nevertheless, studies that have examined the role of parental homework involvement as a possible mediator between adolescents' academic achievement and motivational behavior are rare (for an exception, see Silinskas & Kikas, 2019b). Despite theoretical assumptions, Silinskas and Kikas (2019b) did not find support for this. However, it should be noted that the focus of that particular study was on math-specific adolescent-perceived quality of homework involvement (i.e., support, control), and thus the role of the quantity of parental homework involvement and source of initiative as mediators of the association between adolescents' academic achievement and motivational behavior is as yet unknown. Consequently, the role of maternal homework involvement (i.e., quantity, quality, source of initiative) as a mechanism between adolescents' achievement and motivational behavior was examined in this dissertation.

1.5 A person-oriented approach to parental homework involvement

Following SDT (Ryan & Deci, 2017), it can be assumed that the way each parental homework involvement practice supports or undermines adolescents' psychological needs for autonomy, competence, and relatedness may depend on the level of other practices (see also Heberle et al., 2015; McNamara et al., 2010; Moroni et al., 2016). One critical limitation of parental homework involvement research is that despite attempts to understand the various ways that parents are involved in their children's homework, studies have not taken into account the individual differences in parents' homework involvement by applying a person-oriented approach (for exceptions, see Lara & Saracostti, 2019; Moroni et al., 2016). Given the multidimensionality of parental homework involvement (Grolnick & Slowiaczek, 1994), parents are likely to exhibit both supportive and controlling involvement practices in their homework involvement (see also Baumrind, 1966; Exeler & Wild, 2003; Maccoby & Martin, 1983). A person-oriented approach assumes that parents are heterogeneous in regard to their parenting and hence show different combinations of practices (i.e., patterns; Laursen & Hoff, 2006). As such, based on these combinations, parents can be divided into different subgroups that share similar homework involvement patterns. Because homework involvement practice (e.g., autonomy support) may variously contribute to the satisfaction of adolescents' psychological needs depending on the presence or absence of another practice (e.g., psychological control), which in turn may have different consequences for adolescents' motivation and achievement (Ryan & Deci, 2017), empirical studies are needed to identify possible adaptive and maladaptive combinations of homework involvement practices and their association with adolescents' motivation and achievement.

Studies that have applied a person-oriented methodology to examine parental involvement patterns in the home context are rare (Lara & Saracostti, 2019; Moroni et al., 2016). The few exceptions have identified three parental involvement patterns among children and adolescents. Based on three dimensions of adolescent-perceived quality of parental homework involvement (i.e., emotional support, structure, interference/control), Moroni et al. (2016) identified three patterns, namely (a) average parents (characterized by average levels of all involvement practices), (b) adequate parents (characterized by higher than average levels of emotional support and structure and lower than average levels of interference/control), and (c) noninvolved parents (characterized by lower than average levels of all involvement practices), among fifth-grade students. Similarly, based on five dimensions of the quantity of parental involvement (i.e., involvement at home, involvement at school, invitations parents receive from children, teachers, and schools), Lara and Saracostti (2019) found three clusters of (a) high-involved, (b) medium-involved, and (c) low-involved parents among second- and third-grade students. Parenting styles research has further shown that parents may utilize high control together with

low support or high support together with low control in their parenting (Dwairy et al., 2013; McNamara et al., 2010). There is also evidence to suggest that parents may co-express theoretically and empirically separate aspects of parenting with high frequency possibly due to parental worry over their children and attempts to conquer the situation by overusing every possible method (Dwairy et al., 2013; McNamara et al., 2010).

Although there have been some attempts to examine parental involvement patterns, such studies have at least a few limitations. First, the studies have examined involvement patterns either based on the quality (Moroni et al., 2016) or quantity of parental involvement (Lara & Saracosti, 2019), but they have not been based on both aspects. In addition, the role of the source of initiative in parental involvement patterns is still unknown. Second, the studies were cross-sectional and did not examine parental involvement patterns longitudinally, which would have called for more understanding of how stable involvement patterns are and what kind of changes can be observed especially during the adolescence period. It is widely known that in early adolescence, the educational transition from primary school to lower secondary school takes place at a critical time where adolescents face numerous other changes related to their development (e.g., puberty, heightened need for autonomy) and social relationships (e.g., attempts to be independent from parents, peer orientation; Eccles et al., 1993; Wei et al., 2019). These changes may also cause challenges for adolescents' adjustment and motivation in lower secondary school (Barber & Olsen, 2004; Eccles & Roeser, 2011; Tuominen et al., 2020) as well as for parental homework involvement (Hill & Tyson, 2009). As an example, adolescents who are struggling academically in lower secondary school may cause parents to use high controlling involvement practices together with low support for their autonomy, which may in turn threaten the satisfaction of their psychological needs and further decrease their motivation (Ryan & Deci, 2017).

There is some variable-oriented evidence to suggest that the amount of parental homework involvement decreases in adolescence, and instead of high direct involvement, parents turn towards supporting adolescents' autonomy (Cooper et al., 2000; Gonida & Cortina, 2014; Silinskas & Kikas, 2019a). Among the explanations for this, it may be that adolescents' explicit invitations for parental involvement also decrease and that parents perceive their involvement as less normative than they did when their children were younger (Pomerantz & Grolnick, 2017; Wei et al., 2019). Another possible explanation may be related to adolescents' developmental stage. Due to major changes that occur in adolescence, such as the educational transition from primary school to lower secondary school and adolescents' heightened need for autonomy, parents may try to adjust their involvement based on these changes (Eccles & Roeser, 2011; Hill & Tyson, 2009). As an example, parents may be worried that any involvement is perceived as controlling and therefore avoid being involved (Gonida & Cortina, 2014). This dissertation aimed to broaden previous variable-oriented research by examining stability and change in maternal homework

involvement patterns across the educational transition from primary school to lower secondary school.

The third limitation is that, based on the evocative theories (Bell, 1968; Scarr & McCartney, 1983), previous research has aimed to examine how adolescents' academic functioning in terms of their motivational behavior and prior achievement on average relates to parental behavior during homework situations (e.g., Dumont et al., 2014; Silinskas & Kikas, 2019a). As such, less is known about the interindividual variation of parental responses to adolescents' characteristics. There is some evidence to suggest that children's academic functioning may not evoke similar responses in their parents (see Hayes & Berthelsen, 2020). Research has shown that during and after their educational transition to lower secondary school, adolescents may experience academic and motivational decline (Barber & Olsen, 2004; Eccles et al., 1993). This may also influence parental homework involvement. For example, adolescents who are performing poorly academically and showing high levels of task-irrelevant behavior may elicit parental worry over their performance, and hence parents may attempt to involve themselves in adolescents' homework by using every possible method (Dwairy et al., 2013; Grolnick, 2003). It has been suggested that poor-performing adolescents may be particularly vulnerable to the negative and vicious circles caused by parents' highly intrusive and controlling involvement practices due to these practices suppressing their psychological resources (Ng et al., 2004; Pomerantz et al., 2005b). Consequently, examining the antecedents of parental homework involvement patterns may provide useful knowledge on how to identify those parents that would benefit from more knowledge on how to provide more support and less control to struggling adolescents. Thus, this dissertation aimed to provide more evidence on how adolescents' academic achievement and motivational behavior predict the stability and change in maternal homework involvement patterns across the transition from primary school to lower secondary school.

1.6 Aims of the empirical studies

The aim of this dissertation—focusing on the critical transition from primary to lower secondary school—was to examine (a) the correspondence between adolescents and mothers' perceptions of the quality of maternal homework involvement and the relative importance of various adolescent and maternal factors in these perceptions, (b) bidirectional associations between three aspects of maternal homework involvement (i.e., quantity, quality, source of initiative), adolescents' task-avoidance, and academic achievement, and (c) stability and change in maternal homework involvement patterns and the role of adolescents' achievement and task avoidance as antecedents of these patterns. These aims were approached through the following three studies.

Study I examined the correspondence between adolescent-perceived and mother-perceived quality of maternal homework involvement (in terms of

autonomy support and psychological control). In addition, the relative importance of adolescent factors (i.e., academic functioning, academic emotions) and maternal factors (i.e., emotions during homework situations, mothers' beliefs about adolescents' school success) in relation to adolescents' and mothers' perceptions of the quality of maternal homework involvement and adolescents' subsequent academic achievement was investigated.

Study II examined bidirectional associations between the three aspects of maternal homework involvement (i.e., quantity, quality, source of initiative), adolescents' motivational behavior, and academic achievement during the transition from primary school to lower secondary school. More specifically, the extent to which the aspects of maternal homework involvement predicted adolescents' academic achievement directly and indirectly through their task-avoidant behavior was examined. In addition, the study examined the extent to which adolescents' prior academic achievement predicted their task-avoidant behavior directly and indirectly through the aspects of maternal homework involvement.

Study III aimed to broaden the variable-oriented results of Study I and Study II by examining maternal homework involvement during the transition to lower secondary school using a person-oriented approach. In particular, the aim was to identify maternal homework involvement patterns and examine the stability and change in these patterns during the educational transition. In addition, the role of adolescents' task-avoidant behavior and prior academic achievement was examined as antecedents of the stability and change in maternal homework involvement patterns.

In this dissertation, the effect of adolescents' gender was controlled in all the studies because previous research has provided some evidence that parents are more controlling and more involved in their sons' homework, whereas girls receive more autonomy support from their parents (Bhanot & Jovanovic, 2005; Carter & Wojtkiewicz, 2000; Cooper et al., 2000; Dumont et al., 2012). Furthermore, since there is mixed evidence concerning the significance of parent's education on their homework involvement (Dumont et al., 2012, 2014; Moroni et al., 2015; Silinskas et al., 2013), the effect of mothers' education on maternal homework involvement was controlled in all the studies. In addition, due to some previous research indicating that parents who have experienced learning difficulties may be more involved in their children's education (Silinskas et al., 2010), mothers' learning difficulties was set as a control factor for Study I.

2 METHOD

2.1 Participants

This dissertation is part of the STAIRWAY – From Primary School to Secondary School longitudinal study (Ahonen & Kiuru, 2013) following a community sample of Finnish adolescents, their parents, and their teachers during the educational transition from primary school to lower secondary school. The data were collected from 2014 to 2016. The longitudinal study was approved by the ethics committee of the University of Jyväskylä (February 12, 2014). All the measurement points and participants used in Studies I, II, and III are presented in Table 1.

Adolescents. Adolescents and their parents signed written consent for adolescent participation. Adolescents who participated in this study completed questionnaires during school lessons during the fall of Grade 6 (T1). Information on academic achievement was collected from school registers for those adolescents who had given permission during the spring term of Grade 5 (T0), Grade 6 (T2), and Grade 7 (T4). A total of 848 adolescents (391 boys, 457 girls; mean age = 12.32 years, $SD = 0.36$) participated in this study in Grade 6 and 839 in Grade 7 (382 boys, 457 girls). Of the adolescents who participated in this study, 96.7% were Finnish speakers, 1.6% were bilingual, and 1.4% were other than Finnish speakers. Information on the mother tongue of some of the adolescents was not accessible (0.3%). According to the Official Statistics of Finland (2021a), the adolescent sample was relatively representative of the Finnish population in regard to language background.

Mothers. Adolescents' mothers were also recruited to participate in this study. They were selected as primary targets of investigation because mothers are typically more involved in their children's academic lives than fathers (Levin et al., 1997; Silinskas et al., 2010). Mothers completed questionnaires either on paper or electronically during the fall of Grade 6 (T1) and Grade 7 (T3). A total of

680 mothers of adolescents in Grade 6 participated in this study (mean age = 42, $SD = 5.49$), and 665 of those in Grade 7. At the onset of this study, 659 mothers provided their own education level. Of the mothers, 2.3% had no vocational education, 1.5% had taken employment or vocational courses (minimum of 4 months), 29.0% had finished vocational upper secondary education, 23.4% had post-secondary education, 16.5% had a bachelor's or vocational college degree, 24.0% had completed university or other higher education, and 3.3% had a postgraduate degree. Overall, these percentages were relatively representative of the Finnish population concerning demographic characteristics (Official Statistics of Finland, 2021b).

Fathers. Adolescents' fathers were also given the opportunity to participate if they wished. A total of 95 fathers (mean age = 45, $SD = 6.42$) of adolescents in Grade 6 filled in questionnaires. Fathers' data were included in the additional analyses in Study I.

2.2 Measures

All the measures used in Studies I, II, and III and their Cronbach's alpha reliabilities are presented in Table 1. More detailed information on the measures can be found in the original papers.

2.2.1 Mother-related measures

Mother-perceived quantity of maternal homework involvement. Mother-perceived quantity of their homework involvement was examined in terms of monitoring and help adapted from Pomerantz and Eaton (2001) and Pomerantz and Ruble (1998). Mothers rated how often they monitored (three items) and helped (three items) their children with homework using a 5-point scale (1 = *never*, 5 = *always*).

Mother-perceived quality of maternal homework involvement. Mother-perceived quality of their homework involvement was examined in terms of autonomy support and psychological control. Mothers were asked to consider how they think and act during homework situations with their child based on the short Finnish version of the Learning Climate Questionnaire (Black & Deci, 2000; Williams et al., 1997) using a 5-point scale (1 = *never*, 5 = *always*). Psychological control was rated using two items on a 5-point scale (1 = *never*, 5 = *always*).

Mother-perceived source of initiative for maternal homework involvement. Mother-perceived source of initiative was examined through mother-initiated versus adolescent-initiated monitoring and help. The scale was adapted from Pomerantz and Ruble (1998). Mothers were asked to consider by whose initiative they monitored (three items) and helped (three items) adolescents with homework using a 6-point scale (0 = *from no one*, 1 = *always from*

the child, 2 = mostly from the child, 3 = sometimes from the child and sometimes from me, 4 = mostly from me, and 5 = always from me).

Mothers' emotions during homework situations. Mothers evaluated how they feel in situations whereby they help or guide their children with homework using a 5-point scale (1 = *not at all*, 5 = *very much*) adapted from Pomerantz et al. (2005a) and Poulou and Norwich (2002). Positive emotions (satisfaction, joy, pride) and negative emotions (helplessness, irritation/anger, frustration/stress) were both measured by three statements.

Mothers' beliefs about adolescents' school success. Mothers were asked to evaluate their beliefs about adolescents' current and upcoming school success with two items on a 5-point scale (1 = *poorly*, 5 = *very well*) adapted from previous studies (e.g., Aunola et al., 2002; Pesu et al., 2018).

2.2.2 Adolescent-related measures

Adolescent-perceived quality of maternal homework involvement. Adolescent-perceived quality of maternal homework involvement was approached through autonomy support and psychological control. Adolescents rated how they experience homework situations with their parents based on the short Finnish version of the Learning Climate Questionnaire (Black & Deci, 2000; Williams et al., 1997) using a 5-point scale (1 = *never*, 5 = *always*). Psychological control was rated using three statements on a 5-point scale (1 = *never*, 5 = *always*).

Adolescent task avoidance during homework situations. Mothers rated adolescents' task avoidance during homework situations using the Behavioral Strategy Rating Scale (Aunola et al., 2000). Mothers were asked to rate how their child typically behaves during homework situations on a 5-point scale (1 = *never*, 5 = *always*).

Adolescents' academic emotions. Adolescents' positive and negative academic emotions were rated via the Finnish version of the Achievement Emotions Questionnaire (Pekrun et al., 2011), which was adapted for school-aged students. Adolescents rated the extent to which they experienced positive (three statements assessing enjoyment, hope, and pride) and negative emotions (five statements assessing anxiety, anger, hopelessness, shame, and boredom) toward learning using a 5-point scale (1 = *disagree*, 5 = *agree*).

Adolescents' academic achievement. Adolescents' academic achievement in the spring terms of Grades 5, 6, and 7 was based on grade point average (GPA) across all school subjects (ranging from 5 to 10). The GPA information was taken from school registers.

Adolescents' gender and mothers' education were set as control variables for Studies I, II, and III. Mothers' learning difficulties was set as a control variable for Study I.

Table 1

Summary of the participants, measures, and data analyses used in Studies I, II, and III

Study	Participants	Measurement points	Measures	Data analyses
Study I	662 mothers (T1) 847 adolescents (T1) 95 fathers (T1)	T0, T1, T2	Mother-perceived autonomy support (T1; $\alpha = .74$) and psychological control (T1; $\alpha = .55$) Mothers' positive (T1; $\alpha = .79$) and negative (T1; $\alpha = .79$) emotions during homework situations Mothers' beliefs about adolescents' school success (T1; $\alpha = .90$) Adolescent-perceived autonomy support (T1; $\alpha = .87$) and psychological control (T1; $\alpha = .63$) Adolescents' positive (T1; $\alpha = .85$) and negative (T1; $\alpha = .85$) academic emotions Adolescents' task avoidance during homework situations (T1; $\alpha = .89$) Adolescents' academic achievement (T0, T2)	Confirmatory factor analysis Structural equation modeling using FIML with MLR
Study II	680 mothers (T1), 665 mothers (T3) 848 adolescents (T1)	T0, T1, T3, T4	Mother-perceived monitoring (T1; $\alpha = .83$) and help (T1; $\alpha = .73$) Mother-perceived autonomy support (T1) and psychological control (T1) Mother-perceived source of initiated monitoring (T1; $\alpha = .80$) and help (T1; $\alpha = .77$) Adolescents' task avoidance during homework situations (T3; $\alpha = .89$) Adolescents' academic achievement (T0, T4) Adolescent-perceived autonomy support (T1) and psychological control (T1)	Confirmatory factor analysis Structural equation modeling using FIML with MLR
Study III	680 mothers (T1), 665 mothers (T3)	T0, T1, T3, T4	Mother-perceived monitoring (T1-T3; $\alpha = .83-.82$) and help (T1-T3; $\alpha = .73-.71$) Mother-perceived autonomy support (T1-T3; $\alpha = .74-.77$) and psychological control (T1-T3; $\alpha = .55-.61$) Mother-perceived source of initiated monitoring (T1-T3; $\alpha = .80-.81$) and help (T1-T3; $\alpha = .77-.80$) Adolescents' task avoidance during homework situations (T1) Adolescents' academic achievement (T0)	Latent transition analysis Multinomial logistic regression analyses using FIML with MLR

Note. T0 = Grade 5, spring; T1 = Grade 6, fall; T2 = Grade 6, spring; T3 = Grade 7, fall; T4 = Grade 7, spring.

3 OVERVIEW OF THE ORIGINAL STUDIES

3.1 Study I: The role of adolescent and maternal factors in the quality of maternal homework involvement

Study I focused on adolescent and maternal factors as antecedents of the quality of maternal homework involvement perceived by adolescents and mothers. Its first aim was to examine the degree of correspondence between adolescents' and mothers' perceptions of the quality of maternal homework involvement (i.e., autonomy support, psychological control) in Grade 6. The second and third aims were to investigate the extent to which adolescent factors (i.e., academic achievement, task avoidance during homework situations, positive and negative academic emotions) and maternal factors (i.e., beliefs about adolescents' school success, positive and negative emotions during homework situations) are related to adolescents and mothers' perceptions of autonomy support and psychological control. The final aim was to examine the extent to which adolescent- and mother-perceived quality of homework involvement is related to adolescents' subsequent academic achievement and the extent to which adolescent and maternal factors are related to adolescents' subsequent academic achievement via both parties' perceptions of autonomy support and psychological control.

The results of the confirmatory factor analysis showed that adolescents and mothers' perceptions of autonomy support and psychological control were separate but related constructs. Correspondence between both parties' perceptions in psychological control was higher (i.e., moderate) than the correspondence in autonomy support, which showed weak correlation between adolescents' and mothers' perceptions.

The results for the structural equation modeling (SEM) showed that of the adolescent factors, adolescents' academic functioning was only related to mother-perceived quality of homework involvement. To be more specific, poorer academic achievement and higher levels of adolescent task avoidance were related to higher levels of mother-perceived psychological control. In addition, higher levels of adolescent task avoidance were also related to lower levels of

mother-perceived autonomy support. In turn, adolescents' academic emotions were only associated with adolescent-perceived quality of homework involvement: Higher levels of negative academic emotions were related to higher levels of adolescent-perceived psychological control and lower levels of adolescent-perceived autonomy support, whereas higher levels of positive academic emotions were related to higher levels of adolescent-perceived autonomy support.

Further, the results showed that of the maternal factors, mothers' beliefs were related to both mother-perceived and adolescent-perceived quality of homework involvement: Higher levels of mothers' beliefs about adolescents' school success were associated with higher levels of adolescent- and mother-perceived autonomy support and lower levels of adolescent- and mother-perceived psychological control. In contrast, mothers' emotions were more significantly associated with mother-perceived quality of homework involvement: Higher levels of mothers' positive emotions during homework situations were related to higher levels of adolescent-perceived and mother-perceived autonomy support. In turn, higher levels of mothers' negative emotions during homework situations were related to higher levels of mother-perceived psychological control and lower levels of mother-perceived autonomy support.

Finally, only mother-perceived psychological control negatively predicted adolescents' subsequent achievement after controlling for prior achievement. The results further revealed three indirect paths from adolescent and maternal factors to adolescents' subsequent achievement via mother-perceived psychological control. First, adolescents' higher levels of task avoidance predicted their poorer academic achievement via higher levels of mother-perceived psychological control. Second, higher levels of mothers' negative emotions predicted adolescents' poorer academic achievement via higher levels of mother-perceived psychological control. Third, lower levels of mothers' beliefs predicted adolescents' poorer academic achievement via higher levels of mother-perceived psychological control.

As additional analyses, a sample of fathers ($n = 95$) was included in the analyses. The aim was to examine whether the associations between adolescent and parental factors and adolescent-perceived and parent-perceived quality of homework involvement would differ from the main results for mothers. A similar set of analyses was conducted to include both mothers' and fathers' data. Only two minor differences were detected. First, the association between parents' positive emotions and adolescent-perceived autonomy support was no longer significant. Second, higher levels of adolescents' positive academic emotions were related to lower levels of parent-perceived (but not mother-perceived) psychological control.

Overall, the results indicate that adolescents and mothers perceive maternal autonomy support during homework situations more in a different manner compared to maternal psychological control. The results further show that these perceptions also have different antecedents and contributions to adolescents'

subsequent achievement. Because mother-perceived psychological control plays a detrimental role in the associations between maternal (negative emotions and beliefs) and adolescent factors (task avoidance) and adolescents' subsequent achievement, it would be advisable to increase mothers' awareness of how to better support early adolescents' learning.

3.2 Study II: The interplay between maternal homework involvement, task avoidance, and achievement

Study II focused on the bidirectional associations between three aspects of maternal homework involvement (i.e., quantity, quality, source of initiative), adolescents' motivational behavior, and academic achievement during the transition from primary school to lower secondary school. Its first aim was to examine the extent to which the three aspects of maternal homework involvement predict adolescents' academic achievement directly and indirectly through their task avoidance. Its second aim was to examine the extent to which adolescents' prior academic achievement predicts their task avoidance directly and indirectly through the three aspects of maternal homework involvement.

The results for the SEM showed that higher levels of maternal psychological control and mother-initiated monitoring in primary school predicted adolescents' poorer academic achievement in lower secondary school both directly and indirectly via higher levels of adolescent task avoidance. Second, the results revealed that adolescents' poorer academic achievement in primary school predicted higher levels of their task avoidance during homework situations in lower secondary school via higher levels of maternal psychological control and mother-initiated monitoring.

In addition, a similar set of analyses was conducted using adolescents' perceptions of the quality of maternal homework involvement (autonomy support, psychological control). The results of the SEM analyses showed first that lower levels of adolescent-perceived autonomy support in primary school predicted poorer academic achievement in lower secondary school indirectly through higher levels of task avoidance. Second, adolescents' higher prior academic achievement in primary school predicted lower levels of task avoidance in lower secondary school indirectly via higher levels of adolescent-perceived autonomy support.

Overall, these results suggest that maternal dominance, pressuring, and self-initiated homework involvement practices undermine adolescents' academic achievement by increasing their task-avoidant behavior during homework situations. In addition, mothers of poor-achieving adolescents are at risk of using highly dominant, pressuring, and self-initiated homework involvement practices, which in turn may be detrimental for adolescents' subsequent persistence. The additional analyses highlight the significance of adolescents' perceived autonomy support to their motivational behavior and

achievement. Taken together, more knowledge and understanding of how to support poor-achieving adolescents' learning and motivation in more optimal ways may be beneficial for mothers.

3.3 Study III: A person-oriented approach to maternal homework involvement during the transition to lower secondary school

Study III focused on the patterns of maternal homework involvement (i.e., quantity, quality, source of initiative) among mothers whose adolescents were transitioning from primary school (Grade 6) to lower secondary school (Grade 7). Its first aim was to identify patterns of maternal homework involvement in Grades 6 and 7. Its second and third aims were to examine the stability and change in maternal homework involvement patterns and the extent to which adolescents' task avoidance and prior academic achievement predict the stability of maternal homework involvement patterns in Grade 6 and the transitions between patterns from Grade 6 to Grade 7.

Latent transition analysis (LTA) showed that a four-pattern solution fitted the data best. Four maternal homework involvement patterns in Grade 6 and Grade 7 were identified: (a) an averagely involved pattern (39%, 36%) characterized by average levels of all maternal homework involvement practices, (b) a psychologically controlling and intrusive pattern (28%, 26%) characterized by high levels of monitoring, help, and psychological control, high initiative from mothers in monitoring and help, and low levels of autonomy support, (c) a noninvolved pattern (22%, 28%) characterized by low levels of monitoring, help, and psychological control, low initiative from mothers in monitoring and help, and average levels of autonomy support, and (d) an intrusive monitoring and helping pattern (11%, 10%) characterized by high levels of monitoring, help, and initiative from mothers in monitoring and help and average levels of autonomy support and psychological control.

The results showed further that, overall, maternal homework involvement patterns were relatively stable across the transition. In particular, mothers in the psychologically controlling and intrusive patterns showed a 91% chance of remaining in that particular pattern across Grades 6 to 7. In turn, mothers in the averagely involved and noninvolved patterns were least likely to stay in those particular patterns across Grades 6 to 7. Despite relatively high stabilities, some transitions between patterns were also detected. First, mothers in the noninvolved pattern in Grade 6 had the highest likelihood of moving to the averagely involved pattern in Grade 7. Second, mothers in the averagely involved pattern in Grade 6 had an approximately similar likelihood of moving to the noninvolved pattern in Grade 7. Third, mothers in the psychologically controlling and intrusive pattern in Grade 6 had the highest likelihood of moving to the noninvolved pattern in Grade 7. Fourth, mothers in the intrusive

monitoring and helping pattern in Grade 6 had the highest likelihood of moving to the averagely involved pattern in Grade 7.

Finally, the multinomial logistic regression analyses showed that adolescent task avoidance predicted maternal involvement patterns in Grade 6: The more task-avoidant adolescents were during homework situations, the more likely their mothers were to exhibit the psychologically controlling and intrusive pattern or the intrusive monitoring and helping pattern in Grade 6 relative to the noninvolved pattern. Adolescent task avoidance also predicted one maternal pattern from Grade 6 to Grade 7: The more adolescents showed task avoidance during homework situations, the more likely their mothers were to stay in the intrusive monitoring and helping pattern from Grade 6 to Grade 7 relative to the noninvolved pattern. The results for adolescents' academic achievement showed that the better adolescents achieved, the less likely their mothers were to exhibit the averagely involved pattern or the intrusive monitoring and helping pattern in Grade 6 relative to the noninvolved pattern. In turn, the better the adolescents achieved, the less likely their mothers were to stay in the psychologically controlling and intrusive pattern from Grade 6 to Grade 7 relative to the noninvolved pattern.

These results suggest that a majority of the mothers use similar combinations of supportive and controlling involvement practices before and after their child's transition to lower secondary school. Adolescents' poor academic functioning in terms of poor achievement and high levels of task avoidance in primary school serves as a risk factor for high intrusive and controlling involvement practices combined with only low to average support for adolescents' autonomy, which may be detrimental for adolescents' psychological needs and, further, for their motivation and achievement across the educational transition. Taken together, mothers may benefit from more knowledge on how to provide autonomy support during homework situations during the educational transition from primary to lower secondary school.

4 GENERAL DISCUSSION

The first aim of this dissertation was to examine the correspondence between adolescents' and mothers' perceptions of the quality of maternal homework involvement and the relative role of adolescent and maternal factors in these perceptions (Study I). The second aim was to investigate the bidirectional associations between maternal homework involvement (i.e., quantity, quality, source of initiative), adolescents' task avoidance, and achievement during the educational transition (Study II). The final aim was to broaden the variable-oriented findings by examining the stability and change in maternal homework involvement patterns and their antecedents across the educational transition using a person-oriented approach (Study III). The results showed that the congruence between adolescents' and mothers' perceptions of autonomy support was low in contrast to a moderate congruence between these perceptions in psychological control. The results showed not only that high maternal psychological control and self-initiated monitoring were particularly detrimental for adolescents' subsequent task avoidance and achievement but also that these maternal behaviors during homework situations worked as mediators of the associations between adolescents' prior achievement and subsequent task avoidance. Finally, four relatively stable patterns of mothers' homework involvement were identified before and after the educational transition, and the stabilities of these patterns were predicted by adolescents' task avoidance and prior achievement.

4.1 Congruence of adolescents and mothers' perceptions of maternal homework involvement

Building on the theoretical assumptions that adolescents and their parents' behavior during homework situations is influenced by the interpretations they make in those situations (Bandura, 1993; Korelitz & Garber, 2016), one aim of this dissertation was to examine the congruence between adolescent and maternal

perceptions of the quality of homework involvement in terms of autonomy support and psychological control. The results showed that adolescents' and mothers' perceptions of psychological control showed a moderate correspondence, in contrast to a weak correspondence between these perceptions in autonomy support. This is in line with previous findings (Cheung et al., 2016; Dinkelmann & Buff, 2016; Su et al., 2015) by showing that mothers and adolescents perceive maternal psychological control in a somewhat more similar manner compared to autonomy support. Following SDT (Ryan & Deci, 2017), one possible explanation for the low correspondence between these perceptions in autonomy support may be related to mothers' own psychological need satisfaction. Since previous research has shown that parent's own psychological need satisfaction is related to their parenting (Moè et al., 2020; Van der Kaap-Deeder et al., 2015), it may be that mothers' own psychological needs are not being met, influencing their ability to estimate and provide autonomy support during homework situations. On the other hand, it has been suggested that the significance of a parenting practice for adolescents' need satisfaction may depend on the level of other practices (Heberle et al., 2015; Ryan & Deci, 2017) and the emotional climate in which these practices are conveyed (Darling & Steinberg, 1993; Steinberg et al., 1992). Due to heightened attempts to gain autonomy, adolescents may be particularly sensitive to parental controlling practices and styles, which in turn may influence how they perceive parent's autonomy support (Cheung et al., 2016; Eccles et al., 1993; Pomerantz & Monti, 2015). As such, it is possible that adolescents may not perceive their mothers as being highly autonomy-supportive if they also perceive high psychological control from their mothers (Heberle et al., 2015; Ryan & Deci, 2017). Future research should consider examining the influence of parenting styles, other parenting practices, and their combinations on the quality of parental homework involvement to fully understand the underlying factors of adolescents and parents' perceptions of autonomy support and psychological control.

These results suggest that instead of focusing solely on one source, future studies should consider using multiple informants, especially when examining autonomy support to fully understand similarities and differences in adolescents and parents' perceptions during homework situations. The upcoming transition to lower secondary school may cause challenges for adolescents' motivation and achievement if social contexts, such as parents, do not provide appropriate support for their needs (Eccles et al., 1993; Eccles & Roeser, 2011). Since the gap between adolescent-perceived and mother-perceived autonomy support may become larger over the course of adolescent years (Vrolijk et al., 2020), future longitudinal research is needed to better understand how mothers can best support adolescents' heightened need for autonomy during homework situations.

4.1.1 Relative importance of adolescent and maternal factors in the quality of maternal homework involvement

Following Belsky's (1984) model of parenting, another aim of this dissertation was to examine the relative importance of adolescent factors (academic functioning, academic emotions) and maternal factors (emotions during homework situations, beliefs about adolescents' school success) in the quality of maternal homework involvement. Overall, the results shed more light on the differential roles of adolescent and maternal factors in mothers' and adolescents' perceptions of the quality of homework involvement. Regarding the relative importance of adolescent factors, the novel results showed that adolescents' academic functioning in terms of their achievement and task avoidance was only related to mother-perceived homework involvement, whereas their academic emotions played a role in their own perceived homework involvement. The results provided support for the more significant role of adolescents' motivational behavior compared to achievement on maternal homework involvement (see also Dumont et al., 2014) by showing that only adolescents' task avoidance (but not their achievement) was negatively associated with mother-perceived autonomy support, whereas adolescents' high levels of task avoidance and poor achievement were related to high mother-perceived psychological control. One possible explanation for the differential role of adolescents' task avoidance compared to achievement may be that their lack of persistence during homework situations is more observable to mothers than their achievement at school is (Dumont et al., 2014). However, it should be noted that adolescents' task avoidance was measured from mothers' reports, which may also contribute to the strong association found between task avoidance and mother-perceived homework involvement. Overall, these results suggest that mothers may perceive adolescents who are less task-avoidant during homework situations as more competent, to which mothers respond by supporting the adolescents' autonomy. In contrast, high task avoidance during homework situations together with poor achievement may be perceived as particularly alarming, and mothers may therefore try to overcome their concerns over their children's performance and motivation by utilizing highly intrusive, pressuring, and dominating involvement practices (Dumont et al., 2014; Grolnick, 2003; Kikas & Silinskas, 2016). Surprisingly, in contrast to previous studies (Dumont et al., 2012; Núñez et al., 2017), adolescents' academic functioning was not related to adolescent-perceived psychological control or autonomy support. This may reflect higher validity of maternal reports (Su et al., 2015) or the fact that task avoidance and academic achievement correlated more strongly with mother-perceived homework involvement, and thus similar associations between adolescents' academic functioning and adolescent-perceived homework involvement failed to emerge.

In addition, the results provided insight into the role of adolescents' academic emotions in their perceptions of the quality of maternal homework involvement by showing that negative academic emotions were positively

related to adolescent-perceived psychological control and negatively related to adolescent-perceived autonomy support, whereas positive academic emotions were positively linked to adolescent-perceived autonomy support. In line with Pekrun (2006), adolescents' high negative emotions toward learning may result from their difficulty with academic tasks and low expectations, leading to them not putting in effort and not valuing the importance of academic tasks. As such, this may lead them to perceive any maternal involvement as highly pressuring and unwanted (see also Pomerantz & Eaton, 2001; Silinskas et al., 2015). In turn, adolescents who feel high enjoyment, hope, and pride toward learning may also value academic tasks and be more persistent during homework situations, and they therefore may also perceive that their mothers are respectful of their point of view and allow them to show initiative in doing homework (Pekrun 2006; Pekrun et al., 2011; Pomerantz et al., 2007). No evidence was found for the associations between adolescents' academic emotions and mother-perceived homework involvement. This result may partly be explained by the fact that academic emotions play a role in motivational factors such as engagement and persistence (Pekrun, 2006; Pekrun & Linnenbrink-Garcia, 2012). As such, adolescents who experience high negative academic emotions and low positive academic emotions may not put in effort during academic tasks which mothers may perceive as a sign of task avoidance. However, the additional results suggest that there may be differences in how mothers and fathers perceive adolescents' enjoyment, hope, and pride toward learning by showing that adolescents' positive academic emotions played a role in lower levels of parent-perceived (but not solely mother-perceived) psychological control.

Regarding the relative importance of maternal factors, the results showed that mothers' positive and negative emotions were more strongly related to mother-perceived quality of homework involvement, whereas mothers' beliefs were linked to both mother- and adolescent-perceived quality of homework involvement. Consistent with previous research on the quantity of parental involvement (Pomerantz & Eaton, 2001; Silinskas et al., 2015), the results showed that the more mothers experienced positive emotions and the less they experienced negative emotions during homework situations, the more they reported autonomy support, whereas high negative emotions were linked to high mother-perceived psychological control. It may be that mothers who feel more satisfaction, joy, and pride and less helplessness, anger, and frustration during homework situations are also more responsive to their child and thus perceive being more supportive of adolescents' autonomy (Katz et al., 2011; Pomerantz et al., 2007; Silinskas et al., 2015). In turn, high negative emotions during homework situations may lead mothers to perceive their child as less competent in being able to do their homework independently, which manifests itself as high mother-perceived psychological control (Aunola et al., 2017; Silinskas et al., 2015). Mothers' negative emotions during homework situations may also reflect their stress related to homework (Moè et al., 2020), struggles to get involved when adolescents are having problems with homework (Pomerantz & Eaton, 2001; Silinskas et al., 2015), or adolescents' negative emotions during

homework situations (Pekrun et al., 2002; Pomerantz et al., 2007). However, due to correlational nature of the study, mothers who pressure, express their disappointment and shame during homework situations, may also enjoy involvement less and therefore, experience more negative emotions (Pomerantz & Eaton, 2001).

The results also showed that the more mothers reported positive emotions during homework situations, the more adolescents perceived autonomy support from their mothers. This supports previous findings (Pomerantz et al., 2005a) by suggesting that it is important for adolescents' autonomy that mothers stay positive during homework situations. However, the additional results showed that when fathers were included in the analyses, the association between parents' positive emotions and adolescent-perceived autonomy support was no longer significant. This may suggest that fathers experience fewer positive emotions during homework situations than mothers do, and therefore a similar association was not found when fathers were included. Since the present dissertation, as well as previous research, have focused on the role of mothers' emotions in their homework involvement (Pomerantz et al., 2005a; Silinskas et al., 2015), future studies are needed to investigate possible differences in the role of parents' emotions in father-perceived and mother-perceived homework involvement.

In line with Eccles et al., (1983), the results add to previous research (Gonida & Cortina, 2014) by showing that the mothers' beliefs about adolescents' future success were not only positively related to mother-perceived autonomy support and negatively related to mother-perceived psychological control but also similarly related to adolescent-perceived autonomy support and psychological control. These results suggest that both mothers and adolescents perceive maternal trust or mistrust about adolescents' abilities as a significant director of parental behavior during homework situations (Darling & Steinberg, 1993). There may be a few reasons for these results. First, it has been shown that parents' beliefs can be communicated to children in different ways, such as through conversations with children as well as through more subtle ways, such as the values and attributions parents make for their children's competence (Eccles et al., 1983; Jodl et al., 2001; Pomerantz et al., 2005b). For example, mothers who hold higher beliefs about adolescents' school success may also communicate their trust in their abilities in many ways, which leads both sides to perceive maternal involvement as more autonomy-supportive. Second, it has been suggested that parents' beliefs reflect the children's actual performance (Frome & Eccles, 1998; Pomerantz et al., 2005b). The results of this study supported this by indicating how mothers' beliefs showed a moderate positive correlation with adolescents' academic achievement. Thus, it may be that mothers have stronger beliefs in adolescents' abilities because their adolescents are achieving better academically, which in turn leads them to support their autonomy (Cooper et al., 2000; Frome & Eccles, 1998). In contrast, mothers of low-achieving adolescents may have less confidence in their ability to complete homework on their own, which leads them to use more psychological control during homework situations (Silinskas et al., 2015).

4.1.2 Predictive power of adolescent-perceived and mother-perceived quality of homework involvement

The results of this dissertation also showed that when examining the predictive power of adolescent- and mother-perceived quality of homework involvement simultaneously, only mother-perceived psychological control was related to adolescents' poorer subsequent achievement. This corresponds to some previous findings (Dinkelmann & Buff, 2016; Su et al., 2015) that have suggested greater validity for parents' perceptions than adolescents' perceptions of parental control. It has been suggested that children's reports of parenting are influenced by the quality of their relationship with the parent (Cheung et al., 2016; Pomerantz & Monti, 2015), which may result in lower validity in adolescents' reports. Overall, in line with SDT (Ryan & Deci, 2017), the results suggest that highly dominating, pressuring, and intrusive maternal behaviors during homework situations are particularly detrimental for adolescents' subsequent achievement due to such involvement thwarting adolescents' sense of autonomy, competence, and relatedness (see also Costa et al., 2016; Soenens & Vansteenkiste, 2010). Despite the theoretical predictions of SDT (Ryan & Deci, 2017), adolescent-perceived or mother-perceived autonomy support were not related to adolescents' subsequent achievement. Due to assumptions that psychological control and autonomy support represent separate constructs that may be co-expressed in maternal behavior (Costa et al., 2015, 2016), it may be that need-thwarting caused by maternal psychological control diminishes the need satisfaction provided by autonomy support (see Bartholomew et al., 2011). On the other hand, autonomy support may play a more significant role in motivational factors, such as in motivational behavior, than in achievement (Dumont et al., 2012; Patall et al., 2008; Silinskas & Kikas, 2019a; Viljaranta et al., 2018).

Moreover, the results showed further that mother-perceived psychological control served as a mechanism for the associations between adolescent and maternal factors and adolescents' subsequent achievement. To be more specific, the more task avoidance the adolescents showed during homework situations, the more negative emotions the mothers experienced during homework situations, and the lower beliefs mothers had about their adolescents' school success, the more they reported psychological control during homework situations. This in turn led to adolescents' poorer achievement later on. Taken together, these results suggest that mothers who experience high levels of negative emotions during homework situations, who have lower expectations for their children's achievement, and whose children are highly task-avoidant during homework situations are at risk of pressuring adolescents during homework situations to comply with parental standards and values related to homework and achievement (Dumont et al., 2014; Gonida & Cortina, 2014; Silinskas et al., 2015; Soenens et al., 2010). By inserting psychological control, mothers may inhibit adolescents' self-expression, create insecurities about their competence, and make adolescents more emotionally dependent on their mothers (Barber & Harmon, 2002; Chorpita et al., 2016; Costa et al., 2016; Soenens & Vansteenkiste, 2010), which in turn manifests itself through poor achievement.

4.2 The interplay between maternal homework involvement, adolescents' task avoidance, and academic achievement

Building on organismic integration theory (Ryan & Deci, 2017) and transactional theories (Sameroff, 2010), the second aim of this dissertation was to examine the interplay between maternal homework involvement (i.e., quantity, quality, source of initiative), adolescents' motivational behavior, and academic achievement across the transition from primary school to lower secondary school. In line with previous findings (Cheung et al., 2016; Dumont et al., 2012; Silinskas & Kikas, 2019b), as well as Study I, the results showed that high maternal psychological control in primary school was related to poorer achievement in lower secondary school. The results further add to previous research (Viljaranta et al., 2018) and Study I by showing that high maternal psychological control was associated with adolescents' poorer subsequent achievement through higher levels of adolescents' task-avoidant behavior. These results suggest that highly dominating, pressuring, and intrusive involvement practices are detrimental for adolescents' later achievement due to these practices diminishing adolescents' motivation. Following OIT (Ryan & Deci, 2017), high maternal psychological control hinders adolescents' self-expression, makes them feel insecure about their competence, and more emotionally dependent on their mother (Barber & Harmon, 2002; Chorpita, et al., 2016; Costa et al., 2016; Soenens & Vansteenkiste, 2010). This then thwarts internalization and integration of parental values, goals, and beliefs related to homework into the adolescents' selves. As a consequence, adolescents become amotivated and show task avoidance during homework situations, which further manifests itself through poor achievement (Deci & Ryan, 2000; Malmberg et al., 2015).

In addition, the results provided insight into the detrimental role of high mother-initiated monitoring in adolescents' motivational behavior and achievement by showing that mothers' high initiative for monitoring during primary school was related to poorer achievement in lower secondary school both directly and indirectly via higher levels of adolescents' task-avoidant behavior. These results suggest that when mothers highly monitor adolescents' homework on their own initiative, it may diminish adolescents' opportunity to complete homework on their own and cause them to perceive that their mother does not trust in their ability to be responsible for their homework (Silinskas et al., 2015). Moreover, due to adolescents' increased need for autonomy and independence, mother-initiated monitoring may be perceived as unwanted and thus cause tension in the adolescent-mother relationship (Eccles et al., 1993; Pomerantz & Eaton, 2001; Pomerantz & Grolnick, 2017). Following OIT (Ryan & Deci, 2017), these findings suggest that mothers' high initiative in monitoring may hinder the satisfaction of adolescents' needs for autonomy, competence, and relatedness and forestall internalization and integration processes related to homework. This, in turn, leads to task avoidance during homework situations

and further manifests itself through poor achievement (Deci & Ryan, 2000; Malmberg et al., 2015; Ryan & Deci, 2017).

The results of this dissertation did not show maternal help or monitoring in primary school to be significantly related to adolescents' achievement in lower secondary school, which corresponds to previous findings (Jeynes, 2007; Patall et al., 2008) showing low significance of the quantity of parental homework involvement in early adolescents' achievement. Because previous research has shown a decrease in parental homework involvement during adolescence (Cooper et al., 2000; Gonida & Cortina, 2014), it is possible that mothers engage in direct involvement less, and thus their involvement does not have a significant contribution to adolescents' achievement. It may also be that monitoring and help have a more significant contribution to achievement-related outcomes such as motivational behavior than achievement itself (Grolnick et al., 1991; Patall et al., 2008; Viljaranta et al., 2018). The results provided partial support for this by showing that maternal help was positively related to adolescents' subsequent task avoidance. This would suggest that high direct maternal help plays a detrimental role in adolescents' persistence due to extensive direct assistance hindering adolescents' opportunities to show initiative and build their own competence (Ryan & Deci, 2017). Consistent with previous research (Viljaranta et al., 2018), similar associations were not found for maternal monitoring. This may suggest that due to a lower level of direct involvement (e.g., the mother asks if homework is done), monitoring may not give the adolescent similar messages of their inability to do homework independently and thus may not be as detrimental for their psychological needs and motivation compared to help (see also Silinskas et al., 2015).

In contrast to some previous findings (Cooper et al., 2000; Viljaranta et al., 2018), mother-perceived autonomy support did not play a role in adolescents' achievement. However, the additional results showed that adolescent-perceived autonomy support contributed to their achievement but only indirectly through their motivational behavior. To be more specific, the less adolescents perceived receiving autonomy support from their mothers in primary school, the more they exhibited task-avoidant behavior during homework situations which, in turn, led to poorer achievement in lower secondary school. These results add to previous studies (Cooper et al., 2000; Patall et al., 2008; Silinskas & Kikas, 2019a), as well as complement the findings from Study I, by suggesting that adolescent-perceived autonomy support plays a role in their achievement by influencing their motivational behavior. In line with OIT (Ryan & Deci, 2017), these results suggest that when adolescents' needs for autonomy, competence, and relatedness are unmet, it decreases their internalization and integration of homework goals and values. As a result, adolescents become amotivated, engage in task-irrelevant activities during homework situations when facing obstacles, and consequently achieve poorer academic results (Aunola et al., 2002; Malmberg et al., 2015; Ratelle et al., 2007). Taken together, these results suggest that adolescents' interpretations of maternal autonomy support may be more

important for their achievement compared to mother-perceived autonomy support (see also Dinkelmann & Buff, 2016).

It was found, consistent with previous findings (Aunola et al., 2002; Hirvonen et al., 2010), that adolescents with poorer achievement in primary school showed more task avoidance during homework situations in lower secondary school. The results further add to previous research by showing that the association between adolescents' prior achievement and motivational behavior was influenced by maternal homework involvement. To be more specific, adolescents' poorer prior achievement in primary school was related to high maternal psychological control and high initiative from mothers in monitoring, which in turn led to higher task avoidance in lower secondary school. These behaviors may reflect mothers' worries over adolescents' poor performance (Grolnick, 2003; Pomerantz & Eaton, 2001) and low trust in their ability to be able to complete homework independently (Silinskas et al., 2015). It has been suggested that parental controlling and intrusive involvement practices deprive adolescents' inner resources and may thus be particularly detrimental for adolescents with a long history of failure and poor achievement (Ng et al., 2004; Pomerantz et al., 2005b). These results indicate that high dominance and pressure that mothers exert when adolescents do not meet their academic standards, as well as intensive monitoring without adolescents' request, does not allow poor-achieving adolescents to be active during homework situations, build their own competence, or form warm and meaningful connections with their mothers and thus hinders the satisfaction of adolescents' psychological needs for autonomy, competence, and relatedness (Ryan & Deci, 2020; Soenens et al., 2015). This then leads to lower intrinsic motivation and lack of persistence during homework situations (Moorman & Pomerantz, 2008; Ryan & Deci, 2017).

The results showed further that adolescents' achievement was related to their self-perceived autonomy support, which in turn played a role in their later task avoidance. In other words, the results supported evocative theories (Bell, 1968; Scarr & McCartney, 1983) and SDT (Ryan & Deci, 2017) by showing that adolescents with higher achievement perceived more autonomy support from their mothers, which in turn led to lower levels of task avoidance during homework situations. These results suggest that maternal autonomy support may be an important protective factor against the development of motivational issues in lower secondary school due to autonomy support fostering adolescents' psychological resources such as intrinsic motivation (Moè et al., 2018; Pomerantz et al., 2005b; Ryan & Deci, 2017; Vansteenkiste & Ryan, 2013).

Taken together, the results of Study II provided a novel understanding of the bidirectional associations between maternal homework involvement, adolescents' motivational behavior, and achievement across the educational transition. Due to the fact that mother-initiated monitoring played a larger role in adolescents' motivational behavior and achievement than direct maternal monitoring, it would be advisable to differentiate the source of initiative. The results suggest that it is important to take into account of motivational factors,

such as motivational behavior, when examining the effects of maternal homework involvement.

4.3 Stability and change in maternal homework involvement patterns during the transition to lower secondary school

Despite the multidimensionality of parental homework involvement (Grolnick & Slowiaczek, 1994) and interdependence between different parental homework involvement practices in adolescents' need satisfaction (Ryan & Deci, 2017), previous research has rarely examined the possible combinations of parental homework involvement practices. Following SDT (Ryan & Deci, 2017) and parenting patterns research (Baumrind, 1966; Maccoby & Martin, 1983), the final aim of this dissertation was to examine the stability and change in maternal homework involvement patterns across the educational transition from primary school to lower secondary school by applying a person-oriented approach. In addition, the extent to which adolescents' motivational behavior and prior achievement predicted the stability and change of these patterns were examined. First, in line with previous research (Exeler & Wild, 2003; Lara & Saracostti, 2019; Moroni et al., 2016), most of the mothers (39% in Grade 6 and 36% in Grade 7) displayed the averagely involved pattern (average levels of all involvement practices), suggesting that a majority of the mothers exhibit both controlling involvement practices and autonomy support in a similar manner during homework involvement. Second, in accordance with previous research (Lara & Saracostti, 2019; Moroni et al., 2016), the noninvolved maternal pattern, characterized by low monitoring, help, psychological control, and initiative from mothers in monitoring and help, and average levels of autonomy support, was identified in Grades 6 (22%) and 7 (28%). Following SDT (Ryan & Deci, 2017), average levels of controlling involvement practices (e.g., psychological control and mother-initiated help) may threaten the satisfaction of adolescents' autonomy, competence, and relatedness because mothers were simultaneously providing only average levels of autonomy support (see also Moroni et al., 2016). In contrast, mothers who exhibit more autonomy support than controlling and self-initiated involvement practices may better satisfy adolescents' psychological needs (Ryan & Deci, 2017).

The results further showed that, consistent with variable-oriented research (Cooper et al., 2000; Dumont et al., 2014), adolescents' higher achievement predicted the likelihood of mothers being in the noninvolved pattern rather than in the averagely involved pattern before the transition. These results indicate that mothers of high-achieving adolescents are more likely to trust their adolescents' skills, and thus avoid being highly controlling and instead provide more autonomy support (Gonida & Cortina, 2014; Silinskas et al., 2015). Despite high overall stabilities, transitions with approximately similar likelihoods between the two patterns were also identified. In accordance with variable-oriented research

(Cooper et al., 2000; Gonida & Cortina, 2014; Silinskas & Kikas, 2019a), some mothers from the averagely involved pattern in primary school moved to the noninvolved pattern after the educational transition, which may also explain a slight growth in prevalence in the noninvolved pattern (from 22% in Grade 6 to 28% in Grade 7). These results indicate that some mothers may be concerned about their involvement being perceived as too controlling for adolescents' heightened need for autonomy and independence and hence decrease their self-initiated and direct involvement and turn to providing more autonomy support to adolescents who are transitioning to lower secondary school (Eccles et al., 1993; Silinskas & Kikas, 2019a). On the other hand, adolescents may also invite mothers to be involved with their homework less in lower secondary school, or mothers themselves may perceive that their involvement is less normative in lower secondary school than in primary school, and thus they decrease their direct and self-initiated involvement (Green et al., 2007; Wei et al., 2019).

Similarly, some transitions from the noninvolved pattern to the averagely involved pattern after the educational transition were also identified. There may be several possible explanations for these transitions. Due to previous research (Frome & Eccles, 1998; Gonida & Cortina, 2014), as well as Study I, showing that parents' beliefs in their child's competence play a role in their homework involvement, it may be that mothers who move to the averagely involved pattern do not believe in adolescents' ability to be responsible of their homework or do more challenging homework assignments independently in lower secondary school and therefore perceive that more direct and self-initiated assistance is needed (Gonida & Cortina, 2014; Hyde et al., 2006; Silinskas et al., 2015).

The results further add to previous research by identifying two highly controlling yet different maternal patterns before and after the educational transition. Consistent with parenting patterns research (Dwairy et al., 2013; McNamara et al., 2010), a relatively large pattern of psychologically controlling and intrusive mothers characterized by high levels of monitoring, help, psychological control, and high initiative from mothers in monitoring and help, together with low levels of autonomy support, was identified in Grades 6 (28%) and 7 (26%). Finally, a small pattern of intrusive monitoring and helping mothers (high levels of monitoring, help, and initiative from mothers in monitoring and help combined with average levels of autonomy support and psychological control) was identified in Grades 6 (11%) and 7 (10%). These highly controlling homework involvement patterns can be differentiated from each other by the level of psychological control and autonomy support. To be more specific, mothers in the psychologically controlling and intrusive pattern highly monitor and help adolescents with their homework on their own initiative in a way that intrudes on adolescents' psychological world (e.g., through guilt and shame). At the same time, they provide very little support for adolescents' autonomy. In contrast, mothers in the intrusive monitoring and helping pattern are highly involved in adolescents' homework on their own initiative but without high guilt induction and shame. At the same time, they provide some level of support for adolescents' autonomy. One explanation for the differential role of psychological

control in these maternal patterns may be related to mothers' parenting style. It has been suggested that parents may partly express their parenting style through parenting practices (Darling & Steinberg, 1993). As such, it may be that mothers in the psychologically controlling and intrusive pattern are generally more psychologically controlling in their parenting and thus, express high dominance, pressure, and shame during homework situations. Another explanation may be that mothers in the psychologically controlling and intrusive pattern experience more distress in their lives, which may thwart the satisfaction of their psychological needs (Aunola et al., 2017; Belsky, 1984; Van der Kaap-Deeder et al., 2015). This then may decrease their resources to choose more adaptive ways to support adolescents' learning (e.g., autonomy support; Aunola et al., 2017; Cummings & Davies, 1994; Moè et al., 2020). Because parental psychological control has also been linked to parents' maladaptive perfectionism, it may be that mothers who have excessive standards for themselves and their adolescents are also more prone to use high dominance, pressure, and shame as a means to impose their standards on their adolescents (Flett et al., 2002; Grolnick, 2003; Soenens et al., 2010). It remains a challenge for future studies to investigate the role of mothers' parenting styles, well-being, and personality characteristics in the patterns of maternal homework involvement.

Following SDT (Ryan & Deci, 2017), the two highly controlling involvement patterns may further have different contributions to the satisfaction of adolescents' psychological needs. In other words, high psychologically controlling, direct, and self-initiated involvement practices combined with only low autonomy support may restrict adolescents' self-expression and initiative, make them insecure about their competence, and increase their emotional dependence on their mothers (Barber, 1996; Chorpita et al., 2016; Grolnick & Pomerantz, 2009; Soenens & Vansteenkiste, 2010). As such, these practices may be particularly detrimental to adolescents' psychological needs and, subsequently, to their motivation and achievement (Ryan & Deci, 2017). In turn, high direct and self-initiated involvement practices in terms of monitoring and help without high psychological control may, however, despite providing some support for adolescents' autonomy, hinder adolescents from doing homework on their own and lead them to perceive maternal mistrust in their ability (Ryan & Deci, 2017; Silinskas et al., 2015). In addition, high mother-initiated involvement may also be perceived as unwanted by the adolescents and hence cause tension in the adolescent-mother relationship (Pomerantz & Grolnick, 2017; Silinskas et al., 2015). As a consequence, these maternal behaviors may diminish adolescents' psychological needs and further decrease their motivation and achievement.

It was also shown that the psychologically controlling and intrusive pattern and the intrusive monitoring and helping pattern were the most stable maternal patterns across the transition. The novel results further add to previous variable-oriented research as well as Studies I and II by showing that mothers reacted differently, to some extent, to their adolescent's lack of persistence during homework situations and poor academic achievement. In accordance with

variable-oriented research (Dumont et al., 2014; Viljaranta et al., 2018), higher levels of adolescents' task avoidance predicted the likelihood of being in the psychologically controlling and intrusive pattern in primary school or in the intrusive monitoring and helping pattern across the transition relative to the noninvolved pattern. Because parental psychological control has been linked to parental distress, it may be that mothers who exhibit the psychologically controlling and intrusive pattern experience high levels of negative emotions and stress related to homework (Aunola et al., 2017; Moè et al., 2020). This then leads them to observe their adolescents' behavior more negatively and consequently, exert high levels of psychological control, direct and self-initiated involvement practices together with low support for adolescents' autonomy (Aunola et al., 2015; Cummings & Davies, 1994). On the other hand, adolescents' task avoidance may be perceived as a lack of effort and thus, as conflicting with maternal standards and expectations, to which these mothers respond by expressing their disappointment and shame together with high self-initiated involvement and low support for adolescents' autonomy (Barber, 1996; Soenens & Vansteenkiste, 2010; Soenens et al., 2010). In turn, mothers who show the intrusive monitoring and helping pattern may perceive that adolescents' low persistence is more due to their lack of skills, so they react by providing more direct and self-initiated assistance across the transition (Kikas & Silinskas, 2016; Pomerantz & Eaton, 2001).

The results further showed that adolescents' academic achievement also played a different role in longitudinal maternal homework involvement patterns. The results supported earlier variable-oriented findings (Dumont et al., 2012; Silinskas & Kikas, 2019a) by showing that lower achievement predicted the likelihood of mothers belonging to the intrusive monitoring and helping pattern in primary school or in the psychologically controlling and intrusive pattern across the transition relative to the noninvolved pattern. Overall, adolescents whose mothers were labeled as psychologically controlling and intrusive had at the mean level poorer achievement than adolescents whose mothers were labeled as intrusive monitoring and helping, which may partly explain why mothers were more likely to stay in the psychologically controlling and intrusive pattern across the transition. These results indicate that mothers of poor-performing adolescents may be worried about their abilities and therefore, exert high levels of self-initiated involvement practices (Grolnick, 2003; Silinskas et al., 2015). In turn, mothers who exhibit the psychologically controlling and intrusive pattern longitudinally may not know how to best assist their struggling adolescents and have fewer resources to find other ways to support their adolescents due to higher distress they experience from different sources (e.g., worries over adolescents' performance and motivation, marital conflict; Aunola et al., 2017; Belsky, 1984). Thus, they end up using every possible controlling involvement practice (Dwairy et al., 2013; Grolnick, 2003). This in turn may be extremely detrimental for adolescents' psychological needs and subsequent motivation and achievement (Ryan & Deci, 2017).

Despite showing high stabilities, some mothers from the psychologically controlling and intrusive pattern before the transition moved to the noninvolved pattern after the transition. Similarly, some mothers from the intrusive monitoring and helping pattern before the transition moved to the averagely involved pattern after the transition. These results indicate that when adolescents transition to lower secondary school, some mothers may react to the various changes occurring in their lives (e.g., heightened need for autonomy) by decreasing their high self-initiated and controlling involvement practices and instead support their developmental needs by providing support for adolescents' autonomy (Eccles et al., 1993; Eccles & Roeser, 2011).

4.4 Limitations and future directions

The results of this dissertation should be interpreted with caution due to the following limitations. First, apart from the additional analyses performed in Study I, this dissertation mainly examined mothers' homework involvement, which does not enable it to make far-reaching inferences of fathers' homework involvement and possible differences between maternal and paternal homework involvement. Studies have shown that mothers are generally more involved in their children's academic lives (Levin et al., 1997; Silinskas et al., 2010). Nevertheless, fathers may have different roles in adolescents' achievement and motivation (see Grolnick & Ryan, 1989). Studies are needed to elaborate on the possible differences in the effect of paternal and maternal homework involvement on students' learning and motivation. In addition, this dissertation examined maternal practices in a limited context (i.e., homework context). Because parenting styles may serve as determinants of parental homework involvement practices or moderate the influence of homework involvement practices on adolescents' motivational and achievement outcomes (Darling & Steinberg, 1993; Sikiö et al., 2018; Steinberg et al., 1992), future research is needed to explore the relationship between parental homework involvement practices and parenting styles.

Second, the data used in the three studies were gathered from questionnaires, with the exception of academic achievement, which was gathered from school registers. Even though GPA has been suggested to be a more relevant indicator of students' academic achievement than grades in different subjects and test performance, different measures of achievement may have different levels of importance in parental homework involvement (Dumont et al., 2014; Fan & Chen, 2001). Moreover, due to the fact that data usage via registers may also contain biases (Thygesen & Ersbøll, 2014), future studies should consider using different ways to measure adolescents' skills. Moreover, the information on mothers' homework involvement was received via questionnaires. Combining interviews, checklists, and observations of real time homework involvement situations with questionnaires may provide a more accurate and comprehensive picture of the

interactions between parents and adolescents during homework situations (see also Cheung et al., 2016; Pomerantz & Monti, 2015).

Third, the maternal homework involvement items and adolescents' task avoidance used in the three studies were not subject-specific. There is some evidence suggesting that the association between parental help and student achievement may be different depending on the subject matter (Patall et al., 2008; for math, see Silinskas & Kikas, 2019a, 2019b). It is a future challenge to shed more light on the possible subject-specific differences in maternal homework involvement and related factors.

Fourth, in this dissertation, only a negative form of control, namely psychological control, was investigated. Previous research has shown that a positive form of control, labeled as structure, may also be one crucial form of parental involvement in the homework context (Dumont et al., 2014; Patall et al., 2008). For example, different aspects of structure such as setting consistent guidelines and expectations, providing materials, and organizing a quiet environment for homework may play a role in adolescents' persistence by increasing their competence especially when such behaviors are accompanied with autonomy support (Dumont et al., 2014; Farkas & Grolnick, 2010; Grolnick & Pomerantz, 2009; Patall et al., 2008). Thus, future studies should consider examining structure among the ways that parents may try to increase adolescents' competence during homework situations.

Fifth, the reliability of the scales of psychological control (consisting of two and three items measuring parental pressure, guilt induction, and shame) were relatively modest and thus should be further improved and expanded to measure other components of psychological control (e.g., love withdrawal). However, because measurement error was taken into account in the SEM analyses for the quality of homework involvement, some confidence can be placed on the findings of this dissertation.

Sixth, it should be noted that due to the correlational nature of the studies, especially Study I, the results do not provide evidence for a definite direction of relations between adolescent and maternal factors and adolescent-perceived and mother-perceived quality of homework involvement. Future longitudinal studies are needed to shed more light on the possible reciprocal associations between adolescent-related and mother-related antecedents and the quality of maternal homework involvement (see also Dumont et al., 2014).

Seventh, in addition to students and parents, teachers have also important roles in the homework process (Hoover-Dempsey & Sandler, 1997; Trautwein et al., 2006). In this dissertation, the focus was on the associations between maternal homework involvement, adolescents' motivational behavior, and achievement because information on teachers' homework-related attitudes and practices was not available. Although less attention has been paid to the role of teachers in parental homework involvement, it is presumable that teachers have their own perceptions, expectations, and practices related to homework which may directly influence parents' homework involvement (e.g., the teacher invites parents to help with homework; Green et al., 2007; Hoover-Dempsey & Sandler, 1997) or

indirectly via adolescents' homework motivation and persistence (Trautwein et al., 2006). For example, teachers who can provide high-quality homework assignments that are interesting and appropriately challenging may increase adolescents' homework motivation and persistence which in turn may lead to higher parental autonomy support (Dumont et al., 2012; Trautwein et al., 2006; Trautwein & Lüdtke, 2009). In turn, students' motivation and achievement may also influence teachers' homework-related practices and further, parents' homework involvement (Bell, 1968; Trautwein et al., 2006). It remains a challenge for future research to examine possible reciprocal associations between teachers' homework-related attitudes and behaviors, adolescents' motivation, and parental homework involvement.

Finally, maternal homework involvement was examined among mothers in an individualistic cultural and educational context in Finland, which should be taken into account when interpreting the results and generalizing them to collectivist cultures and other school systems. However, despite the fact that people from collectivist cultures may not hold desire for autonomy support to be as important as people from individualist cultures do, research has shown that people from both cultures benefit from the satisfaction of autonomy (Chen et al., 2015; Ryan & Deci, 2020).

4.5 Practical implications

Some practical implications can be drawn from the results of this dissertation. Because homework assignments are set by teachers to support adolescents' learning (Cooper, 1989; Warton, 2001), teachers play an important role in cooperating with parents and communicating expectations and demands for parental homework involvement (Trautwein et al., 2006). Generally, mothers may lack skills for how best to involve themselves in early adolescents' homework and thus may benefit from teachers', school psychologists', and counselors' knowledge and expertise of student learning and well-being. Parent training programs as well as strong family-school cooperation between school personnel and parents may prove to be beneficial when trying to improve mothers' knowledge and skills for supportive homework involvement practices (Chang et al., 2009; Harris & Goodall, 2008). Interactive homework assignments that encourage students to evaluate their skills and communicate what they have learned to their parents may be one way to increase family-school partnership, parents' interest and knowledge of student learning, as well as students' homework completion, persistence, and achievement (Epstein, 2011). Different school functions such as regular parent nights may also provide a good opportunity to strengthen family-school cooperation and to bring more knowledge to parents of the expectations that school personnel have for their involvement in the home context as well as concrete tools for supporting early adolescents' autonomy during the educational transition.

The results of this dissertation suggest that adolescents who are highly task-avoidant during homework situations and struggle academically are at risk of receiving highly psychologically controlling, direct, and self-initiated involvement practices together with low support for their autonomy during the transition to lower secondary school. Because motivational and academic decline has been linked to the possible mismatch between adolescents' changing needs and the support they receive from different contexts when they transition to lower secondary school (e.g., parents and teachers; Barber & Olsen, 2004; Eccles & Roeser, 2011), more knowledge and understanding should be provided to parents and teachers of how to support adolescents during this critical time. Changes related to the educational transition, adolescents' development (e.g., identity formation, increased cognitive abilities), and social relationships (e.g., increased need for autonomy), and how they may reflect on parents' homework involvement should be discussed with parents before adolescents transition to lower secondary school (see also Strand, 2020). On the other hand, adolescents who face motivational issues during this transition may have experienced repeated academic failures (Bandura, 1993). Therefore, positive learning experiences should be provided to adolescents to improve their competence and self-efficacy (Bandura, 1993; Eccles et al., 1983). High-quality homework assignments that are challenging but in the range of adolescents' abilities may help to build their confidence and further improve their motivation and effort (see also Trautwein et al., 2006). Adolescents' mothers should also be provided more knowledge and skills of how to best support their adolescents who struggle academically and show task-avoidant tendencies in homework situations. Interventions provided to enhance parents' autonomy-supportive scaffolding (i.e., changing parental level of support to match adolescents' current needs and ability to make independent work possible; Moè et al., 2018) may be effective when trying to prevent motivational and academic decline related to educational transitions.

The results of this dissertation showed further that high maternal controlling and self-initiated involvement practices in primary school play a detrimental role in adolescents' motivational behavior and achievement in lower secondary school. In turn, the results also suggest that how adolescents perceive their mothers being able to provide autonomy support during homework situations is important for their subsequent motivational behavior and achievement. This suggests that it is important to emphasize adolescents' needs and requests as the foundation for mothers' homework involvement. There is some evidence to suggest that interventions and awareness provided to educate parents of their detrimental and controlling parenting practices may be useful when combined with knowledge of how to implement more supportive practices in their interactions with their children (Costa et al., 2016; Soenens & Vansteenkiste, 2010). Since mothers' own need satisfaction for autonomy, competence, and relatedness may influence their resources for autonomy-supportive practices (Aunola et al., 2017; Katz et al., 2011; Van der Kaap-Deeder et al., 2015), more attention should be given to how to promote mothers' need

satisfaction and resources for autonomy support. Interventions targeted to foster parents' abilities to be need-supportive may be useful when trying to prevent mothers' distress during homework involvement and promote adolescents' need satisfaction, motivation, and achievement (Moè et al., 2020; Ryan & Deci, 2020). Due to low correspondence found between mothers' and adolescents' perceptions of autonomy support, mothers should be encouraged to have conversations with adolescents about their needs and perspectives of autonomy support (see also Vrolijk et al., 2020). Teachers could encourage adolescents to discuss their expectations and needs for support with their mothers. Mothers, in turn, should also be encouraged to elaborate their motives for homework involvement and show that they are interested in adolescents' schoolwork and are available when their assistance is needed. This may then promote autonomy support.

Finally, it should be noted that most of the mothers who participated in this study exhibited similar homework involvement behaviors from primary school to lower secondary school. It can be expected that mothers have developed their habits for homework involvement in earlier primary school years (Silinskas et al., 2013) and thus might benefit from early support provided in the first years of primary school.

4.6 Conclusions

The present dissertation examined associations between maternal homework involvement, adolescents' task-avoidant behavior, and academic achievement during the transition from primary school to lower secondary school. This dissertation contributes to previous research by showing that mothers and adolescents are more dissenting in their perceptions of the quality of maternal homework involvement in terms of autonomy support than in their perceptions of psychological control. Moreover, mothers' and adolescents' perceptions of autonomy support and psychological control are differently related to adolescents' academic achievement but also have different adolescent and maternal antecedents, which suggests the need to use multiple informants, especially when examining autonomy support during homework situations. The findings support transactional theories by showing bidirectional associations between maternal homework involvement, adolescents' motivational behavior and achievement. The results also add to previous variable-oriented findings by indicating that mothers may respond to adolescents' academic and motivational struggles in a somewhat different manner. Overall, most of the mothers in the study similarly used both autonomy support and self-initiated and controlling involvement practices when involving themselves in adolescents' homework during the educational transition which may be problematic for adolescents' later motivation and achievement. Thus, more knowledge should be provided to mothers for how to support adolescents' autonomy in a more optimal way during the educational transition to lower secondary school.

YHTEENVETO (SUMMARY)

Äitien osallistuminen kotitehtävien tekemiseen: Yhteydet varhaisnuorten tehtävien välttelyyn ja koulumenestykseen siirryttäessä alakoulusta yläkouluun

Kotitehtäviä pidetään tärkeänä oppimisen kannalta (Cooper, 2007). Ne yhdistävät koulun ja kodin ja tarjoavat siksi vanhemmille erinomaisen mahdollisuuden osallistua nuoren koulunkäyntiin (Warton, 2001). Onkin havaittu, että kotitehtäviin osallistuminen on tyypillisin tapa, jolla vanhemmat pyrkivät osallistumaan lastensa koulunkäyntiin kotiympäristössä (Pezdek ym., 2002; Wingard & Forsberg, 2009). Aikaisemmat tutkimukset ovat kuitenkin osoittaneet, että vanhempien osallistuminen ei aina ole hyödyllistä nuoren motivaation ja koulumenestyksen kannalta (Hill & Tyson, 2009; Patall ym., 2008). Vanhempien kotitehtäviin osallistuminen nähdään moniulotteisena käsitteenä, johon liittyy niin määrällisiä kuin laadullisiakin piirteitä (Grolnick & Slowiaczek, 1994; Moroni ym., 2015). Myös sitä, kenen aloitteesta osallistuminen tapahtuu, pidetään merkityksellisenä kotitehtäviin osallistumisen seurauksille (Hoover-Dempsey & Sandler, 1997). Tästä huolimatta aikaisemmissa tutkimuksissa kotitehtäviin osallistumista on pääsääntöisesti tarkasteltu vain joko osallistumisen määrän (kuinka usein vanhempi osallistuu; Silinskas ym., 2015) tai laadun näkökulmasta (millä tavoin vanhempi osallistuu; Dumont ym., 2014) eikä sitä, kenen aloitteesta osallistuminen tapahtuu, ole tarkemmin määritelty.

Tässä väitöskirjatutkimuksessa hyödynnetään Decin ja Ryanin (1985; kts. myös Ryan & Deci, 2017, 2020) itsemääräämisteoriana teoreettisena viitekehiksenä kuvaamaan kotitehtäviin osallistumisen ulottuvuuksia ja osallistumisen mahdollisia seurauksia nuoren motivaatiolle ja koulumenestykselle. Teorian mukaan ihmisen hyvinvoinnin ja motivaation perustana ovat autonomian, kykenevyyden ja yhteenkuuluvuuden tarpeet, joiden täyttymistä erilaiset sosiaaliset kontekstit kuten vanhempien toiminta kotitehtävätilanteissa voivat joko tukea tai estää (Ryan & Deci, 2020). Itsemääräämisteoriana pohjautuen tässä väitöskirjatutkimuksessa oletetaan, että kotitehtäviin osallistumisen tavat voivat eri tavalla täyttää tai estää nuoren autonomian, kykenevyyden ja yhteenkuuluvuuden perustarpeita. Se, missä määrin perustarpeet tulevat täytetyiksi tai estetyiksi on puolestaan merkityksellistä nuoren motivaation ja koulumenestyksen kannalta (Ryan & Deci, 2017).

Yksi merkittävä tekijä, joka voi vaikuttaa vanhempien kotitehtäviin osallistumiseen on varhaisnuorten koulusiirtymä alakoulusta yläkouluun (Eccles ym., 1993; Hill & Tyson, 2009). Siirtymä alakoulusta yläkouluun ajoittuu nuoren elämässä herkkään ajanjaksoon. Nuorten siirtyessä yläkouluun kouluympäristössä tapahtuu useita muutoksia kuten siirtyminen omaopettajuudesta aineenopettajiin, uudet koulukaverit ja uudet kouluaineet. Yläkoulussa saadun suuremman vapauden lisäksi nuorilta myös odotetaan enemmän itsenäisyyttä ja vastuuta omasta oppimisestaan (Strand, 2019; West ym., 2010). Siirtymää myös värittävät useat kehitykselliset muutokset kuten puberteetti, kognitiivisten taitojen kehitys, identiteetin kehitys ja lisääntynyt autonomian tarve, sekä sosiaalisissa suhteissa

tapahtuvat muutokset kuten lisääntyneet pyrkimykset itsenäistyä vanhemmista sekä kaverisuhteiden merkityksen korostuminen (Eccles ym., 1993; Hill & Tyson, 2009). Edellä kuvatut muutokset voivat vaikuttaa negatiivisesti nuorten koulumenestykseen ja motivaatioon, mikäli ympäristö ei kykene tukemaan nuorten muuttuneita tarpeita (Barber & Olsen, 2004; Eccles & Roeser, 2011; Tuominen ym., 2020). Nuorten elämässä tapahtuvat muutokset voivat myös aiheuttaa haasteita nuoren oppimisen ja koulumenestyksen tukemiselle. Vanhemmat voivat olla huolissaan nuoren heikentyneestä motivaatiosta ja koulumenestyksestä yläkoulussa ja pyrkiä tukemaan nuoren opiskelua kontrolloivilla ja intrusiivisilla tavoilla (Grolnick, 2003). Tämä voi edelleen heikentää nuoren psykologisia tarpeita ja näyttäytyä heikompana motivaationa ja koulumenestyksenä yläkoulussa (Ryan & Deci, 2017).

On esitetty, että sekä vanhemmat että nuoret muodostavat omat tulkintansa kotitehtävätilanteista, mikä edelleen vaikuttaa heidän käyttäytymiseensä näissä tilanteissa (Bandura, 1993; Korelitz & Garber, 2016). Aikaisemmissa tutkimuksissa on kuitenkin keskitytty tarkastelemaan vain joko vanhempien (Gonida & Cortina, 2014) tai nuorten kokemuksia kotitehtäviin osallistumisen laadusta (Dumont ym., 2014), vaikka nämä kokemukset ovat mahdollisesti riippuvaisia siitä, missä määrin arvioija itse kokee, että omat psykologiset tarpeensa tulevat täytetyiksi (Katz ym., 2011; Van der Kaap-Deeder ym., 2015). On esitetty, että nuoreen ja vanhempaan liittyvien tekijöiden merkityksen tarkastelu kotitehtäviin osallistumisen laadun selittäjinä on tärkeää, jotta ymmärretään, miksi vanhemmat käyttävät tiettyjä kotitehtäviin osallistumisen tapoja (Belsky, 1984; Dumont ym., 2014; Gonida & Cortina, 2014). Tämän väitöskirjatutkimuksen ensimmäisenä tavoitteena oli tarkastella äitien ja nuorten kokemusten yhteneväisyyttä kotitehtäviin osallistumisen laadusta alakoulun kuudennella luokalla sekä tutkia erilaisen nuoreen ja vanhempaan liittyvien tekijöiden merkitystä näille kokemuksille.

Kotitehtäviin osallistumisen merkityksestä koulumenestykselle on aiemmin saatu ristiriitaisia tuloksia etenkin varhaisnuorilla (Hill & Tyson, 2009; Patallo ym., 2008; Wilder, 2014). Vaikka kotitehtäviin osallistumisen on uskottu olevan merkityksellistä sekä nuoren motivaatiolle että koulumenestykselle (kts. Grolnick ym., 1991; Pomerantz ym., 2007; Ryan & Deci, 2017), aikaisemmissa tutkimuksissa on harvemmin kiinnitetty huomiota siihen, että vanhemman toiminnan vaikutus nuoren koulumenestykseen voi olla erilainen riippuen siitä, missä määrin vanhemman toiminta tukee tai heikentää nuoren motivaatiota (poikkeuksena Viljaranta ym., 2018). Toisaalta on esitetty, että vanhemman toiminta kotitehtävätilanteissa ei pelkästään vaikuta nuoren kehitykseen, vaan on jatkuvassa vuorovaikutuksessa nuoren piirteiden ja toiminnan kanssa (Bell, 1968; Sameroff, 2010). Useat tutkimukset ovat osoittaneet nuorten heikomman koulumenestyksen olevan yhteydessä heidän heikompaan motivaatioonsa (Aunola ym., 2002; Zhang ym., 2011) sekä vanhempien kontrolloiviin ja intrusiivisiin kotitehtäviin osallistumisen tapoihin (Dumont ym., 2014; Núñez ym., 2017). Tästä huolimatta aikaisemmissa tutkimuksissa ei ole juurikaan huomioitu vanhemman osallistumisen vaikutusta nuoren koulumenestyksen ja motivaation väliseen yh-

teyteen (poikkeuksena Silinskas & Kikas, 2019b). Itsemääräämisteoriaan pohjautuen on mahdollista, että nuoren heikompi koulumenestys lisää vanhemman käyttämien kontrolloivien ja intrusiivisten kotitehtäväkäytäntöjen määrää, mikä puolestaan heikentää nuoren motivaatiota (Ryan & Deci, 2017). Tämän väitöskirjatutkimuksen toisena tavoitteena oli lisätä ymmärrystä äitien kotitehtäviin osallistumisen, nuoren motivaation ja koulumenestyksen välisistä yhteyksistä alakoulusta yläkouluun siirtymän aikana. Motivaatio, tai sen puute, käsitteellistetään tässä väitöskirjatutkimuksessa tehtäviä välttelevänä toimintatapana. Tehtäviä välttelevä nuori välttelee tehtäviä ja antaa helposti periksi kohdatessaan vaikeuksia oppimistilanteissa, mikä usein johtaa heikompaan koulumenestykseen (Aunola ym., 2002; Onatsu-Arvolommi & Nurmi, 2000).

Itsemääräämisteorian (Ryan & Deci, 2017) mukaisesti voidaan olettaa, että tietyn kotitehtäviin osallistumisen tavan vaikutus nuoren psykologisten perustarpeiden täyttymiseen tai täyttymisen estymiseen riippuu siitä, missä määrin vanhempi hyödyntää muita osallistumisen tapoja (kts. myös Heberle ym., 2015; Moroni ym., 2016). Esimerkiksi se, missä määrin vanhemman tarjoama autonomian tuki kotitehtävätilanteissa tukee nuoren perustarpeiden täyttymistä voi riippua siitä, missä määrin vanhempi samanaikaisesti kontrolloi nuorta kotitehtävätilanteissa. Tästä huolimatta aiemmissa tutkimuksissa ei ole juurikaan huomioitu sitä, että vanhemmat todennäköisesti käyttävät sekä nuorta kontrolloivia, että tukevia osallistumisen tapoja (Exeler & Wild, 2003). Tässä väitöskirjatutkimuksessa hyödynnetty henkilökeskeinen tutkimusote mahdollistaa erilaisten kotitehtäviin osallistumisen profiilien tunnistamisen ja vanhempien jaottelun erilaisiin alaryhmiin näiden profiilien perusteella (Laursen & Hoff, 2006). Henkilökeskeistä lähestymistapaa hyödyntämällä on mahdollista lisätä ymmärrystä erilaisista osallistumisen tapojen yhdistelmistä ja tunnistaa mahdollisia psykologisten perustarpeiden sekä motivaation ja koulumenestyksen kannalta haitallisia kotitehtäviin osallistumisen profiileja. Tämän väitöskirjatutkimuksen kolmantena tavoitteena oli tarkastella äitien kotitehtäviin osallistumisen profiileja, niiden pysyvyyttä ja niissä tapahtuvia muutoksia alakoulusta yläkouluun siirtymän aikana.

Väitöskirjatutkimuksessa käytetty aineisto on osa TIKAPUU – alakoulusta yläkouluun pitkittäistutkimuksen aineistoa, jossa seurattiin nuoria, heidän vanhempiaan ja opettajiaan alakoulusta yläkouluun siirtymän ajan. Tutkimuksen aineisto kerättiin kyselylomakkeilla äideiltä ($n = 680$) ja nuorilta ($n = 848$) kuudennen ja seitsemännen luokan syksyllä. Nuoren koulumenestyksen mittarina käytettiin keskiarvoa, joka perustui rekisteristä saatuihin tietoihin.

Ensimmäisessä osatutkimuksessa tarkasteltiin äitien ja nuorten kokemusten yhteneväisyyttä kotitehtäviin osallistumisen laadusta (autonomian tuki ja psykologinen kontrolli) sekä kokemusten yhteyttä nuoren myöhempään koulumenestykseen. Tämän lisäksi tarkasteltiin nuoreen liittyvien tekijöiden (koulumenestys, tehtävien välttely, positiiviset ja negatiiviset akateemiset tunteet) sekä äitiin liittyvien tekijöiden (positiiviset ja negatiiviset tunteet kotitehtävätilanteissa sekä uskomukset nuoren menestymisestä koulussa) merkitystä näissä ko-

kemuksissa kuudennella luokalla. Tulokset osoittivat, että nuorten ja äitien kokemusten yhdenmukaisuus autonomian tukemisesta oli heikko, kun taas äitien ja nuorten kokemukset psykologisesta kontrollista osoittivat kohtuullista yhdenmukaisuutta. Nuoreen liittyvät ja äitiin liittyvät tekijät olivat eri tavalla yhteydessä nuorten ja äitien kokemuksiin kotitehtäviin osallistumisen laadusta. Esimerkiksi nuoren heikko koulumenestys ja runsas tehtävien välttely olivat yhteydessä vain äidin näkemyksiin korkeasta psykologisesta kontrollista ja heikosta autonomian tuesta kotitehtävätilanteissa. Toisaalta tutkimuksessa havaittiin, että mitä paremmin äidit uskoivat nuoren menestyvät koulussa, sitä enemmän nuoret ja äidit kokivat autonomian tukea ja vähemmän psykologista kontrollia kotitehtävätilanteissa. Tutkimuksessa havaittiin myös, että äidin kokemus tarjoamastaan psykologisesta kontrollista oli yhteydessä nuorten heikompaan koulumenestykseen.

Toisessa osatutkimuksessa tarkasteltiin kolmen eri kotitehtäviin osallistumisen ulottuvuuden (määrä, laatu ja aloite), nuoren tehtävien välttelyn ja koulumenestyksen välisiä yhteyksiä nuorten siirtyessä alakoulusta yläkouluun. Tulokset osoittivat, että äidin korkea psykologinen kontrolli ja äidin aloitteesta tapahtuva kotitehtävien valvonta alakoulussa olivat yhteydessä nuoren runsaampaan tehtävien välttelyyn, mikä edelleen johti heikompaan koulumenestykseen yläkouluissa. Lisäksi havaittiin, että nuoren heikompi koulumenestys alakoulussa oli yhteydessä äidin korkeaan psykologiseen kontrolliin ja äidin aloitteesta tapahtuvaan kotitehtävien valvontaan, mikä edelleen johti runsaampaan tehtävien välttelyyn yläkouluissa. Lisäanalyysit paljastivat, että nuoren kokema vähäinen autonomian tuki kotitehtävätilanteissa alakoulussa oli yhteydessä runsaampaan tehtävien välttelyyn, mikä edelleen johti heikompaan koulumenestykseen yläkouluissa. Toisaalta nuoret, jotka menestyivät hyvin alakoulussa, kokivat saavansa äideiltään enemmän tukea kotitehtävätilanteissa, mikä edelleen johti vähäisempään tehtävien välttelyyn kotitehtävätilanteissa yläkouluissa.

Kolmannessa osatutkimuksessa hyödynnettiin henkilökeskeistä lähestymistapaa tarkastelemalla kotitehtäviin osallistumisen profiilien pysyvyyttä ja siirtymiä profiilista toiseen alakoulusta yläkouluun siirtymän aikana. Tämän lisäksi oltiin kiinnostuneita siitä, missä määrin nuoren tehtävien välttely ja aikaisempi koulumenestys ennustavat profiilien pysyvyyttä ja siirtymiä profiilista toiseen koulusiirtymän aikana. Äitien keskuudesta löydettiin neljä erilaista kotitehtäviin osallistumisen profiilia kuudennella ja seitsemännellä luokalla: (a) keskimääräisesti osallistuvat äidit (39% kuudennella luokalla, 36% seitsemännellä luokalla), (b) psykologisesti kontrolloivat ja intrusiiviset äidit (28% kuudennella luokalla, 26% seitsemännellä luokalla), (c) ei-osallistuvat äidit (22% kuudennella luokalla, 28% seitsemännellä luokalla), sekä (d) intrusiivisesti valvovat ja auttavat äidit (11% kuudennella luokalla, 10% seitsemännellä luokalla). Vaikka osallistumisen profiilien havaittiin olevan varsin pysyviä koulusiirtymän aikana, pieni osa ei-osallistuvien ryhmään kuudennella luokalla kuuluneista äideistä siirtyi keskimääräisesti osallistuvien ryhmään seitsemännellä luokalla. Toisaalta pieni osa keskimääräisesti osallistuvien ryhmään kuudennella luokalla kuuluneista äideistä siirtyi ei-osallistuvien ryhmään seitsemännellä luokalla. Tulokset

myös osoittivat, että äidit reagoivat nuoren runsaampaan tehtävien välttelyyn ja heikompaan koulumenestykseen osittain eri tavalla. Mitä enemmän nuoret välttelivät kotitehtäviä, sitä todennäköisemmin äidit kuuluivat joko intrusiivisesti valvovien ja auttavien äitien ryhmään koulusiirtymän ajan tai psykologisesti kontrolloivien ja intrusiivisten äitien ryhmään kuudennella luokalla. Toisaalta mitä huonommin nuoret menestyivät koulussa, sitä todennäköisemmin äidit kuuluivat joko psykologisesti kontrolloivien ja intrusiivisten äitien ryhmään koulusiirtymän ajan tai intrusiivisesti auttavien ja valvovien äitien ryhmään kuudennella luokalla.

Tulosten perusteella voidaan todeta, että äidit ja nuoret muodostavat omat tulkintansa autonomian tuesta ja psykologisesta kontrollista kotitehtävätilanteissa ja näitä kokemuksia ennakoivat erilaiset nuoreen ja äitiin liittyvät tekijät. Tutkimuksessa havaittiin myös, että nuoren heikompi koulumenestys ja runsas tehtävien välttely toimivat riskitekijöinä äidin kontrolloiville ja intrusiivisille osallistumisen käytännöille alakoulussa, mikä edelleen voi lisätä nuoren tehtävien välttelyä kotitehtävätilanteissa ja johtaa heikompaan koulumenestykseen yläkoulussa. Tutkimus antoi myös viitteitä siitä, että osa äideistä reagoi nuoren heikkoon koulumenestykseen ja motivaation ongelmiin auttamalla ja valvomalla kotitehtävien tekemistä omasta aloitteestaan luoden samalla syyllistävää ja painostavaa ilmapiiriä, kun taas osalla äideistä omasta aloitteesta auttamisen ja valvomisen ohella samanlaista syyllistävän ja painostavan ilmapiirin luomista ei tapahtunut. Suurin osa äideistä näyttää käyttävän samoja sekä nuoren autonomiaa tukevaa, että nuorta kontrolloivia osallistumisen käytäntöjä alakoulusta yläkouluun siirtymän aikana, mikä voi olla ongelmallista nuoren perustarpeiden täyttämisen sekä motivaation ja koulumenestyksen kannalta (Ryan & Deci, 2017).

Kaiken kaikkiaan tutkimuksen tuloksilla on myös tärkeitä yhteiskunnallisia ja käytännöllisiä merkityksiä. Koska kotitehtävien määrääminen on opettajien vastuulla, on erityisen tärkeää, että opettajat pitävät vanhemmat tietoisina siitä, mitä heiltä odotetaan ja vaaditaan nuorten koulunkäyntiin osallistumiseen liittyen. Vahva koulun ja kodin välinen yhteistyö koulun henkilökunnan ja vanhempien välillä voi muodostua tärkeäksi, kun yritetään kehittää vanhempien taitoja ja ymmärrystä siitä, miten tukea nuorta kotitehtävätilanteissa alakoulusta yläkouluun siirtymän aikana (Harris & Goodall, 2008). Interaktiivisilla kotitehtävillä, jotka rohkaisevat nuoria keskustelemaan koulussa oppimistaan asioista vanhempien kanssa, voidaan pyrkiä edistämään koulun ja kodin välistä yhteistyötä, vanhempien osallisuutta nuorten koulunkäyntiin sekä nuorten motivaatiota ja koulumenestystä (Epstein, 2011).

Koska nuoren kokemus saamastaan riittämättömästä autonomian tuesta voi johtaa heikompaan motivaatioon ja koulumenestykseen, tulisi äidin osallistumisen perustua nuoren tarpeisiin ja nuoren tekemään aloitteeseen. Koska nuorten ja äitien näkemykset äitien tarjoamasta autonomian tuesta olivat heikosti yhteneväisiä, olisi tärkeää lisätä nuorten ja äitien välistä vuorovaikutusta toiveista ja odotuksista liittyen äitien toimintaan kotitehtävätilanteissa (kts. Vrolijk ym., 2020). Koska se, missä määrin äidit itse kokevat omat psykologiset perustarpeensa autonomiasta, kykenevyydestä ja yhteenkuuluvuudesta täytetyiksi voi

vaikuttaa heidän kykyihinsä olla sensitiivisiä ja nuoren autonomiaa tukevia kotitehtävälanteissa (Katz ym., 2011; Ryan & Deci, 2017; Van der Kaap Deeder ym., 2015), tulisi kiinnittää enemmän huomiota siihen, miten äitien resurssija autonomian tukemiseen voidaan edistää. Äideille tarjotut interventiot, jotka kohdistuvat kehittämään äidin kykyjä tukea nuoren autonomiaa voivat olla hyödyllisiä sekä äitien omien resurssien ja kykyjen kehittymisen, että nuoren oppimisen ja motivaation kannalta (Moè ym., 2020).

Koska nuorten tehtävien välttelyn taustalla voi olla toistuvat epäonnistumisen kokemukset (Bandura, 1993), olisi tärkeää tuoda nuorille positiivisia oppimisen kokemuksia. Mukautetut, nuorten kykyjä vastaavat, mutta samalla haasteita tarjoavat kotitehtävät voivat auttaa kehittämään tehtäviä välttelevien nuorten itsetuottamusta, minäpystyvyyttä ja motivaatiota (Bandura, 1993; Eccles ym., 1983). Koska nuoren heikko koulumenestys ja runsas tehtävien välttely olivat yhteydessä äidin kontrolloiviin ja intrusiivisiin osallistumisen käytöntöihin alakoulussa, mikä edelleen johti runsaampaan tehtävien välttelyyn ja heikompaan koulumenestykseen yläkoulussa, tulisi heikosti menestyvien ja motivaatio-ongelmista kärsivien nuorten äideille tarjota lisää keinoja tukea nuorten motivaatiota ja koulumenestystä alakoulusta yläkouluun siirtymän aikana. Interventiot, jotka keskittyvät autonomian tuen synkronoimiseen (tuen mukauttaminen vastaamaan nuoren tarpeita ja kykyjä itsenäisen työskentelyn edesauttamiseksi) voivat olla hyödyllisiä, kun pyritään estämään koulusiirtymän yhteyteen liitettyjä motivaation ongelmia (Moè ym., 2018). Tutkimusten perusteella näyttää siltä, että vanhemmat voivat hyötyä interventioista, joiden tarkoituksena on sekä lisätä heidän tietoisuuttaan käyttämistään kontrolloivista ja intrusiivisista kotitehtäväkäytännöistä, että kehittää heidän kykyjään tukea nuoren autonomiaa (Costa ym., 2016; Moè ym., 2020; Soenens & Vansteenkiste, 2010). Kaiken kaikkiaan, tämän väitöskirjatutkimuksen tulosten perusteella nuoren hyvinvointiin ja oppimiseen erikoistuneiden ammattilaisten tulisi tarjota äideille ohjausta ja konkreettisia keinoja, kuinka tukea nuoren autonomiaa alakoulusta yläkouluun siirtymän aikana.

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ORIGINAL PAPERS

I

THE QUALITY OF MATERNAL HOMEWORK INVOLVEMENT: THE ROLE OF ADOLESCENT AND MATERNAL FACTORS

by

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The Quality of Maternal Homework Involvement: The Role of Adolescent and Maternal Factors

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This study examined adolescent and maternal factors of the quality of maternal homework involvement and the extent to which the factors predicted adolescents' subsequent achievement through adolescents' and mothers' perceptions of the quality of maternal homework involvement. The sample consisted of 847 Finnish adolescents and their 662 mothers who both rated the quality of homework involvement (i.e., autonomy support and psychological control) in the fall of Grade 6. Adolescents rated their positive and negative academic emotions. Mothers rated their beliefs about adolescents' school success, their positive and negative emotions, and adolescents' task avoidance in homework situations. Information on adolescents' achievement was obtained from school registers. The results showed that adolescent and maternal factors were differently associated with adolescent- and mother-perceived quality of maternal homework involvement. Moreover, higher levels of adolescent task avoidance, mothers' lower beliefs, and negative emotions predicted poorer subsequent achievement via mothers' perception of high psychological control.

Previous studies have shown that more parental homework involvement is not always better when it comes to supporting children's academic achievement (for reviews, see Patall et al., 2008; Pomerantz et al., 2007). Aside contradictory findings on the quantity of parental homework involvement, less is known about the quality of parental homework

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involvement—in particular, what leads parents to use qualitatively different ways to become involved in their children’s homework (Dumont et al., 2014; Gonida & Cortina, 2014). Because controlling involvement practices can have negative consequences for children’s and adolescents’ motivational and academic development (Gonida & Cortina, 2014; Moroni et al., 2015), understanding of the role of adolescent and parental factors of the quality of parental homework involvement is needed. Previous research on the topic has, however, focused either on adolescent factors, such as academic functioning (Dumont et al., 2014; Núñez et al., 2017), or on parental factors, such as beliefs about the child’s competence and motivation to help with homework (Gonida & Cortina, 2014; Katz et al., 2011) as antecedents of the quality of parental homework involvement. As such, the relative importance of these factors is unknown. Consequently, the aim of the present study was to examine the extent to which both adolescent (i.e., academic functioning and academic emotions) and maternal factors (i.e., beliefs and emotions in homework situations) are associated with the quality of maternal homework involvement, and the extent to which this quality contributes to adolescents’ subsequent academic achievement. Studies on the correspondence between children’s and parents’ reports in an academic or learning context and their antecedents are rare (e.g., Cheung et al., 2016; Su et al., 2015). Thus, we examined the quality of maternal homework involvement from both adolescents’ and mothers’ perspectives.

The Quality of Parental Homework Involvement

Parental involvement in homework is often conceptualized through self-determination theory (SDT; Ryan & Deci, 2000, 2017). A central aspect of parental homework involvement is the dimension of autonomy support versus control and how it contributes to fulfilling children’s basic psychological needs for autonomy, competence, and relatedness (Ryan & Deci, 2017). *Autonomy support* refers to parental support that is sensitive to the child’s needs and allows the child to work independently (Moorman & Pomerantz, 2008; Pomerantz et al., 2007). Autonomy-supporting parents trust in their children’s abilities and avoid extensive involvement when the child does not ask for it; nevertheless, they provide help and support when the child asks for it (Cooper et al., 2000; Pomerantz et al., 2007). These kinds of parenting practices in homework situations are assumed to support the child’s feelings of autonomy and competence (Ryan & Deci, 2017). *Control*, in turn, refers to parental involvement that is restricting the child’s initiative and opportunities to work independently with the use of directives

and commands (Moorman & Pomerantz, 2008; Pomerantz et al., 2007). Extensive control has been assumed to give children the impression that they are not capable of influencing their own surroundings, and therefore it has been assumed to be detrimental to children's psychological needs (Moorman & Pomerantz, 2008; Ryan & Deci, 2017).

Furthermore, previous studies have acknowledged that the conceptualization of control is far more complex; as such, they have identified two theoretically and empirically separate aspects of control—*psychological control* and *behavioral control* (see Barber, 1996, 2002). Behavioral control is operationalized as parental monitoring, rule-setting, and general knowledge of a child's life, whereas psychological control is operationalized as parental control that is intrusive, dominant, and affects the child's mind, feelings, and behavior by using guilt, love withdrawal, and shame (Barber, 1996; Grolnick & Pomerantz, 2009). Psychological control has been shown to predict psychological problems, poor school achievement, and daily negative emotions (Aunola & Nurmi, 2004; Aunola et al., 2013; Barber, 1996).

In the present study, we investigated two types of parental homework involvement: autonomy support and psychological control. Based on SDT, we conceptualized autonomy support as representing a positive form of involvement, whereas psychological control was conceptualized as representing a negative form of involvement. Earlier research on parental involvement in the homework context has focused on either parents' evaluations (e.g., Gonida & Cortina, 2014) or children's reports of parental involvement (e.g., Dumont et al., 2014). Children's reports have been assumed to be less valid because of inaccurate evaluation skills (Su et al., 2015). In turn, parents' reports have been criticized for being biased due to social desirability, especially when evaluating negative aspects of parental behavior, such as psychological control (Sessa et al., 2001; Su et al., 2015). The few studies including both children's and parents' reports of involvement in an academic or learning context have shown moderate to high correspondence between these two perceptions in parental control (Cheung et al., 2016; Dinkelman & Buff, 2016; Su et al., 2015) and weak correspondence in autonomy support (Cheung et al., 2016). Because of relatively modest correspondence found between children's and parents' reports, focusing solely on either perspective may give biased results of parental behavior and lead to inaccurate conclusions of its predictive power (Cheung et al., 2016). Consequently, in the present study, both adolescents' and mothers' perceptions of maternal autonomy support and psychological control in homework situations were examined.

Antecedents of the Quality of Parental Homework Involvement

Belsky's (1984) model of three distinguishable determinants of parenting (i.e., factors related to the child, factors related to the parent, and contextual factors, such as socioeconomic status) provides a meaningful framework to describe different types of antecedents of the quality of parental homework involvement (e.g., Pomerantz & Grolnick, 2017). In the present study, we focused on the first two determinants. Of the broader contextual factors, we controlled for the effect of socioeconomic status. Of adolescent factors, we examined academic functioning (i.e., academic achievement and task avoidance) and positive and negative academic emotions. Of maternal factors, we examined mothers' positive and negative emotions in homework situations and beliefs about adolescents' school success.

Previous studies have shown, following Belsky's model, that different child factors—especially those related to academic functioning—are associated with parental homework involvement (Dumont et al., 2014; Pomerantz & Eaton, 2001). It has been found, for example, that the poorer the child's achievement is, the more the parents report being involved in ways that can be perceived as intrusive and controlling by the child (Hoglund et al., 2015; Pomerantz & Eaton, 2001). In contrast, the higher the child's achievement is, the more child- and parent-perceived autonomy-supportive practices parents apply (Cooper et al., 2000; Dumont et al., 2014). Similarly, it has been found that a child-rated high effort and low procrastination in homework situations are related to perceived positive involvement practices (Dumont et al., 2014). Moreover, positive and negative *academic emotions*—that are directly related to achievement activities or outcomes, such as learning and achievement—may play a role in parental homework involvement (Pekrun, 2017). For example, similarly as an instructor's enthusiasm in learning situations may promote the child's excitement and positive academic emotions, a child's enthusiasm may affect the instructor's enthusiasm in learning situations (Pekrun et al., 2002). Thus far, research on the role of child factors in parental homework involvement has mainly focused on the role of academic achievement, and clearly less is known about the role of learning behavior and academic emotions. It has been suggested, however, that a child's behavior can be particularly influential for parental homework involvement since it is more observable to parents than more distal achievement is (Dumont et al., 2014; Patall et al., 2008). In the present study, a child's behavior in homework situations was operationalized as *task-avoidant behavior*—that is, a child's tendency to lose focus on the task when facing difficulties (Onatsu-Arviolommi & Nurmi, 2000), which typically leads to poor subsequent achievement and skill development (Aunola et al., 2002; Kiuru et al., 2014; Onatsu-Arviolommi & Nurmi, 2000).

Following Belsky's model, different parental factors—especially those related to parents' emotions and beliefs about a child's competence—have also been associated with parental homework involvement (Gonida & Cortina, 2014; Pomerantz & Grolnick, 2017; Silinskas et al., 2015). It has been suggested that parenting is an affective endeavor in which *positive and negative emotions* are important promoters of parenting practices (Dix, 1991; Pomerantz, Grolnick, & Price, 2005). Parents' own emotional states can influence parental homework involvement in multiple ways (Pomerantz et al., 2007). For example, parents' negative emotions can lead them to use more controlling and intrusive involvement practices, such as unrequested help and monitoring (Pomerantz & Eaton, 2001; Silinskas et al., 2015). Nevertheless, as most of the previous studies have focused on parents' emotions in relation to the quantity of homework involvement (monitoring and help; e.g., Pomerantz, Wang, & Ng, 2005; Silinskas et al., 2015), little is known about parents' emotions in relation to the quality of homework involvement. Studies have also shown that the *beliefs* and expectations parents have about a child's competence and performance are associated with a child's actual performance, as well as parental involvement in children's schooling (Frome & Eccles, 1998; Gonida & Cortina, 2014; Pomerantz, Grolnick, & Price, 2005). However, less is known about the role of parents' beliefs in relation to the quality of parental homework involvement. As an exception, Gonida and Cortina (2014) found that parents' stronger beliefs about their child's efficacy were associated with parents' perceptions of cognitive engagement, whereas negative beliefs were associated with parents' perceptions of controlling involvement practices.

Overall, previous research on the antecedents of parental involvement has thus far focused on either child (e.g., Dumont et al., 2014) or parental factors (e.g., Gonida & Cortina, 2014). Because there is a lack of studies including both, the relative importance of child and parental factors is unknown. Another limitation of previous research is that the previous studies have used either parents' reports (e.g., Cooper et al., 2000) or children's reports (e.g., Dumont et al., 2014) of parental behavior but have rarely combined these two aspects (e.g., Cheung et al., 2016). Because previous studies have found high to moderate correspondence between children's and parents' reports of parental control (Cheung et al., 2016; Dinkelmann & Buff, 2016; Su et al., 2015) and weak correspondence of autonomy support (Cheung et al., 2016), it is possible that children's and parents' perceptions also have different antecedents. In the present study, we examined the role of both adolescent and maternal factors in relation to adolescents' and mothers' perceptions of the quality of maternal homework involvement.

The Role of Parental Homework Involvement in Adolescents' Subsequent Academic Achievement

As suggested by SDT, empirical studies have also provided evidence that autonomy-supportive practices predict higher subsequent achievement, whereas parental control is associated with poor subsequent achievement (Dumont et al., 2012, 2014; Moroni et al., 2015). Nevertheless, studies that have examined the predictive power of both children's and parents' perceptions of parental behavior simultaneously have shown inconsistent results (Cheung et al., 2016; Dinkelmann & Buff, 2016; Su et al., 2015). In some studies, parents' perceptions predicted children's academic achievement (Dinkelmann & Buff, 2016; Su et al., 2015), whereas, in some other studies, children's perceptions were more consistent predictors of their achievement (Cheung et al., 2016).

According to previous research, adolescent and maternal factors might affect the quality of parental homework involvement, which, in turn, is associated with subsequent academic achievement (e.g., Dumont et al., 2014; Gonida & Cortina, 2014). In the present study, we examined the possibility that adolescents' and mothers' perceptions of autonomy support and psychological control mediate the associations between adolescent and maternal factors and adolescents' subsequent academic achievement.

Research Questions and Hypotheses

A schematic model with research questions is presented in Figure 1. The first aim of the present study was to examine the extent to which adolescents' and mothers' perceptions of autonomy support and psychological control are related to each other. It was expected that adolescents' and mothers' perceptions of autonomy support would be weakly associated (Cheung et al., 2016), whereas adolescents' and mothers' perceptions of psychological control would be moderately to highly associated (Dinkelmann & Buff, 2016; Su et al., 2015).

Our second and third aims were to examine the extent to which adolescent factors (i.e., academic achievement, task avoidance, and positive and negative academic emotions) and maternal factors (i.e., beliefs about adolescents' school success and positive and negative emotions) are associated with adolescents' and mothers' perceptions of autonomy support and psychological control. We expected that adolescents' poor academic functioning in terms of poor achievement and a higher level of task avoidance would be associated with both adolescents' and mothers' perceptions of psychological control (Dumont et al., 2014; Pomerantz & Eaton, 2001;

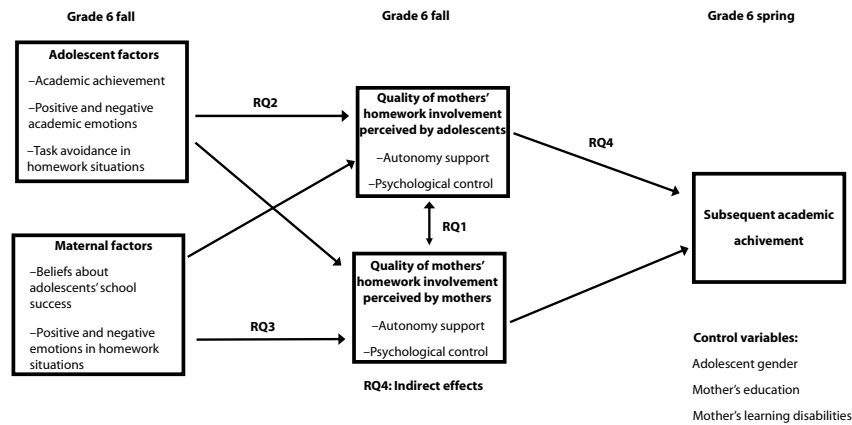


Figure 1. Schematic model for the associations between adolescents' and mothers' perceived quality of homework involvement, adolescent and maternal factors, and their contribution to subsequent academic achievement. RQ = research question.

Silinskas & Kikas, 2019; Viljaranta et al., 2018). However, based on the study by Dumont et al. (2014), adolescents' behavior was assumed to play a more important role than achievement. Because of the lack of previous studies, we did not set hypotheses for the associations between adolescents' academic emotions and adolescents' and mothers' perceptions of autonomy support and psychological control. In turn, we expected that mothers' positive emotions and higher beliefs would be more strongly associated with mother-perceived high autonomy support and low psychological control compared to adolescent-perceived quality (Dix, 1991; Gonida & Cortina, 2014; Silinskas et al., 2015). No hypotheses were set for the relative role of mothers' beliefs and emotions because of the lack of previous studies.

Finally, our fourth aim was to examine the extent to which adolescents' and mothers' perceptions of autonomy support and psychological control predict adolescents' subsequent achievement and to what extent adolescent and maternal factors predict adolescents' subsequent achievement through adolescents' and mothers' perceptions of autonomy support and psychological control. No specific hypotheses were set because previous findings on the predictive or mediating role of adolescents' and mothers' perceptions of autonomy support and psychological control are inconsistent and lacking. We set adolescents' gender, mothers' education, and learning difficulties as control factors because previous studies have indicated that these background factors are associated with parental involvement and with the effect of parental involvement on achievement (Dumont et al., 2012, Silinskas et al., 2010).

Method

Participants and Procedure

Participants of this study were part of a longitudinal research project focused on student learning and school well-being during the transition from primary to lower secondary school (Ahonen & Kiuru, 2014). The research project received approval from the ethical board of the local university. Participants in this study came from a large sample of one age cohort from one large city ($n = 681$) and one midsized town from central Finland ($n = 166$). A total of 847 students ($M_{\text{age}} = 12.32$, $SD = 0.36$, 54% girls) were recruited from 57 school classes. We chose to study sixth graders because they experience several developmental (e.g., puberty) and educational changes (e.g., the upcoming transition from primary to lower secondary school). In early adolescence, autonomy seeking has also assumed to be particularly high when adolescents explore their identities and gradually take steps toward becoming more independent of their parents (Eccles et al., 1993).

Informed consent was provided for adolescents and their parents. Parents and adolescents filled out written consent of their participation in this study. Invitations to participate were addressed only to mothers; however, fathers were also given the opportunity to participate. A total of 662 mothers and 95 fathers provided responses. We focused on mothers' responses because the mothers' sample is likely to be more representative. Moreover, mothers are typically more involved in their children's homework than are fathers (Grolnick & Slowiaczek, 1994). According to the independent samples t test, adolescents whose mothers did not respond to the questionnaire did not differ from adolescents whose mothers responded to the questionnaire in perceived psychological control. However, they differed from adolescents whose mothers responded to the questionnaire in perceived autonomy support (Cohen's $d = 0.34$), academic achievement (Cohen's $d = 0.54$), positive academic emotions (Cohen's $d = 0.18$), and negative academic emotions (Cohen's $d = -0.20$). Adolescents whose mothers did not respond to the questionnaire perceived less autonomy from their mothers, had lower academic achievement, had fewer positive academic emotions, and had more negative academic emotions than did adolescents whose mothers responded to the questionnaire.

Adolescents' data were collected during school lessons. Adolescents filled in questionnaires and tests while supervised by trained research assistants. Parents were sent questionnaires either by post or electronically at approximately the same time in the fall of Grade 6. Mothers who completed questionnaires reported their background information. There were 659 mothers who reported their own education: 2.3% had no vocational

education, 1.5% had taken employment or vocational courses (minimum of 4 months), 29.0% had finished vocational upper secondary education, 23.4% had post-secondary education, 16.5% had a bachelor's or vocational college degree, 24.0% had completed university or other higher education, and 3.3% had a postgraduate degree. The sample was fairly representative of the Finnish general population in regard to demographic characteristics (Official Statistics of Finland, 2017a, 2017b; for more detailed descriptions of the sample, see Hirvonen et al., 2018, and Mauno et al., 2018).

Measures

Descriptive statistics of the study variables and their reliabilities are presented in Table 1.

Table 1. Descriptive statistics of the study variables

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	Cronbach's α	Range	
					Potential	Actual
<i>Adolescents</i>						
Perceived autonomy support	830	3.97	0.74	.87	1–5	1–5
Perceived psychological control	830	2.75	0.92	.63	1–5	1–5
Academic achievement, Grade 5, spring	694	8.25	0.66		5–10	5.8–9.8
Academic achievement, Grade 6, spring	702	8.31	0.73		5–10	6.1–9.8
Positive academic emotions	838	3.63	0.73	.85	1–5	1–5
Negative academic emotions	839	2.00	0.71	.85	1–5	1–5
Task avoidance in homework situations	661	2.22	0.84	.89	1–5	1–5
<i>Mothers</i>						
Self-perceptions of autonomy support	659	3.87	0.48	.74	1–5	2.2–5
Self-perceptions of psychological control	660	2.29	0.84	.55	1–5	1–4.5
Positive emotions	659	3.69	0.79	.79	1–5	1–5
Negative emotions	659	1.86	0.78	.79	1–5	1–4.7
Beliefs about adolescents' school success	660	4.00	0.68	.90	1–5	2–5

Adolescents' Questionnaire

Adolescents' perceptions of the quality of homework involvement (Grade 6, fall). Adolescents' perceptions of the quality of homework involvement were measured through autonomy support and psychological control. Autonomy support was assessed with six items adapted from the Learning Climate Questionnaire (Black & Deci, 2000; Williams et al., 1997) by using a 5-point scale (1 = *never*, 5 = *always*; e.g., "I feel that my parents provide me choices and options"). Psychological control was assessed with three items by using a 5-point scale (1 = *never*, 5 = *always*; e.g., "My parents pressure me to do homework/prepare for tests").

Adolescents' positive and negative academic emotions (Grade 6, fall). Adolescents' academic emotions were measured with the Finnish version of the Achievement Emotions Questionnaire (Pekrun et al., 2011), which was adapted for school-aged students (for reliability and validity of the Finnish version, see Sainio et al., 2019). Adolescents were asked to consider to what extent they felt different positive and negative emotions toward learning Finnish and math by using a 5-point scale (1 = *disagree*, 5 = *agree*). Positive emotions toward learning Finnish and math were assessed with three statements (e.g., "I enjoy learning new things"). Negative emotions toward learning Finnish and math were assessed with five statements (e.g., "Studying makes me anxious/nervous"). To represent positive and negative academic emotions, positive emotions toward learning Finnish and math were combined, as were negative emotions toward learning Finnish and math.

Adolescents' academic achievement (Grade 5, spring and Grade 6, spring). Adolescents' academic achievement was based on GPA across all school subjects (range 5–10) from the spring of Grade 5 and Grade 6 as gathered from registers.

Mothers' Questionnaire

Mothers' perceptions of the quality of homework involvement (Grade 6, fall). Mothers' perceptions of the quality of homework involvement was assessed through autonomy support and psychological control. Autonomy support was based on a shorter version of the Learning Climate Questionnaire (Black & Deci, 2000; Williams et al., 1997) and was assessed with six items by using a 5-point scale (1 = *never*, 5 = *always*; e.g., "I provide choices and options for my child"). Psychological control was assessed with two items by using a 5-point scale (1 = *never*, 5 = *always*; e.g., "I have to pressure my child to do homework/prepare for tests").

Mothers' beliefs about adolescents' school success (Grade 6, fall). Mothers' beliefs about adolescents' school success were measured with two items (questions modified from previous studies; see Aunola et al., 2002; Eccles Parsons et al., 1982; Frome & Eccles, 1998; Pesu et al., 2018) by using a 5-point scale (1 = *poorly*, 5 = *very well*; "How well is your child doing at the moment in school?" and "How well do you think your child will do later on in lower secondary school?").

Mothers' perceptions of adolescents' task avoidance in homework situations (Grade 6, fall). Mothers evaluated adolescents' task avoidance in homework situations using the Behavioral Strategy Rating Scale (Aunola et al., 2000; for validity, see Zhang et al., 2011). Mothers were asked how their child typically behaves in homework situations by using a 5-point scale (1 = *never*, 5 = *always*). The Behavioral Strategy Rating Scale consists of five statements, of which two are positively worded items (e.g., "Does the child actively attempt to solve even difficult situations and tasks?") and three negatively worded items (e.g., "Does the child have a tendency to find something else to do instead of focusing on the task at hand?"). The positively worded items were reversed to measure task avoidance before calculating the mean score.

Mothers' positive and negative emotions in homework situations (Grade 6, fall). Mothers were asked to consider how they feel in situations where they help or guide their child with homework by using six questions on a 5-point scale (1 = *not at all*, 5 = *very much*; see also Silinskas et al., 2015). Positive emotions were measured by three items (e.g., "I feel satisfaction"), and negative emotions were measured by three items (e.g., "I feel irritated"). The rating scale was based on modified questions used by Pomerantz, Wang, and Ng (2005) and Poulou and Norwich (2002).

Data Analysis

The analyses were carried out in the following steps. First, we tested the measurement model for adolescents' and mothers' perceptions of autonomy support and psychological control by using confirmatory factor analysis. This model included separate factors for adolescents' and mothers' perceptions. Second, we utilized structural equation modeling (SEM). Adolescent and maternal factors were set as predictors and they were allowed to correlate, as were the residuals of the dependent variables. Third, possible indirect effects from adolescent and maternal factors to subsequent achievement via adolescents' and mothers' perceptions of autonomy support and psychological control were estimated after controlling for adolescents' prior achievement. For the final model, only significant paths were

included. We controlled for adolescent gender, mothers' education, and learning disabilities in the SEM analyses by estimating paths to four latent factors. Finally, as additional analyses, we included a sample of fathers in the SEM analyses to see whether the results would differ from the model where only mothers' perceptions of autonomy support and psychological control were included.

All the analyses were carried out using the *Mplus* Version 8.0 (Muthén & Muthén, 1998–2017). The model parameters were estimated by using a robust full-information maximum likelihood estimator. The goodness of fit of the estimated models was evaluated by using four different indicators: the χ^2 test, comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). Nonsignificant χ^2 values, CFI values above .95, an RMSEA value below .06, and an SRMR value below .08 indicated good model fit (Hu & Bentler, 1999; Muthén & Muthén, 1998–2017). CFI values below .90 and RMSEA and SRMR values above .10 were considered indicators of poor fit (Kline, 2011).

Results

Correspondence Between Adolescents' and Mothers' Perceptions of the Quality of Maternal Homework Involvement

We conducted confirmatory factor analysis for adolescents' and mothers' perceptions of autonomy support and psychological control. The model included four separate factors for adolescents' and mothers' perceptions of autonomy support and psychological control. The CFA results showed that the fit of the factor model was good after allowing the residuals of two of the similar items on adolescents' and mothers' perceptions of autonomy support to correlate: $\chi^2(111) = 319.46, p < .001$; CFI = .94, RMSEA = .05, SRMR = .05.

Our first research question aimed to investigate the extent to which adolescents' and mothers' perceptions of the quality of maternal homework involvement are related to each other. The CFA results showed that adolescents' and mothers' perceptions of autonomy support and psychological control were separate but related constructs. Adolescents' and mothers' perceptions of autonomy support were weakly correlated ($r = .22, p < .001$), whereas perceptions of psychological control showed a moderate correlation ($r = .57, p < .001$). Next, we tested the difference in correlations between adolescents' and mothers' perceptions of autonomy support and

psychological control by using the model constraint command. The results showed that the difference was statistically significant (estimate = $-.19$, $SE = .03$, $p < .001$), suggesting that correspondence between adolescents' and mothers' perceptions was higher in psychological control than in autonomy support. Correlations between study variables are presented in Table 2.

Adolescent and Maternal Factors and Their Associations With the Quality of Maternal Homework Involvement

Our second and third research questions aimed to investigate to what extent adolescent and maternal factors are associated with adolescents' and mothers' perceptions of autonomy support and psychological control. The estimated SEM model had good model fit, $\chi^2(263) = 723.91$, $p < .001$; CFI = .90, RMSEA = .05, SRMR = .06. The results of the final SEM model including only statistically significant paths are shown in Figure 2.

Adolescent factors and their associations with the quality of maternal homework involvement. The results for autonomy support in homework situations showed that adolescents' positive and negative academic emotions were associated with adolescents' (but not with mothers') perception of autonomy support: The more adolescents experienced positive academic emotions and the less they experienced negative academic emotions, the more they perceived autonomy support from their mothers. Adolescents' positive academic emotions had the strongest association with adolescents' perception of autonomy support. Adolescents' task avoidance in homework situations was associated with mothers' (but not with adolescents') perception of autonomy support: The less adolescents showed task avoidance in homework situations, the more their mothers reported using autonomy support.

The results for psychological control in homework situations showed that adolescents' negative academic emotions were associated with adolescents' (but not with mothers') perception of psychological control: A high level of negative academic emotions was related to higher levels of perceived psychological control from their mothers. In turn, adolescents' prior academic achievement and task avoidance were associated with mothers' (but not with adolescents') perception of psychological control: The poorer the adolescents' prior academic achievement and the higher the level of adolescents' task avoidance in homework situations were, the more mothers reported using psychological control. Adolescents' task avoidance had the strongest association with mother-perceived psychological control.

Table 2. Correlations between study variables

	1	2	3	4	5	6	7	8	9	10	11	12
1 Adolescents' perceived autonomy support												
2 Mothers' self-perception of autonomy support	.24***											
3 Adolescents' perceived psychological control	-.22***	-.20***										
4 Mothers' self-perception of psychological control	-.27***	-.38***	.44***									
5 Academic achievement, Grade 5, spring	.25***	.26***	-.23***	-.58***								
6 Academic achievement, Grade 6, spring	.25***	.28***	-.26***	-.64***	.91***							
7 Adolescents' task avoidance	-.25***	-.37***	.21***	.76***	-.52***	-.56***						
8 Mothers' beliefs about adolescents' achievement	.31***	.34***	-.29***	-.64***	.68***	.66***	-.61***					
9 Adolescents' positive academic emotions	.50***	.13***	-.14***	-.25***	.27***	.27***	-.28***	.27***				
10 Mothers' positive emotions	.16***	.32***	-.08***	-.25***	.15***	.17***	-.29***	.25***	.09*			
11 Adolescents' negative academic emotions	-.39***	-.12***	.25***	.23***	-.25***	-.24***	.25***	-.27***	-.45***	-.13**		
12 Mothers' negative emotions	-.13**	-.34***	.08***	.45***	-.31***	-.33***	.41***	-.35***	-.16***	-.27***	.12**	

* $p < .05$, ** $p < .01$, *** $p < .001$.

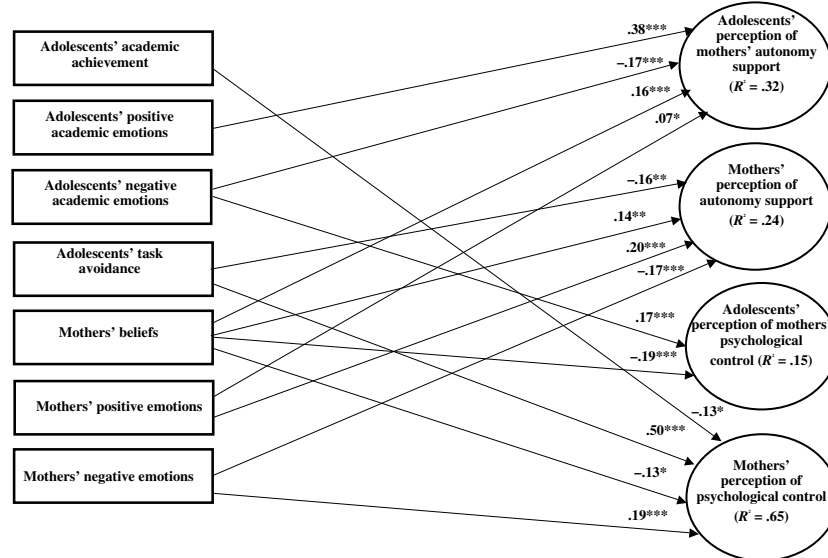


Figure 2. Associations between adolescent and maternal factors and adolescents' perceptions and mothers' self-perceptions of autonomy support and psychological control. Paths are presented as standardized estimates. *** $p < .001$, ** $p < .01$, * $p < .05$. Predictors and residuals of the dependent variables are allowed to correlate.

Maternal factors and their associations with the quality of maternal homework involvement. The results for autonomy support in homework situations showed that mothers' negative emotions were associated with mothers' (but not adolescents') perception of autonomy support: The fewer negative emotions mothers had, the more they reported using autonomy support. In addition, mothers' positive emotions and beliefs were associated with adolescents' and mothers' perceptions of autonomy support: The more positive emotions and the stronger the beliefs mothers had about their child's school success, the more adolescents and their mothers perceived autonomy support. Mothers' positive emotions had the strongest association with mother-perceived autonomy support.

The results for psychological control in homework situations showed that only mothers' beliefs were associated with adolescents' perception of psychological control: The lower beliefs mothers had about their child's school success, the more adolescents perceived psychological control from their mothers. Mothers' beliefs and negative emotions were associated with mothers' perception of psychological control: The lower beliefs mothers had about their child's school success and the more they had negative emotions, the more they reported using psychological control. In turn, mothers'

positive emotions were not associated with adolescents' or mothers' perceptions of psychological control.

Regarding control factors, we found that adolescent gender was associated with both adolescents' (standardized $\beta = .21, p < .001$) and mothers' perceptions of psychological control (standardized $\beta = .13, p < .01$): Boys perceived more psychological control, and mothers also reported using more psychological control on boys than girls.

Adolescent and Maternal Factors Predicting Subsequent Achievement Through the Quality of Maternal Homework Involvement

First, we examined the extent to which adolescents' and mothers' perceptions of autonomy support and psychological control predicted adolescents' subsequent achievement at the end of Grade 6 after controlling for prior achievement at the end of Grade 5. The results showed that mothers' perception of psychological control (standardized β of the cross-lagged effect = $-.17, p < .001$) significantly predicted adolescents' achievement development: The more mothers reported psychological control, the poorer was adolescents' subsequent achievement. In turn, adolescents' perceptions of autonomy support and psychological control, as well as mother-perceived autonomy support, did not predict adolescents' achievement gains ($ps > .05$).

Next, because only mother-perceived psychological control predicted adolescents' subsequent achievement, we examined the extent to which adolescent and maternal factors predicted adolescents' subsequent achievement via mother-perceived psychological control. Three significant indirect effects were found. First, adolescent task avoidance predicted subsequent achievement via mothers' perceptions of psychological control (standardized indirect effect = $-.08, SE = .01, p < .001; 95\% CI [-.12, -.06]$): The more adolescents showed task avoidance in homework situations, the more mothers used psychological control, and the poorer was adolescents' achievement later on. Second, mothers' negative emotions predicted subsequent achievement via mothers' perceptions of psychological control (standardized indirect effect = $-.03, SE = .01, p < .001; 95\% CI [-.05, -.01]$): The more mothers' experienced negative emotions in homework situations, the more they used psychological control, and the poorer was adolescents' subsequent achievement. Third, mothers' beliefs predicted subsequent achievement via mothers' perceptions of psychological control (standardized indirect effect = $.03, SE = .01, p < .05; 95\% CI [.01, .06]$): The lower beliefs mothers' had about adolescents' school success, the more they used psychological control, and the poorer was adolescents' subsequent achievement.

As additional analyses, we included a sample of fathers ($n = 95$) in the SEM analyses to see whether the results would differ from the model where only mothers' perceptions of autonomy support and psychological control were included. The results for the SEM model that included both mothers' and fathers' perceptions showed that there were only two minor differences compared to the foregoing results reported. First, parents' positive emotions were not associated with adolescents' perceptions of their parents' autonomy support (standardized $\beta = .04, p > .05$). Second, adolescents' positive academic emotions were associated with parents' perceptions of psychological control (standardized $\beta = -.10, p < .01$): The more adolescents showed positive academic emotions, the less their parents used psychological control in homework situations.

Discussion

This study examined the extent to which adolescent and maternal factors were associated with sixth-grade adolescents' and mothers' perceptions of the quality of maternal homework involvement and the extent to which these perceptions mediated the impact of adolescent and maternal factors on adolescents' subsequent achievement. First, the results showed that congruence between adolescents' and mothers' perceptions was higher in psychological control than in autonomy support. Second, adolescents' positive academic emotions had the strongest association with adolescents' perception of autonomy support, whereas mothers' positive emotions had the strongest association with mothers' self-perceived autonomy support. Mothers' beliefs about adolescents' school success had the strongest association with adolescents' perception of psychological control, whereas adolescent task avoidance had the strongest association with mothers' self-perceived psychological control. Finally, higher levels of adolescent task avoidance and mothers' negative emotions in homework situations, as well as mothers' lower beliefs about adolescents' school success, predicted adolescents' poorer subsequent achievement through mother-perceived psychological control.

Congruence Between Adolescents' and Mothers' Perceptions of the Quality of Maternal Homework Involvement

Our first research question examined the degree of correspondence between adolescents' and mothers' perceptions of autonomy support and psychological control in homework situations. Consistent with previous findings (Cheung et al., 2016; Dinkelman & Buff, 2016) and our hypotheses, the

results showed that adolescents' and mothers' perceptions of psychological control were moderately associated, whereas their perceptions of autonomy support were weakly associated. It is possible that mothers who are generally adopting a controlling parenting style are likely to use the same practices in other situations (Robichaud et al., 2018)—for example, when involved in their children's homework—which may contribute to increased correspondence between adolescents' and mothers' reports. By contrast, one explanation for a weak association between adolescents' and mothers' perceptions of autonomy support might be derived from SDT (Ryan & Deci, 2017). Mothers might think that they are supporting their children's need for autonomy, whereas adolescents themselves might perceive that mothers do not sufficiently satisfy this need. Because autonomy support becomes extremely important when children enter adolescence, it is also possible that adolescents become more sensitive to parents' control, which may affect their perceptions of maternal autonomy support (Cheung et al., 2016; Eccles et al., 1993). Overall, future studies should consider using both adolescents' and mothers' perceptions when examining the quality of maternal homework involvement.

The Role of Adolescent Factors in the Quality of Maternal Homework Involvement

Our second research question addressed the extent to which adolescent factors predicted adolescents' and mothers' perceptions of autonomy support and psychological control. Consistent with our expectations and previous findings (e.g., Dumont et al., 2014; Silinskas & Kikas, 2019; Viljaranta et al., 2018), adolescents' poor academic functioning in terms of poor prior academic achievement and higher level of task avoidance was associated with mothers' higher perceptions of psychological control in homework situations. Moreover, adolescent task avoidance was negatively associated with mothers' perceptions of autonomy support, whereas academic achievement was not related to mothers' perceptions of autonomy support. One explanation for these findings is that mothers may perceive that an adolescent who is more focused in homework situations is capable of doing tasks on his/her own, which encourages mothers to grant autonomy, whereas task avoidance together with poor school grades may be seen as a sign of inability to do homework on his/her own, which leads mothers to use psychological control (Kikas & Silinskas, 2016; Silinskas & Kikas, 2019). In addition, mothers may perceive that their controlling involvement is necessary in order to prevent children from

doing poorly at school later on (Grolnick, 2003). Overall, task avoidance had the strongest association with mother-perceived psychological control, which supports our hypothesis and previous findings about the more significant role of children's behavior in homework situations to parental homework involvement compared to more distal achievement (Dumont et al., 2014).

The results showed further that academic emotions were only associated with adolescent-perceived quality of maternal homework involvement. Positive emotions were associated with adolescent-perceived autonomy support: The more adolescents experienced positive academic emotions, the more they perceived autonomy support from their mothers. In turn, negative academic emotions were associated with both adolescents' perceptions of autonomy support and psychological control: The more adolescents experienced negative academic emotions, the more psychological control and the less autonomy support they perceived from their mothers. It is possible that negative emotions toward learning are the result of adolescents' difficulties performing academic tasks, which may lead them to perceive mothers' involvement as intrusive and controlling (Silinskas et al., 2015). In contrast, adolescents who experience positive emotions toward learning may also perceive their mothers' involvement to be more supportive. As far as we know, no previous studies have examined adolescents' academic emotions in relation to the quality of maternal homework involvement. In future studies, it would be important to examine these associations longitudinally because it is possible that the associations between academic emotions and the quality of homework involvement are reciprocal (see Pekrun et al., 2002).

However, in contrast to previous findings (Dumont et al., 2014) and our expectations, adolescents' prior achievement and task avoidance were not associated with adolescent-perceived quality of maternal homework involvement. One explanation for this might be that, because of their limited abilities to self-monitor and associate their functioning with parental behavior, adolescents might not see that their parents' behavior is a reaction to their academic functioning. Another reason for the lack of associations between task avoidance and adolescent-perceived quality of maternal homework involvement might be that we used mothers' evaluations of adolescents' task avoidant-behavior, in contrast to children's own reports (Dumont et al., 2014) or teachers' reports (Viljaranta et al., 2018). Because of this, it is possible that the results were partly impacted by common method bias.

The Role of Maternal Factors in the Quality of Maternal Homework Involvement

Our third research question examined the extent to which maternal factors were associated with adolescents' and mothers' perceptions of autonomy support and psychological control. In line with our expectations and previous findings (Pomerantz et al., 2007), the results showed that mothers' high positive and low negative emotions were associated with mothers' higher perceptions of autonomy support in homework situations. In turn, consistent with previous findings (Pomerantz & Eaton, 2001; Silinskas et al., 2015), mothers' high negative emotions were associated with their higher perceptions of psychological control. It is possible that mothers' negative emotions are a result of their struggles to get involved when their children are having problems with homework (Silinskas et al., 2015) or that mothers experience negative emotions because adolescents experience them as well (Pomerantz et al., 2007).

However, only mothers' positive emotions (but not negative emotions) were associated with adolescents' perceptions of autonomy support: The more mothers experienced positive emotions in homework situations, the more adolescents' perceived autonomy support from their mothers, which would suggest that it is important for adolescents that mothers stay positive during homework situations (see Pomerantz, Wang, & Ng, 2005). Overall, these results supported our expectations about mothers' emotions being more strongly associated with mother-perceived quality of homework involvement compared to adolescents' perceptions. However, due to the correlational nature of our study, the associations between mothers' emotions and the quality of maternal homework involvement might be backward. For example, parents who involve themselves in a controlling manner may enjoy involvement less and, therefore exhibit more negative emotions (Pomerantz & Eaton, 2001).

The results also showed, in line with previous study by Gonida and Cortina (2014) and our expectations, that mothers' beliefs were associated with both adolescents' and mothers' perceptions of autonomy support and psychological control: The stronger the beliefs mothers had about their child's school success, the more autonomy support there was, whereas weaker beliefs were associated with higher psychological control perceived by adolescents and mothers. Overall, these results suggest that, when mothers have higher beliefs about their child's achievement at school, they trust the child's abilities to do homework independently

and therefore support their autonomy, whereas mothers who have weaker beliefs about their child's achievement do not trust their child's abilities to do homework and therefore use more dominant, pressuring and intrusive involvement practices.

Adolescent and Maternal Factors Predicting Adolescents' Subsequent Academic Achievement Through the Quality of Maternal Homework Involvement

Our fourth research question examined the extent to which adolescents' and mothers' perceptions of autonomy support and psychological control predicted adolescents' subsequent achievement after controlling for prior achievement and the extent to which adolescent and maternal factors predicted adolescents' subsequent achievement via these perceptions. Regarding direct effects, the results indicated that only mothers' perceptions of psychological control negatively predicted adolescents' achievement: The more mothers perceived psychological control, the poorer was adolescents' subsequent achievement. This is in line with SDT by showing that psychological control inhibits children's sense of autonomy, competence, and relatedness, which, in turn, impedes motivation and academic development and subsequently leads to poorer academic achievement (Dumont et al., 2012; Moorman & Pomerantz, 2008; Ryan & Deci, 2017). Overall, these results are in line with some previous studies (Dinkelman & Buff, 2016; Su et al., 2015) that found that, when child- and parent-perceived control were examined in the same model, only parent-perceived control predicted children's achievement.

In contrast to theoretical predictions of SDT and despite a positive zero-order correlation, adolescents' perceptions of autonomy support did not predict their subsequent achievement after controlling for the effects of the other predictors. One reason for the lack of predictive power of autonomy support in our study might be that we used GPA as an indicator of academic achievement. Even though GPA has been suggested to be a better indicator of children's overall academic achievement than are grades in specific subjects or test performance (Fan & Chen, 2001), autonomy support might have a greater impact on achievement-related outcomes, such as learning behavior, academic self-concept, or motivation than on achievement itself (Barger et al., 2019; Dumont et al., 2012; Patall et al., 2008; Viljaranta et al., 2018).

Regarding the indirect effects, the results further showed that, of adolescent factors, only task avoidance predicted subsequent achievement via mothers' perceptions of psychological control: A higher level of task

avoidance in homework situations was associated with psychological control, which, in turn, was related to adolescents' poorer subsequent achievement. This is in line with previous findings of the evocative nature of children's behavior on parental involvement (Dumont et al., 2014; Viljaranta et al., 2018). Mothers may perceive adolescents' lack of persistence as inability to do homework independently, and they therefore exert more psychological control (Kikas & Silinskas, 2016; Silinskas & Kikas, 2019). In addition, we found that, of maternal factors, mothers' negative emotions and beliefs predicted adolescents' subsequent achievement via mothers' perceptions of psychological control: A higher level of negative emotions in homework situations and lower beliefs about adolescents' school success were associated with psychological control, which, in turn, was related to adolescents' poorer subsequent achievement. Overall, it seems that mothers who experience more helplessness, irritation, and anger in homework situations and who have lower beliefs about their children's school success also use more intrusive, pressuring, and dominating involvement practices, which inhibit adolescents' sense of autonomy, competence, and relatedness and eventually lead to poorer achievement (Moorman & Pomerantz, 2008; Ryan & Deci, 2017).

Strengths and Limitations

The present study has many strengths. First, we examined the quality of maternal homework involvement by using both adolescents' and mothers' perceptions, which has rarely been done in previous studies. Second, we examined both adolescent and maternal factors, some of which (e.g., academic emotions) have not been previously studied in relation to the quality of homework involvement. Third, we controlled for prior academic achievement when examining the effect of the quality of maternal homework involvement on subsequent achievement, which has been suggested as an important methodological issue to help reduce overestimation (see Moroni et al., 2015).

However, there are also some limitations that affect the way our results can be generalized. First, our data for the quality of maternal homework involvement was cross-sectional, which does not allow us to make causal inferences about the changes related to involvement. In future studies, it would be important to examine the effect of the quality of parental homework involvement on academic achievement longitudinally. Second, our measures of adolescents' positive and negative academic emotions were not specifically related to homework situations but to learning in general. This may have reduced the strength of the associations found between

academic emotions and the quality of maternal homework involvement. Third, the scales of adolescent and mother-perceived psychological control had relatively weak reliabilities, which calls for further improvement of our short scales (consisting of two or three items). Because measurement error was taken into account in the SEM analyses for the quality of homework involvement, it adds nevertheless some confidence for the findings of the present study.

Conclusions

These results contribute to existing research in several ways. First, our study extended previous research on the congruence between children's and parents' reports of parental behavior by showing that adolescents and mothers perceived the quality of maternal homework involvement differently and that their perceptions also contributed differently to subsequent achievement. Therefore, in future studies, it would be important to consider using multiple informants. Second, our study showed that adolescent and maternal factors, such as adolescents' academic emotions and mothers' emotions and beliefs, were differently associated with adolescents' and mothers' perceptions of autonomy support and psychological control, supporting the assumption that autonomy support and psychological control are distinct constructs having different purposes and mechanisms (see Barber, 2002). Third, our study highlighted the significance of adolescents' academic functioning, especially the level of task avoidance, on mother-perceived quality of homework involvement, which is a finding that underlines the importance of increasing mothers' awareness and understanding of different adolescent and maternal factors, as well as their own responses to them.

Previous studies have suggested that cooperation between parents and teachers (e.g., Harris & Goodall, 2008) and parent training programs (e.g., Chang et al., 2009) are important factors when trying to improve the quality of parental homework involvement. Our study suggests it would be important to give guidance and knowledge to mothers to help them not just support adolescents' autonomy but also avoid negative parenting practices when involving themselves in their child's homework.

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II

THE INTERPLAY BETWEEN MATERNAL HOMEWORK INVOLVEMENT, TASK-AVOIDANCE, AND ACHIEVEMENT AMONG ADOLESCENTS

by

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Abstract

This study examined three aspects of maternal homework involvement (i.e., the quantity, quality, and source of initiative) and their direct and indirect associations with adolescents' task-avoidant behavior in homework situations and academic achievement. The sample consisted of Finnish mothers and their adolescents who were transitioning from primary to lower secondary school. Mothers rated the quantity of their homework involvement (i.e., monitoring and help), quality of their homework involvement (i.e., autonomy support and psychological control), and source of initiative (i.e., mother- vs. adolescent-initiated monitoring and help) at the beginning of Grade 6. They also reported on adolescents' task avoidance in homework situations in the beginning of Grade 7. Information on adolescents' academic achievement in the spring terms of Grades 5 and 7 was obtained from school registers. The results showed that high maternal psychological control and mother-initiated monitoring were associated with poorer subsequent academic achievement directly and indirectly through higher levels of adolescent task avoidance. Moreover, poor prior academic achievement was associated with higher levels of subsequent task avoidance directly and indirectly through high maternal psychological control and mother-initiated monitoring. Overall, the results highlight the importance of bringing mothers' knowledge and awareness to their self-initiated and controlling involvement practices and helping them to support adolescents' learning and motivation in more optimal ways.

Keywords: homework, maternal involvement, task avoidance, academic achievement

The Interplay Between Maternal Homework Involvement, Task Avoidance, and Achievement among Adolescents

Parental involvement with homework plays a role not only in skill development, but also in motivation (for reviews, see Barger et al., 2019; Patall et al., 2008). Parental involvement that supports a child's basic psychological needs might increase intrinsic motivation and persistence and hence contribute to higher achievement (Pomerantz et al., 2007; Ryan & Deci, 2017). Despite this, only a few studies have examined motivational behavior as a mechanism between parental homework involvement and students' achievement (Silinskas & Kikas, 2019b; Viljaranta et al., 2018). Particularly in adolescence, the need for autonomy is high and, therefore, controlling adolescents' psychological needs can have detrimental effects on their motivation and achievement (Eccles et al., 1993; Ryan & Deci, 2017). On the other hand, children's skills may also play a role in parental homework involvement (Bell, 1968; Pomerantz & Eaton, 2001). Because of a lack of research on the bidirectional relations between the different aspects of parental homework involvement (i.e., quantity, quality, and source of initiative) and adolescents' motivational behavior and achievement, better understanding is needed in order to prevent possible vicious circles of detrimental homework involvement practices and find ways how to best support adolescents' learning and motivation. Thus, the present study focused on examining these aspects of maternal homework involvement and their direct and indirect associations with adolescents' task avoidance in homework situations and academic achievement.

Parental Homework Involvement

Parental involvement with homework is a multidimensional construct that includes both quantitative (e.g., the frequency of helping a child with homework) and qualitative aspects (e.g., providing support for a child to do homework on their own; Grolnick & Slowiaczek, 1994). According to Hoover-Dempsey and Sandler (1997), the invitations parents perceive explicitly (i.e., a child requests the involvement of parents) and implicitly (i.e., parents get involved on their own initiative) are important promoters of parental involvement. However, previous studies often neglect this important aspect, that is, the source of initiative of homework involvement. In this study, to understand the relationship between these aspects of parental involvement and adolescents' achievement and behavior in homework situations, we rely on the self-determination theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2017). This broad theoretical framework suggests that students are more likely to function effectively and be intrinsically motivated when their basic psychological needs for autonomy, competence, and relatedness are satisfied. Natural aspirations toward self-fulfillment and mastery can be either supported or suppressed by the social context, such as parents. According to SDT, the ways in which parents are involved in their children's homework differently satisfies children's basic psychological needs and subsequently, can be assumed to make different contributions to children's motivation and achievement. Consequently, in the present study, three aspects of parental homework involvement, that are the quantity, quality, and source of initiative, were examined.

The *quantity of parental homework involvement* refers to the frequency of monitoring and help in homework situations (Pomerantz & Eaton, 2001; Silinskas et al., 2013). *Monitoring* refers to checking a child's homework for mistakes and making sure the child has done their homework, whereas *help* refers to teaching and guiding (Pomerantz & Eaton, 2001; Silinskas et al., 2013). Monitoring can be seen as a less direct form of involvement compared to help because

the definition of monitoring does not require extensive direct instruction (Silinskas et al., 2015). Helping, in turn, is a more direct way to be involved because it requires more active teaching and guidance, which can give the child the impression that they are not capable of doing homework independently (Silinskas et al., 2015). Consequently, these differences in the type of involvement between monitoring and help can reflect on adolescents' basic psychological needs.

The *quality of parental homework involvement*, in turn, has been conceptualized (building on the SDT; Ryan & Deci, 2017) in terms of autonomy support and control. *Autonomy support* refers to parental support that is sensitive to a child's needs and allows the child to solve problems independently (Pomerantz et al., 2007). *Control*, in turn, is defined as restricting parental behavior that regulates a child's opportunities to solve problems independently and, thus, is detrimental to a child's basic psychological needs (Grolnick & Pomerantz, 2009; Ryan & Deci, 2017). *Psychological control* (i.e., parental use of guilt, love withdrawal, and shame when the child disobeys; Barber 1996; Grolnick & Pomerantz, 2009), in particular, has been suggested to be harmful because it affects not only the child's behavior, but also their mind and feelings.

The *source of initiative* is the third aspect of parental homework involvement. Parents may help children with homework on their own initiative (Green et al., 2007; Hoover-Dempsey & Sandler, 1997). In turn, children may also invite parents to get involved with homework (Green et al., 2007). However, as children reach adolescence, they may desire and explicitly invite parents to get involved in their homework less frequently than younger children do because of their growing need for autonomy (Eccles et al., 1993; Pomerantz & Grolnick, 2017). We chose to study young adolescents because they are experiencing several developmental (e.g., puberty) and educational changes (e.g., transition from primary to lower secondary school), which can cause challenges for their motivation and achievement.

Task Avoidance as a Mediator of the Associations Between Parental Homework Involvement and Adolescents' Academic Achievement

According to SDT, parental involvement that is sensitive and supportive to children's psychological needs for autonomy, competence, and relatedness can promote children's achievement (Ryan & Deci, 2017). It has also been suggested that the association between parental involvement and achievement might be mediated by different motivational resources (Grolnick et al., 1991), such as task-focused vs. task-avoidant behavior. *Task-avoidant behavior* refers to a child's tendency to lose focus and engage in task-irrelevant activities when facing challenges (Aunola et al., 2002; Onatsu-Arvilommi & Nurmi, 2000). A task-avoidant child often becomes distracted and gives up easily when the task is too difficult, which increases the risk of failing in the future and can lead to poorer achievement (Onatsu-Arvilommi & Nurmi, 2000).

Within the theoretical framework of SDT, Deci and Ryan (1985; see also Ryan & Deci, 2017) introduced organismic integration theory (OIT), which describes how contextual factors can either promote or prevent internalization and integration of the regulation of motivational behaviors. According to OIT, it can be assumed that parental involvement that is child initiated and which supports the child's psychological needs can increase the internalization of parental values, beliefs, and goals related to homework. As a consequence, adolescents may be more autonomously motivated, have greater persistence, and perform better academically (Malmberg et al., 2015; Ratelle et al., 2007; Ryan & Deci, 2017). By contrast, when parental involvement is parent initiated and controlling, it may lead to amotivation, lack of persistence and subsequently, to poor achievement (Pomerantz et al., 2007; Ratelle et al., 2007; Ryan & Deci, 2017).

Previous empirical studies have suggested that parental homework involvement practices may differ in how they contribute to children's achievement and motivational behavior (Dumont

et al., 2014; Pomerantz & Eaton, 2001; Viljaranta et al., 2018). Previous findings regarding the role of the *quantity of parental homework involvement* have been mixed, although most show weak negative associations for monitoring and help (for meta-analyses, see Hill & Tyson, 2009; Patall et al., 2008). Help has been associated with lower levels of task persistence (Viljaranta et al., 2018) as well as poorer achievement (Cooper et al., 2000; Silinskas et al., 2013). In turn, parental monitoring has been associated with poorer achievement (Patall et al., 2008) but not with motivational behavior (Viljaranta et al., 2018). Regarding the role of the *quality of parental homework involvement*, previous research has shown that autonomy-supportive practices are related to higher levels of persistence (Silinskas & Kikas, 2019a; Viljaranta et al., 2018) and higher achievement (Dumont et al., 2014; Moroni et al., 2015), whereas parental controlling practices are related to lower levels of persistence (Silinskas & Kikas, 2019b) and poorer achievement (Dumont et al., 2014; Pomerantz et al., 2007). Finally, regarding *the source of initiative*, it has been assumed that parental involvement that is supportive and based on a child's invitation is less likely to cause negativity between the child and the parent and can therefore have a positive impact on motivation and achievement (Dumont et al., 2014; Pomerantz & Grolnick, 2017). In contrast to this, in a study by Pomerantz and Eaton (2001), mother-initiated monitoring and help were positively associated with subsequent performance in American elementary school children. However, parent-initiated involvement could have more negative consequences for adolescents' motivation and achievement because in line with OIT, by increasing self-initiated monitoring and help parents may hinder adolescents' increased need for autonomy, which can decrease their persistence and lead to poorer achievement (Patall et al., 2008; Ryan & Deci, 2017). Nevertheless, to our knowledge, the role of the source of initiative has not been examined in relation to adolescents' achievement and motivational behavior.

Despite theoretical assumptions that parental involvement may also be associated with achievement through different motivational resources (Grolnick et al., 1991), as far as we know, only one previous study (Viljaranta et al., 2018) has examined the indirect associations of parental homework involvement on subsequent achievement through motivational behavior. In that particular study, maternal help and autonomy support marginally predicted Finnish elementary school children's subsequent performance via task-persistent behavior, so that the more mothers helped their children with homework and the less they granted autonomy, the less children showed task persistence which, in turn, led to poorer academic performance. In the present study we examined the possible indirect associations in an adolescent sample of three different aspects of maternal homework involvement (i.e., quantity, quality, and source of initiative) on subsequent academic achievement via task avoidance.

Parental Homework Involvement as a Mediator of the Associations between Adolescents' Academic Achievement and Task Avoidance

In addition to parents influencing children's skills, it has been suggested that this association may also exist in the reverse direction. This assumption is based on the theories of evocative effect (Bell, 1968; Scarr & McCartney, 1983) that emphasize that children's characteristics, such as their academic achievement, may evoke certain behavior of their significant others, such as parents. These theories assume that children are not merely recipients or targets of parenting but have an equal role in the parent-child interaction influencing parents' behavior. A variety of empirical studies also seem to support this point of view by showing that poor academic achievement tends to evoke controlling involvement practices (Dumont et al., 2014; Pomerantz & Eaton, 2001). In turn, the better the child achieves, the more parents grant autonomy (Cooper et al., 2000; Dumont et al., 2014).

Children's academic achievement also plays a role in their own motivational beliefs and behavior (e.g., Aunola et al., 2002). It has been shown that children's poor skills contribute to higher levels of task avoidance (Aunola et al., 2002; Hirvonen et al., 2010). However, in line with SDT, the association between prior achievement and subsequent task avoidance might be partly mediated by parental homework involvement: children's skills might contribute to parental homework involvement, which can, in turn, either increase or decrease motivation and effort depending on the way it supports a child's basic psychological needs (Ryan & Deci, 2017; Scarr & McCartney, 1983). Thus far, only a few empirical studies have been conducted on this topic. One of them, Silinskas and Kikas (2019b) found no evidence for indirect associations from math performance on task persistence through perceived quality of homework involvement (i.e., parental support and control) among Estonian pupils in Grade 6. In the present study, we investigated whether associations of adolescent academic achievement with their subsequent task-avoidant behavior in homework situations were mediated by three aspects of maternal homework involvement (i.e., the quantity, quality, and source of initiative).

Research Questions and Hypotheses

The first aim of this study was to examine the extent to which maternal homework involvement (i.e., quantity, quality, and source of initiative) predicts adolescents' subsequent achievement directly and indirectly through adolescents' task-avoidant behavior. **H1.** In line with OIT (Ryan & Deci, 2017), we expected that maternal homework involvement would be related to subsequent achievement directly and indirectly through task avoidance (Aunola et al., 2002; Dumont et al., 2014; Viljaranta et al., 2018). Regarding indirect associations, we expected that higher levels of help and psychological control, and lower levels of autonomy support would be associated with poorer subsequent achievement through higher levels of task-avoidant behavior.

The second aim of this study was to examine the extent to which adolescents' prior achievement predicts their subsequent task avoidance directly and indirectly through maternal homework involvement (i.e., quantity, quality, and source of initiative). **H2.** In line with evocative theories (Bell, 1968; Scarr & McCartney, 1983) and SDT (Ryan & Deci, 2017), it was expected that prior achievement would be associated with subsequent task avoidance directly and indirectly through maternal homework involvement (Aunola et al., 2002; Silinskas & Kikas, 2019a; Viljaranta et al., 2018). Regarding indirect associations, we expected that lower prior achievement would be related to higher levels of subsequent task avoidance through higher levels of maternal help and psychological control and lower levels of autonomy support.

As additional analyses, the same research questions were examined using adolescent-perceived quality of maternal homework involvement. We controlled for the possible effects of adolescent gender and mothers' education on maternal homework involvement, achievement, and task avoidance because gender as well as parents' education may play a role in the level of parental homework involvement (Grolnick & Slowiaczek, 1994; Moroni et al., 2015).

Method

Participants and Procedure

The study participants were part of a broader longitudinal study following a community sample of Finnish adolescents in two towns in Central Finland across the transition from primary to lower secondary school. The study has received ethical approval from the ethics committee of the University of Jyväskylä (February 12, 2014). At the outset in Grade 6 a total of 848 (391 boys and 457 girls) Finnish young adolescents participated in this study. 96.7% of the adolescents had Finnish as their mother tongue, 1.6% were bilingual, and 1.4% were other than Finnish speakers. 0,3 % of the adolescents, information of their mother tongue was not available.

Overall, this is in line with the demographics of the Finnish population (Official Statistics of Finland, 2020) as 3.6% of the population outside the Helsinki metropolitan area were foreign-language speakers and 3.7% had a foreign background at the time of this study.

Parental written consent was required for student participation. Adolescents answered questionnaires during school lessons supervised by trained research assistants in the fall of Grade 6 (Time 1, T1). The adolescents' parents were also invited to participate in this study. Invitations were primarily targeted at mothers, but fathers were also given the opportunity to participate. We used only mothers' responses because, according to Grolnick and Slowiaczek (1994), mothers are typically more involved in their children's schooling than fathers are. Mothers received questionnaires by post or electronically when their children were in Grades 6 and 7 (Time 2, T2). For the Grade 6 pupils, 680 mothers provided answers, and for the Grade 7 pupils, 665 answered.

Measures

The psychometric properties of the study variables and their reliabilities are presented in Table 1. The items and their factor loadings and related confidence intervals on the respective factors obtained from confirmatory factor analyses are presented in Table 2.

Mothers' perceptions of the quantity of their homework involvement (Grade 6, fall, T1). Questions measuring the quantity of maternal homework involvement (i.e., monitoring and help) were adapted from Pomerantz and Eaton (2001) and Pomerantz and Ruble (1998; see also Silinskas et al., 2015 for validity in the Finnish sample). Monitoring and help were both measured with three items using a 5-point scale (1 = *never*, 5 = *always*, see Tables 1 and 2 for reliability and validity).

Mothers' perceptions of the quality of their homework involvement (Grade 6, fall, T1). Mother-perceived quality of maternal homework involvement was assessed through

autonomy support and psychological control. Autonomy support was measured with a short Finnish version of the Learning Climate Questionnaire (Black & Deci, 2000; for reliability and validity, see Yu et al., 2018) consisting of six items on a 5-point scale (1 = *never*, 5 = *always*). Psychological control was assessed with two items using a 5-point scale (1 = *never*, 5 = *always*; see Tables 1 and 2 for reliability and validity).

Mothers' perceptions of the source of initiative (Grade 6, fall, T1). The source of initiative was measured through mother-reported monitoring and help adapted from Pomerantz and Ruble (1998). The source of initiated monitoring and help were both measured with three items using a 6-point scale (0 = *from no one*, 1 = *always from the child*, 2 = *mostly from the child*, 3 = *sometimes from the child and sometimes from me*, 4 = *mostly from me*, 5 = *always from me*, see Tables 1 and 2 for reliability and validity).

Adolescents' task avoidance in homework situations (Grade 7, fall, T2). Mothers rated adolescents' task avoidance in homework situations using the Behavioral Strategy Rating Scale (Aunola et al., 2000; for validity see Zhang et al., 2011), which consists of five items on a 5-point scale (1 = *never*, 5 = *always*, see Tables 1 and 2 for reliability and validity).

Adolescents' academic achievement (Grade 5, spring, T0 and Grade 7, spring, T3). Adolescents' academic achievement was based on GPA across all school subjects (range = 5 – 10) in the spring of Grade 5 (T0) and in the spring of Grade 7 (T3) as gathered from registers.

Adolescents' perceptions of the quality of maternal homework involvement (Grade 6, fall, T1). Adolescent-perceived quality of maternal homework involvement was assessed through autonomy support and psychological control. Adolescent-perceived autonomy support was measured with a short version of the Learning Climate Questionnaire (Black & Deci, 2000; for reliability and validity, see Yu et al., 2018) consisting of six items on a 5-point scale (1 =

never, 5 = *always*; $\alpha = .87$). Psychological control was assessed with three items using a 5-point scale (1 = *never*, 5 = *always*; e.g., “If I get bad test results, my parents are ashamed”; $\alpha = .63$).

Data Analysis

The analyses were carried out as follows. First, we constructed measurement models for three types of maternal homework involvement and adolescent task avoidance separately. Second, we estimated three different SEM models, one for each aspect of maternal homework involvement (i.e., the quantity, quality, and source of initiative) due to multicollinearity between these aspects. We also estimated indirect paths from maternal homework involvement to subsequent achievement via task avoidance and from prior achievement to subsequent task avoidance via maternal homework involvement. We controlled for mothers' education and adolescent gender in all the analyses. Control variables were entered into the models to predict maternal homework involvement, task avoidance, and achievement. Finally, as additional analyses, we examined adolescent-perceived quality of maternal homework involvement (i.e., autonomy support and psychological control) and their direct and indirect associations with adolescent task avoidance and achievement.

All the analyses were carried out using the Mplus statistical package version 8.0 (Muthén & Muthén, 1998–2017). The model parameters were estimated using MLR. The goodness-of-fit of the estimated models was evaluated using four indicators: the χ^2 test, comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). Non-significant χ^2 values, CFI values above .95, an RMSEA value below .06, and an SRMR value below .08 indicated a good model fit (Hu & Bentler, 1999; Muthén & Muthén, 1998–2017). CFI values below .90 and RMSEA as well as SRMR values above .10 were considered indicators of poor model fit (Kline, 2011).

Results

Measurement Models

Descriptive statistics and correlations between major study variables are presented in Table 1. First, we constructed separate measurement models by using confirmatory factor analysis for each type of maternal homework involvement (i.e., the quantity, quality, and source of initiative) and adolescent task avoidance. The measurement models for adolescent task avoidance ($\chi^2 [3] = 9.25, p < .05, CFI = .99, RMSEA = .06, SRMR = .01$), the quantity ($\chi^2 [7] = 53.28, p < .001, CFI = .97, RMSEA = .10, SRMR = .05$), quality ($\chi^2 [16] = 64.76, p < .001; CFI = .96, RMSEA = .07, SRMR = .04$), and source of initiative of maternal homework involvement ($\chi^2 [6] = 27.19, p < .001, CFI = .98, RMSEA = .07, SRMR = .02$) showed reasonably good model fits after freeing some of the residual correlations between items measuring the same latent construct. In particular, the first and the fifth items (standardized estimate of freed residual correlation = .52, $SE = .04, p < .001$) as well as the second and the fourth items (i.e., positively worded items; standardized estimate of freed residual correlation = .40, $SE = .08, p < .001$) of task avoidance were allowed to correlate (see also Zhang et al., 2011 for similar findings). The first and the second items (standardized estimate of freed residual correlation = .32, $SE = .05, p < .001$) as well as the fifth and the sixth items (standardized estimate of freed residual correlation = .32, $SE = .09, p < .001$) of autonomy support were let to correlate. The second and the third items of monitoring (i.e., items measuring general monitoring and subject-specific monitoring, standardized estimate of freed residual correlation = .42, $SE = .05, p < .001$), the source of initiative for monitoring (i.e., items measuring general initiated monitoring and subject-specific initiated monitoring, standardized estimate of freed residual correlation = .52, $SE = .04, p < .001$) as well as the first and the third items (i.e., items measuring general initiated help and subject-

specific initiated help, standardized estimate of freed residual correlation = .47, $SE = .06$, $p < .001$) of the source of initiative for help were allowed to correlate. Factor loadings and their confidence intervals are presented in Table 2.

The Direct and Indirect Associations from Maternal Homework Involvement to Subsequent Academic Achievement via Task Avoidance

We next estimated three different SEM models, one for each aspect of maternal homework involvement (i.e., the quantity, quality, and source of initiative). For the final SEM models, only statistically significant paths were included by trimming the non-significant paths. The estimated models including information about model fits are presented in figures 1, 2 and 3, whereas the results for the indirect associations are presented in Table 3.

Our first research question aimed to investigate the extent to which maternal homework involvement predicted adolescents' subsequent achievement directly and indirectly through adolescents' task-avoidant behavior in homework situations. The results for the *quantity* of maternal homework involvement (Figure 1) showed that help or monitoring did not predict subsequent achievement. Similarly, no indirect associations from help on subsequent achievement via task avoidance were found (see Table 3).

The results for the *quality* of maternal homework involvement and subsequent achievement (Figure 2) showed that only psychological control—but not autonomy support—predicted subsequent achievement: the more mothers used psychological control in the fall of Grade 6, the poorer was adolescents' subsequent achievement in the spring of Grade 7. One significant indirect association was also found (Table 3). Psychological control predicted subsequent achievement via task avoidance: the more mothers used psychological control in the fall of

Grade 6, the more adolescents showed task avoidance in homework situations in the fall of Grade 7, which, in turn, led to poorer subsequent achievement in the spring of Grade 7.

The results for *the source of initiative* (Figure 3) showed that mother-initiated monitoring—but not mother-initiated help—predicted adolescents' subsequent achievement: the more mothers' monitoring of their child's homework in the fall of Grade 6 was initiated by the mothers, the poorer was adolescents' subsequent achievement in the spring of Grade 7. One significant indirect association was also found (Table 3). Mother-initiated monitoring predicted subsequent achievement via task avoidance: the more mothers' monitoring of their child's homework in the fall of Grade 6 was initiated by the mothers, the more adolescents showed task avoidance in homework situations in the fall of Grade 7, which, in turn, led to poorer subsequent achievement in the spring of Grade 7.

Direct and Indirect Associations from Prior Academic Achievement to Subsequent Task Avoidance via Maternal Homework Involvement

The second research question examined the extent to which adolescents' prior achievement predicted their subsequent task-avoidant behavior directly and indirectly through maternal homework involvement. The results for direct associations showed that prior achievement negatively predicted subsequent task avoidance (see Figures 1 and 3): the poorer adolescents' prior achievement was in the spring of Grade 5, the more they showed task-avoidant behavior in homework situations in the fall of Grade 7.

The results for indirect associations for the *quantity* of homework involvement showed no indirect association from prior achievement to subsequent task avoidance via help (Table 3). For the *quality* of maternal homework involvement one significant indirect association was found. Prior achievement predicted subsequent task avoidance via psychological control: the poorer

adolescents achieved in the spring of Grade 5, the more their mothers used psychological control in the fall of Grade 6, which, in turn, led to higher levels of task avoidance in homework situations in the fall of Grade 7. The indirect association from prior achievement on subsequent task avoidance via autonomy support was not significant. Finally, one significant indirect association was also found for the *source of initiative*. Prior achievement predicted subsequent task avoidance via mother-initiated monitoring: the more poorly adolescents achieved in the spring of Grade 5, the more mothers' monitoring of their child's homework in the fall of Grade 6 was initiated by the mothers, which, in turn, led to higher levels of task avoidance in homework situations in the fall of Grade 7.

Additional Analyses

As additional analyses, we conducted a similar set of analyses as described above using adolescent-perceived quality of maternal homework involvement. The results resembled those reported above except adolescent-perceived autonomy support played a larger role than mother-perceived autonomy support. The results for the indirect associations revealed that only adolescent-perceived autonomy support predicted their subsequent achievement via task avoidance (standardized indirect estimate $\beta = .03$, $SE = .01$, $p < .01$; 95% CI [.01, .05]): the less adolescents perceived autonomy support from their mothers in the fall of Grade 6, the more they showed task avoidance during homework situations in the fall of Grade 7 which, in turn, led to poorer achievement in the spring of Grade 7. The results further showed that only adolescents' prior achievement predicted their subsequent task avoidance via adolescent-perceived autonomy support (standardized indirect estimate $\beta = -.04$, $SE = .01$, $p < .01$; 95% CI [-.07, -.02]): the better adolescents achieved in the spring of Grade 5, the more they perceived autonomy support

from their mothers in the fall of Grade 6 which, in turn, led to lower levels of task avoidance in the fall of Grade 7.

Discussion

Although parental homework involvement plays an important role in children's academic development (Barger et al., 2019; Patall et al., 2008; Pomerantz et al., 2007), only a few prior studies have investigated mediating mechanisms between parental homework involvement, adolescents' achievement, and motivational behavior. The present study examined three aspects of maternal homework involvement (i.e., the quantity, quality, and source of initiative) and their direct and indirect associations with adolescent task-avoidant behavior and achievement in the Finnish context. The results showed that high levels of maternal psychological control and mother-initiated monitoring undermined adolescents' subsequent achievement directly and indirectly through elevated levels of task avoidance. Moreover, poor prior achievement was related to higher levels of subsequent task avoidance directly and indirectly through elevated levels of maternal psychological control and mother-initiated monitoring. Overall, the results suggest that mothers might benefit from knowledge of how to support adolescents' learning and motivation in more optimal ways.

Adolescents' Task Avoidance as a Mediator in the Associations Between Maternal Homework Involvement and Subsequent Academic Achievement

Our first research question examined the extent to which maternal homework involvement (i.e., quantity, quality, and source of initiative) predicted adolescents' subsequent achievement directly and indirectly through task avoidance. First, our results for the quantity of maternal homework involvement showed, in contrast to our expectations (H1) and previous findings among elementary school children (Silinskas et al., 2015; Viljaranta et al., 2018), that quantity of

maternal help was not associated with adolescents' subsequent achievement directly or indirectly through task avoidance. Because previous studies have documented that parental involvement decreases as the child reaches adolescence (Cooper et al., 2000), it is possible that mothers engage less in helping and, therefore, their involvement does not contribute to adolescents' subsequent achievement. Nevertheless, our results showed that higher levels of maternal help were related to higher levels of adolescents' subsequent task avoidance. Overall, this would suggest that maternal help contributes more significantly to proximal achievement-related outcomes, such as motivational behavior, than in achievement itself (see also Patall et al., 2008).

Second, our results for the quality of maternal homework involvement showed, in line with our expectations and previous findings (Dumont et al., 2014; Viljaranta et al., 2018), that high levels of maternal psychological control were related to adolescents' poorer subsequent achievement directly and indirectly through task avoidance. In addition, we found that higher levels of mother-initiated monitoring were related to adolescents' poorer subsequent achievement directly and indirectly through task avoidance. In line with organismic integration theory, these findings suggest that maternal self-initiated, dominant, and pressuring behaviors may leave adolescents' psychological needs unmet and hinder the internalization of parental values, beliefs, and goals related to homework (Ryan & Deci, 2017). This, in turn, may lead to lowered motivation and diminished persistence, which eventually manifests itself as poor achievement (Malmberg et al., 2015; Ryan & Deci, 2017). To our knowledge, no previous study has examined the role of the source of initiative in relation to adolescents' task avoidance and achievement. Overall, these findings provide support for OIT according to which maternal self-initiated and controlling involvement may have a detrimental role on adolescents' later achievement due to low satisfaction of basic psychological needs, hindered internalization of

values, beliefs and goals related to homework and possible lack of persistence in homework situations (Ratelle et al., 2007; Ryan & Deci, 2017).

In contrast to our expectations and some previous findings (Moroni et al., 2015; Viljaranta et al., 2018), mother-perceived autonomy support was not associated with adolescents' subsequent achievement. However, the results for the additional analyses showed that lower levels of adolescent-perceived autonomy support were associated with adolescents' poorer subsequent achievement but only indirectly through their task avoidance. These findings suggest that adolescents' perceptions of maternal autonomy support may be more significant predictors of their achievement than are mothers' perceptions (see Dinkelman & Buff, 2016). In line with OIT, mothers and adolescents might perceive adolescents' need for and satisfaction of autonomy support differently (Ryan & Deci, 2017). It is possible that when adolescents' psychological need for autonomy is not fulfilled, it diminishes their intrinsic motivation to learn and further shows as an increase in task avoidance in homework situations and subsequently, manifests itself as poor achievement.

Maternal Homework Involvement as a Mediator in the Associations Between Adolescents' Prior Academic Achievement and Subsequent Task-Avoidant Behavior

Building on the theoretical perspectives of evocative models (Bell, 1968; Scarr & McCartney, 1983) and self-determination theory (Ryan & Deci, 2017), our study is among the first to investigate the role of parental homework involvement as a mediator between adolescents' achievement and motivational behavior. Consistent with previous findings (Aunola et al., 2002; Hirvonen et al., 2010), and our hypothesis (H2), adolescents' poor achievement was associated with higher levels of subsequent task avoidance in homework situations. The results of the present study add to previous literature by showing further that part of this association was

mediated via maternal homework involvement. In line with our expectations, poor achievement was associated with higher levels of subsequent task avoidance through higher levels of maternal psychological control. Moreover, we found that prior achievement was associated with higher levels of subsequent task avoidance through higher levels of mother-initiated monitoring. One explanation for these results may be that mothers may be worried about adolescents' poor achievement and perceive that their children are not able to do homework independently, which leads them to exhibit more self-initiated and pressuring homework involvement practices (Pomerantz & Eaton, 2001; Silinskas et al., 2015). By monitoring adolescents' homework without being requested to do so, pressuring and expressing their disappointment, mothers may communicate their lack of trust in their children's abilities to take care of their homework independently, which then undermines adolescents' psychological needs and leads to task avoidance (Pomerantz et al., 2007; Ryan & Deci, 2017). It is possible that repeated failures and negative feedback (e.g., disappointment expressed by mothers) dampen adolescents' beliefs about their own abilities, which leads them to lose focus and give up easily when they face difficulties with homework (see Eccles et al., 1993; Eccles, 2005; Hirvonen et al., 2010).

In contrast to our expectations, mother-perceived autonomy support or help did not significantly mediate the associations between achievement and task avoidance. However, the results for the additional analyses showed that higher prior achievement was related to lower levels of subsequent task avoidance both directly and indirectly through higher levels of adolescent-perceived autonomy support. This finding suggests that when adolescents are achieving well at school, they also perceive more autonomy support from their mothers which might increase their intrinsic motivation and lead to lower task avoidance (Ryan & Deci, 2017).

Limitations and Conclusions

There are some limitations that should be taken into account when interpreting our results. First, we did not examine maternal homework involvement and adolescents' task avoidance longitudinally. Second, our measures of maternal homework involvement were primarily based on mothers' evaluations because only mother-perceived quantity of homework involvement and source of initiative were available. In future studies, it would be important to examine all three aspects of homework involvement from both mothers' and adolescents' perspectives because previous studies have shown that there is a difference in predictive power between children's and mothers' perceptions of maternal behavior (Dinkelmann & Buff, 2016). In addition, aside from investigating longitudinal associations as was done in our study, it would also be worthwhile to examine parents' and adolescents' real-time experiences of homework involvement using interviews and observations (see Hyde et al., 2006). Third, we did not use fathers' perceptions of their homework involvement. In future studies, it would be important to include fathers as well to examine possible differences among maternal and paternal involvement. Fourth, the scale of psychological control had relatively weak reliability. However, because measurement error was taken into account in the SEM analyses, it adds some confidence for the findings of this study.

Finally, this study was conducted among Finnish adolescents and their mothers. This fact should be taken into account when generalizing our results to other cultures and school systems. In future studies, it would be advisable to compare different cultural and educational systems when examining parental homework involvement. Our study was conducted in Finland, in individualist culture which may impact the generalizability of our findings to collectivist cultures. For example, previous findings suggest that collectivist cultures do not hold autonomy as high regard as individualist cultures do and consequently, do not express desire to autonomy satisfaction as much as people from individualist cultures (Chen et al., 2015). At the same time,

there is some evidence to suggest that individuals from collectivistic cultures may also benefit from having their psychological needs (including autonomy) satisfied (Chen et al., 2015). Future studies are needed to shed more light on the related mechanisms in individualistic versus collectivistic countries.

The present study increased our understanding of three aspects of maternal homework involvement (i.e., the quantity, quality, and source of initiative) and their direct and indirect associations with adolescent task avoidance and achievement. First, our results showed that the quantity, quality, and source of initiative were differently related to adolescents' subsequent motivational behavior and achievement. Second, our study increased our understanding of the fact that maternal controlling behaviors in terms of psychological control and self-initiated monitoring are associated with adolescents' subsequent achievement through their motivational behavior, which can partly help to explain previous contradictory findings regarding the impact of parental homework involvement on achievement. Third, our study highlighted the significance of adolescents' achievement for maternal self-initiated and controlling behaviors, which, in turn, played a detrimental role in adolescents' subsequent motivational behavior. Overall, the results of the present study suggest that it would be important to increase mothers' awareness of their own controlling and self-initiated involvement practices and the detrimental role of these practices in adolescents' motivational behavior and achievement. This awareness may help in looking for possibilities to support adolescents' learning and motivation during homework in a more optimal way.

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Table 1*Descriptive Statistics and Correlations of Major Study Variables*

		<i>n</i>	<i>M</i>	<i>SD</i>	Min-Max	α	1	2	3	4	5	6	7	8	9
1	Adolescent GPA (T0)	694	8.25	0.66	5.75–9.83										
2	Adolescent GPA (T3)	768	8.15	0.89	5.50–9.94		.84***								
3	Adolescent task avoidance (T2)	659	2.19	0.79	1–5	.89	-.44***	-.53***							
4	Maternal monitoring (T1)	661	2.89	0.87	1–5	.83	-.28***	-.29***	.16**						
5	Maternal help (T1)	661	2.96	0.62	1–5	.73	-.32***	-.26***	.22***	.76***					
6	Maternal autonomy support (T1)	659	3.87	0.48	2.17–5	.74	.37***	.34***	-.54***	-.16*	-.17**				
7	Maternal psychological control (T1)	660	2.29	0.84	1–4.50	.55	-.54***	-.61***	.72***	.35***	.27***	-.60***			
8	Mother vs. adolescent initiated monitoring (T1)	657	3.02	1.35	0–5	.80	-.37***	-.42***	.30***	.80***	.35***	-.30***	.57***		
9	Mother vs. adolescent initiated help (T1)	659	2.31	0.88	0–5	.77	-.39***	-.41***	.30***	.66***	.67***	-.30***	.57***	.83***	

Note. T0 = Grade 5, spring; T1 = Grade 6, fall; T2 = Grade 7, fall; T3 = Grade 7, spring. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 2

Standardized factor loadings of the confirmatory factor analysis for major study variables

Items	Standardized CFA factor loadings with 95% CI
Maternal monitoring perceived by mothers	
1. <i>Do you check your child's homework?</i>	.83 (.77, .88)
2. <i>Do you make sure that your child has done his/her homework?</i>	.54 (.46, .61)
3. <i>Do you make sure that your child has done his/her homework related to reading and writing, math, and foreign language?</i>	.73 (.67, .80)
Maternal help perceived by mothers	
1. <i>Do you help or guide your child in his/her homework?</i>	.75 (.69, .79)
2. <i>Do you help or guide your child with preparing for tests?</i>	.55 (.47, .61)
3. <i>Do you help or guide your child in his/her homework related to reading and writing, math, and foreign language?</i>	.92 (.88, .96)
Maternal autonomy support perceived by mothers	
1. <i>I provide choices and options for my child</i>	.27 (.17, .36)
2. <i>I try to understand the child's point of view</i>	.56 (.47, .65)
3. <i>I've conveyed confidence in my child's ability to do well in homework</i>	.40 (.31, .48)
4. <i>I encourage my child to ask questions</i>	.59 (.51, .66)
5. <i>I listen to how my child would like to do things</i>	.80 (.72, .88)
6. <i>I try to understand how my child sees things before suggesting a new way to do things</i>	.76 (.68, .84)
Maternal psychological control perceived by mothers	
1. <i>I have to pressure my child to do homework/prepare for tests</i>	.69 (.55, .90)
2. <i>I show how disappointed I am if the child has not done his/her homework/gets a bad grade on test</i>	.47 (.34, .61)
Source of initiated monitoring perceived by mothers	
1. <i>By whose initiative do you check your child's homework?</i>	.79 (.72, .85)
2. <i>By whose initiative do you make sure that your child has done his/her homework?</i>	.55 (.47, .63)
3. <i>By whose initiative do you make sure that your child has done his/her homework related to reading and writing, math, and foreign language?</i>	.72 (.65, .78)
Source of initiated help perceived by mothers	
1. <i>By whose initiative do you help or guide your child in his/her homework?</i>	.65 (.57, .72)
2. <i>By whose initiative do you help or guide your child with preparing for tests?</i>	.68 (.61, .75)
3. <i>By whose initiative do you help or guide your child in his/her homework related to reading and writing, math, and foreign language?</i>	.68 (.60, .75)
Adolescents' task avoidance	
1. <i>Does the child have a tendency to find something else to do instead of focusing on the task at hand?</i>	.79 (.75, .83)
2. <i>Does the child actively attempt to solve even difficult situations and tasks?</i>	.79 (.71, .86)
3. <i>Does the child give up easily?</i>	.81 (.74, .86)
4. <i>Does the child demonstrate initiative and persistence in his/her activities and tasks?</i>	.71 (.63, .78)
5. <i>If the activity or task is not going well, does the child lose his/her focus?</i>	.74 (.68, .79)

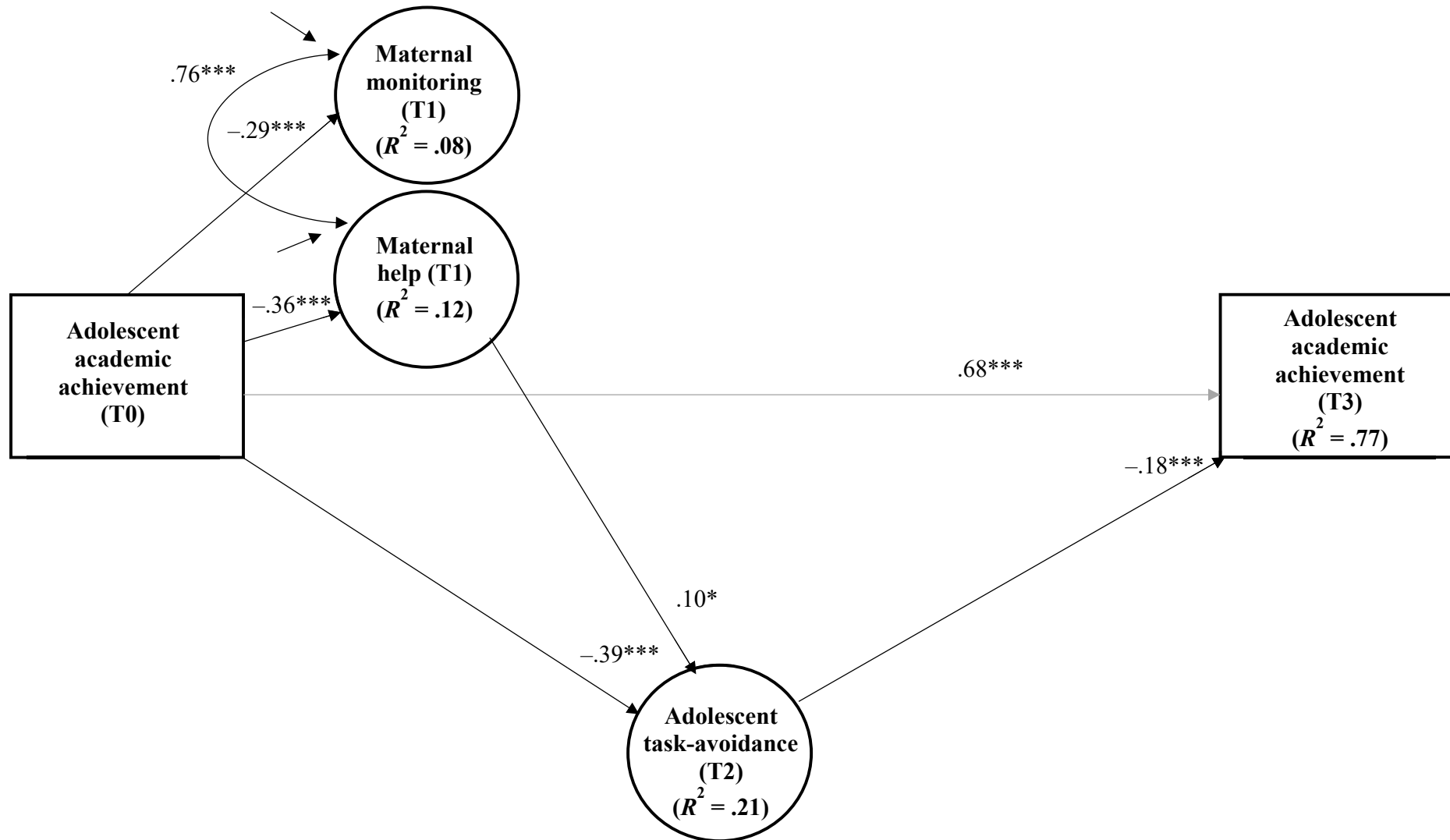
Table 3*Estimates of Indirect Associations: Maternal Homework Involvement and Task Avoidant Behavior as Mediators*

Indirect association	Standardized estimate (<i>SE</i>)	95% CI	
		Upper	Lower
From maternal help via task avoidance to subsequent academic achievement Help (T1) → task avoidance (T2) → GPA7 (T3)	-.02 (.01)+	-.00	-.04
From maternal autonomy support via task avoidance to subsequent academic achievement Autonomy support (T1) → task avoidance (T2) → GPA7 (T3)	.02 (.01)	.04	.00
From maternal psychological control via task avoidance to subsequent academic achievement Psychological control (T1) → task avoidance (T2) → GPA7 (T3)	-.08 (.03)*	-.03	-.14
From mother-initiated monitoring via task avoidance to subsequent academic achievement Mother-initiated monitoring (T1) → task avoidance (T2) → GPA7 (T3)	-.03 (.01)**	-.01	-.05
From academic achievement via maternal help to subsequent task avoidance GPA5 (T0) → help (T1) → task avoidance (T2)	-.04 (.02)+	.00	-.07
From academic achievement via maternal autonomy support to subsequent task avoidance GPA5 (T0) → autonomy support (T1) → task avoidance (T2)	-.05 (.03)	.00	-.11
From academic achievement via maternal psychological control to subsequent task avoidance GPA5 (T0) → psychological control (T1) → task avoidance (T2)	-.28 (.06)***	-.19	-.41
GPA5 (T0) → psychological control (T1) → task avoidance (T2) → GPA7 (T3)	.04 (.02)*	.08	.01
From academic achievement via mother-initiated monitoring to subsequent task avoidance GPA5 (T0) → mother-initiated monitoring (T1) → task avoidance (T2)	-.06 (.02)**	-.03	-.11
GPA5 (T0) → mother-initiated monitoring (T1) → task avoidance (T2) → GPA7 (T3)	.01 (.00)**	.02	.00

Note. *SE* = standard error.+*p* < .10, **p* < .05, ***p* < .01, ****p* < .001.

Figure 1

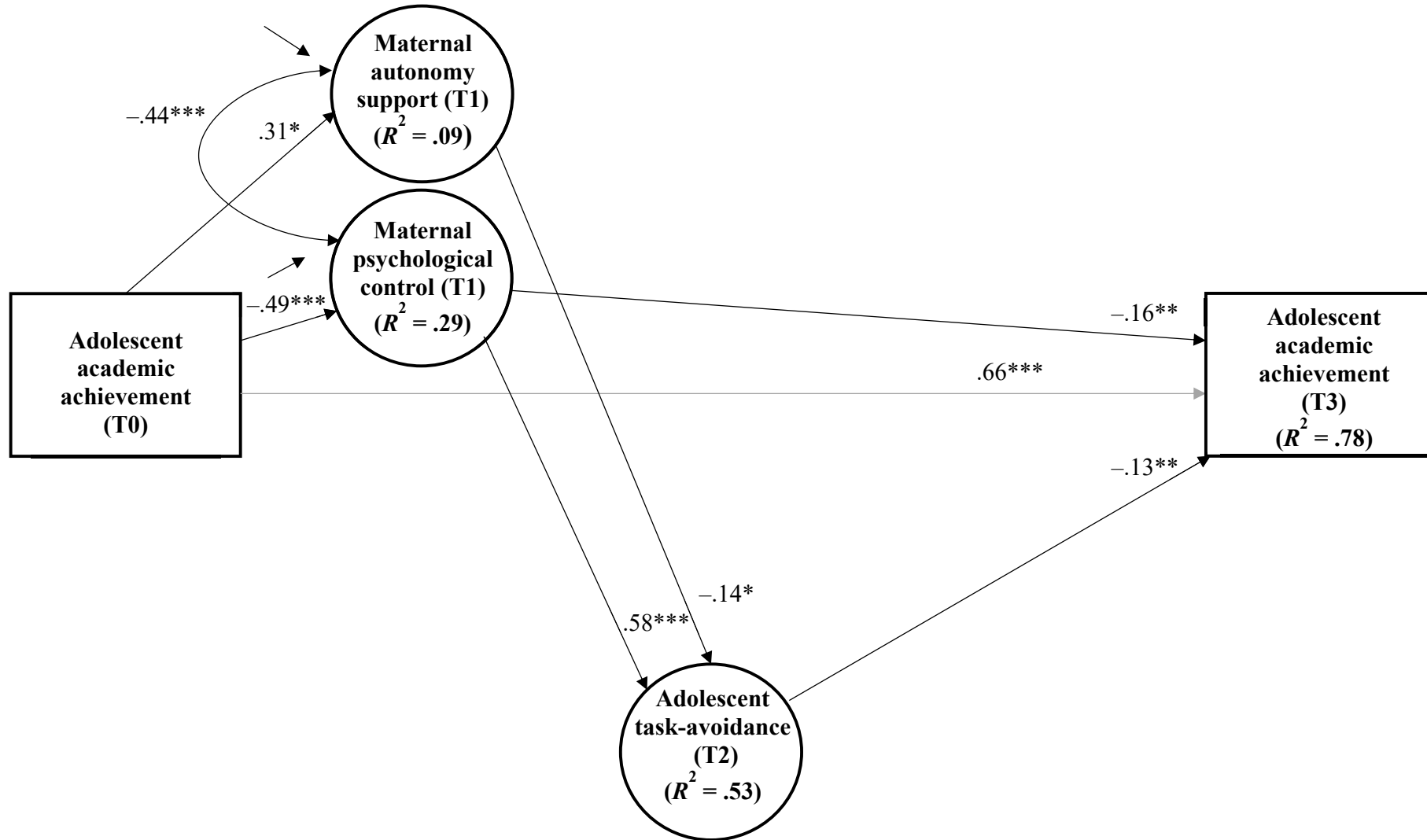
Associations between the quantity of maternal homework involvement, adolescent task avoidance and academic achievement



Note. Standardized solution. $\chi^2 [81] = 225.00, p < .001$; CFI = .97; RMSEA = .05; SRMR = .05. $^{***} p < .001, ^{**} p < .01, ^* p < .05$.

Figure 2

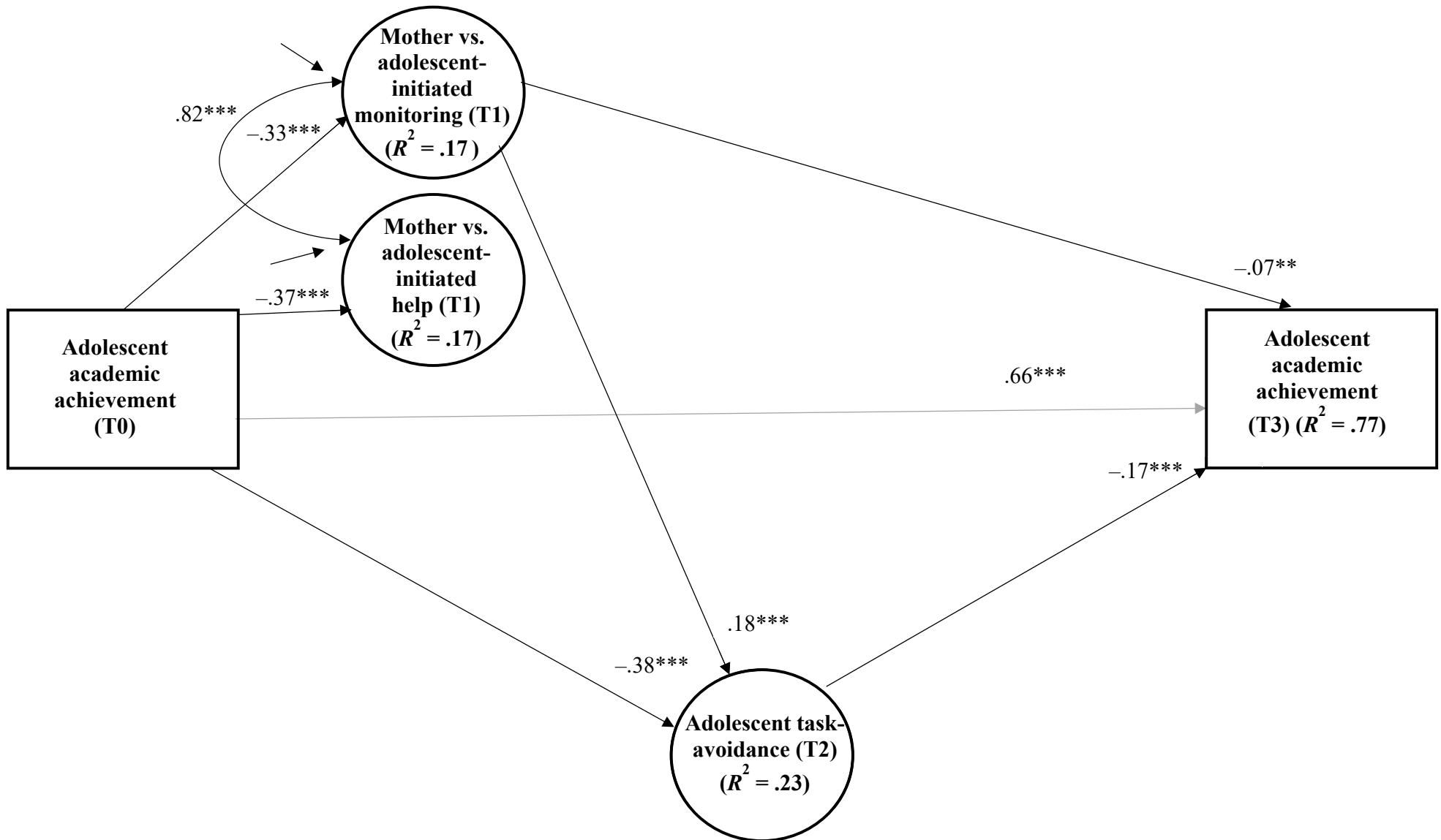
Associations between the quality of maternal homework involvement, adolescent task avoidance and academic achievement



Note. Standardized solution. $\chi^2 [107] = 370.54, p < .001$; CFI = .93; RMSEA = .06; SRMR = .08. $*** p < .001$, $** p < .01$, $* p < .05$.

Figure 3

Associations between mother vs. adolescent-initiated homework involvement, adolescent task avoidance and academic achievement



Note. Standardized solution. $\chi^2 [79] = 174.52, p < .001$; CFI = .98; RMSEA = .04; SRMR = .04. *** $p < .001$, ** $p < .01$, * $p < .05$.



III

A PERSON-ORIENTED APPROACH TO MATERNAL HOMEWORK INVOLVEMENT DURING THE TRANSITION TO LOWER SECONDARY SCHOOL

by

Mari Tunkkari, Kaisa Aunola, Riikka Hirvonen, Gintautas Silinskas, & Noona
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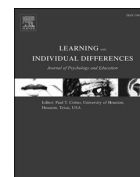
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A person-oriented approach to maternal homework involvement during the transition to lower secondary school[☆]

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ABSTRACT

This study examined patterns of mothers' homework involvement ($n = 680$ in Grade 6 and 665 in Grade 7) and changes in them during 12-year-old Finnish adolescents' ($n = 848$; 391 boys) transition to lower secondary school. Moreover, the extent to which adolescents' motivational behavior and prior academic achievement predicted these patterns was examined. The latent transition analyses identified four relatively stable latent patterns of maternal homework involvement in Grades 6 and 7: averagely involved, psychologically controlling and intrusive, noninvolved, and intrusive monitoring and helping. The higher task avoidance and the poorer achievement adolescents showed, the more likely their mothers were to utilize a psychologically controlling and intrusive pattern, or an intrusive monitoring and helping pattern. Overall, these results suggest that some mothers may benefit from understanding of how to best support struggling and task-avoidant adolescents during the transition from primary to lower secondary school.

1. Introduction

Parental involvement with homework has been suggested to play a role in adolescents' motivational and academic development (Patall et al., 2008; Pomerantz et al., 2007). Parents may be involved in homework in different ways, ranging from adolescent- or parent-initiated assistance to providing support for the adolescent to do homework independently (Grolnick & Slowiaczek, 1994; Hoover-Dempsey & Sandler, 1997). Despite the multidimensionality of parental involvement (i.e., the quantity, quality, and source of initiative; Grolnick & Slowiaczek, 1994; Moroni et al., 2015), most previous studies in the homework context have investigated parental involvement dimensions separately using a variable-oriented approach (e.g., Cooper et al., 2000; Dumont et al., 2014). Hence, little is known about different combinations of parental involvement dimensions (for exceptions, see Lara & Saracostti, 2019; Moroni et al., 2016). In line with parenting styles research (Baumrind, 1966; Maccoby & Martin, 1983), parents are likely to show unique patterns of both supportive and controlling homework involvement practices. Consequently, this study aimed to identify these unique patterns of homework involvement in regard to the

quantity, quality, and source of initiative in a sample of Finnish mothers across adolescents' transition from primary to lower secondary school. Focusing on parental homework involvement in early adolescence is important because, in addition to facing the educational transition, adolescents experience various developmental changes (e.g., puberty, heightened need for autonomy and independence) that may cause challenges for parents in finding optimal ways to support adolescents' learning (Eccles et al., 1993; Hill & Tyson, 2009). Moreover, because theories of the evocative effect have suggested that children's characteristics are important promoters of parental behavior (Bell, 1968; Scarr & McCartney, 1983), the role of adolescents' motivational behavior and prior achievement as antecedents of maternal homework involvement patterns were examined in this study.

1.1. Dimensions of parental homework involvement

Parental homework involvement is a multidimensional construct consisting of quantity (e.g., frequency of parental help), quality (e.g., supporting the adolescent's autonomy), and source of initiative for involvement (i.e., whether it is primarily the adolescent or the parent

[☆] The datasets generated and/or analyzed during the current study are not publicly available but are available from the corresponding author on reasonable request.

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who initiates homework involvement; Grolnick & Slowiaczek, 1994; Hoover-Dempsey & Sandler, 1997). Following the self-determination theory (SDT; Ryan & Deci, 2017), parental homework involvement can differently satisfy adolescents' psychological needs for autonomy, competence, and relatedness. The satisfaction of autonomy (i.e., volition and sense of control), competence (i.e., sense of mastery), and relatedness (i.e., sense of belonging) are important for adolescents' self-determined behavior and intrinsic motivation (Deci & Ryan, 2000; Ryan & Deci, 2017). Thus, if parents can approach adolescents' homework in a way that allows the adolescents to feel autonomous over their homework management, competent to complete their homework, and maintain a positive parent–adolescent relationship, it can promote positive learning outcomes. Adolescence is considered a critical time period in which adolescents typically express more desire to freedom and autonomy but are also more academically competent and seek more support from peers (Eccles et al., 1993; Froiland, 2021; Wei et al., 2019). Nevertheless, previous research has shown that adolescents benefit from having not only their heightened need for autonomy, but also their need for competence and relatedness satisfied (Dumont et al., 2014; Katz et al., 2011).

In regard to the *quantity* of parental homework involvement, the frequency of monitoring (i.e., checking that homework is done without mistakes) and help (i.e., teaching and guiding; Otani, 2020; Pomerantz & Eaton, 2001; Silinskas et al., 2015) have been examined. Help is a more direct way to be involved with homework than monitoring is, because help requires more active participation from the parent (Silinskas et al., 2015). However, adolescents may interpret extensive direct help from parents as parental mistrust in their abilities to do homework on their own and, consequently, it may hinder the satisfaction of autonomy and competence and cause tension in the adolescent–parent relationship (Ryan & Deci, 2017; Silinskas et al., 2015). Monitoring, in turn, is a less direct way to be involved with homework than help is, because it does not require active participation from the parent (Silinskas et al., 2015). Therefore, monitoring is less likely to be perceived as control, and thus may not be as detrimental to the adolescent's autonomy, competence, and relatedness when it is compared to parental help (Ryan & Deci, 2017). However, due to the lower level of interaction with the parent, monitoring may leave adolescents' sense of relatedness unsatisfied (Ryan & Deci, 2017; Silinskas et al., 2015).

The *quality* of parental homework involvement, in turn, is typically conceptualized through parents' autonomy support and control in homework situations (Pomerantz & Grolnick, 2017). According to SDT (Ryan & Deci, 2017), autonomy-supportive parents allow adolescents to take an active role in doing homework by providing resources that make independent work possible, which is assumed to satisfy adolescents' feelings of autonomy, competence, and relatedness (Moorman & Pomerantz, 2008; Pomerantz et al., 2007). In turn, when parents are controlling, they are hindering the adolescent's opportunities to work independently by pressuring and restricting their behavior with commands and directives (Moorman & Pomerantz, 2008). One aspect of control—psychological control—has been assumed to be extremely detrimental to an adolescent's psychological needs because parental dominance and use of guilt, love withdrawal and shame when the adolescent does not meet parental standards restricts adolescents' self-expression and mastery, and increases their emotional dependence on their parents (Barber, 1996; Chorpita et al., 2016; Grolnick & Pomerantz, 2009).

Finally, the *source of initiative* of parental homework involvement refers to the extent to which parents' involvement with an adolescent's homework is adolescent initiated vs. parent initiated (Green et al., 2007; Hoover-Dempsey & Sandler, 1997). Following SDT (Ryan & Deci, 2017), when adolescents themselves request parents to get involved, it may better support their need for autonomy and give them a sense of mastery and belonging than parent-initiated involvement due to such involvement being based on their need for assistance. In contrast, when parents are involved with an adolescent's homework on their own initiative, the

adolescent may not have similar opportunities to be active, build confidence, and form positive interaction with the parent due to parental involvement being unwanted. Consequently, parent-initiated involvement may threaten the satisfaction of the adolescent's needs for autonomy, competence, and relatedness (Ryan & Deci, 2017).

Previous research concerning adolescence has shown a decrease in the quantity of parental homework involvement and in adolescents' explicit invitations for parental homework involvement (Green et al., 2007; Wei et al., 2019). Moreover, a qualitative shift from more controlling homework involvement practices towards higher support for autonomy has been observed during adolescence (Cooper et al., 2000; Gonida & Cortina, 2014; Silinskas & Kikas, 2019). It is well known that adolescents face various developmental changes, such as puberty, heightened need for autonomy, developing cognitive abilities, and identity formation, changes in school environment, such as the educational transition as well as changes in social relationships such as peer orientation (Eccles et al., 1993; Hill & Tyson, 2009). These changes in adolescents call for parents to reconsider their approach towards homework involvement. Parental homework involvement that is not attentive to the different developmental and educational changes and social changes that occur in early adolescence may threaten the satisfaction of adolescents' psychological needs which may further have detrimental effects to adolescents' motivation and achievement (Barber & Olsen, 2004; Eccles et al., 1993; Ryan & Deci, 2017). Consequently, this longitudinal study focused on the quantity (monitoring and help), quality (autonomy support, psychological control), and source of initiative (adolescent-initiated vs. mother-initiated monitoring and help) as central aspects of maternal homework involvement among adolescents facing the critical transition from primary (Grade 6) to lower secondary school (Grade 7). The focus was on mothers' homework involvement because previous research has shown that mothers have more active roles in their children's schooling than fathers do (Levin et al., 1997; Silinskas et al., 2010, 2013).

1.2. Patterns of parental homework involvement across the educational transition

Despite acknowledging the multidimensional nature of parental homework involvement, previous research has rarely applied a person-oriented approach and has rather focused on individual dimensions of homework involvement using a variable-oriented approach (Grolnick & Slowiaczek, 1994; Moroni et al., 2016). Little is known about the constellations of homework involvement practices (i.e., patterns) regarding the quantity, quality and source of initiative of homework involvement that parents show when involving themselves in adolescents' homework. In line with the typological approach of parenting styles research (Baumrind, 1966; Maccoby & Martin, 1983), parents are likely to show unique combinations of both supportive and controlling homework involvement practices (Exeler & Wild, 2003). A person-oriented approach takes the heterogeneous nature of the sample into account (Laursen & Hoff, 2006) and allows identification of different subgroups of parents who share similar patterns of homework involvement practices. Identifying these patterns is important because the way that each involvement practice supports or suppresses satisfaction of adolescents' psychological needs may depend on the presence or absence of another practice (Heberle et al., 2015; Ryan & Deci, 2017). This, in turn, may have different consequences for adolescents' motivation and achievement.

To our knowledge, only a few attempts have been made to examine parental involvement patterns. Moroni et al. (2016) found three profiles of adolescent-perceived quality of parental homework involvement among fifth-grade students, based on three dimensions of emotional support, provision of structure, and interference/control: First, the biggest profile, the *average profile* (46.7%), was characterized by average levels of all three dimensions of homework involvement; second, the *adequate profile* (44.0%) was characterized by higher-than-average

levels of emotional support and structure and lower-than-average levels of interference/control; and third, the *noninvolved profile* (9.2%) was characterized by lower-than-average levels of all three dimensions of homework involvement. Similarly, Lara and Saracostti (2019) found three clusters of *high involved* (28.9%), *medium involved* (45.8%), and *low involved* parents (25.3%) among younger second- and third-grade students based on the quantity of their involvement (i.e., involvement at home, involvement at school, and invitations parents receive from children, teachers, and schools). In addition, previous research on parenting patterns has also identified two qualitatively opposite profiles of parenting based on two dimensions (e.g., high guidance–low control, and low guidance–high control; Dwairy et al., 2013; McNamara et al., 2010) and have further found that parents may also co-express these dimensions of parenting with high frequency (Dwairy et al., 2013; Heberle et al., 2015). According to Dwairy et al. (2013), the use of supportive and controlling parenting practices at high levels may stem from parents' concern about their adolescents and from parental attempts to overcome that situation by overusing all possible methods.

Previous research on parental involvement patterns using a person-oriented approach, though scarce, has at least the following limitations. First, studies have focused on either the quantity (Lara & Saracostti, 2019) or the quality of involvement (Moroni et al., 2016) but not on both aspects. Moreover, it is not known how the source of initiative is combined with quantitative and qualitative aspects of involvement. Consequently, the first aim of this study was to investigate maternal homework involvement patterns based on the quantity (monitoring and help), quality (autonomy support and psychological control), and source of initiative (adolescent-initiated vs. mother-initiated monitoring and help). It can be expected that, in line with previous studies (Moroni et al., 2016) and SDT (Ryan & Deci, 2017), some mothers would better support adolescents' needs for autonomy, competence, and relatedness than other mothers would by showing involvement practices, such as high levels of autonomy support combined with low levels of parent-initiated help. It may also be that mothers would even avoid any homework involvement due to fear of being overcontrolling which, in turn, may leave adolescents' psychological needs unsatisfied (Gonida & Cortina, 2014; Ryan & Deci, 2017). It was also expected that some mothers may not trust adolescents' abilities to do homework independently and would therefore be controlling and intrusive in their involvement (e.g., characterized as high levels of psychological control and parent-initiated help, and low levels of autonomy support), which would thwart the satisfaction of adolescents' psychological needs (Dwairy et al., 2013; Ryan & Deci, 2017). It may also be that some mothers may try to compensate their worry over their children by frequently using simultaneously both supportive and controlling involvement practices, such as high levels of autonomy support combined with high levels of psychological control (Barber, 1996; Dwairy et al., 2013).

Second, the previous studies did not examine homework involvement patterns longitudinally, hence there is a need for research examining how stable parental homework involvement patterns are and how likely parents are to transfer from one parental homework involvement pattern to another during the adolescence period. During the educational transition from primary to lower secondary school (in the Finnish educational system, from Grade 6 to Grade 7), adolescents experience numerous changes related to the school environment (e.g., new school subjects, teachers, peers), own development (e.g., puberty) and their social relationships (e.g., heightened need for autonomy; Eccles et al., 1993; Hill & Tyson, 2009). These changes may be reflected in parental homework involvement. For example, as a consequence of these changes, parents may be uncertain how to become involved in adolescents' homework in a way that promotes their skills and at the same time, is not perceived as controlling by the adolescents (e.g., how to provide help in the zone of adolescents' proximal development; Vygotsky, 1978). There is evidence to suggest that in middle school, parents use fewer direct and controlling involvement practices (Gonida &

Cortina, 2014; Silinskas & Kikas, 2019; Wei et al., 2019) and grant more autonomy (Cooper et al., 2000). One explanation for this could be that adolescents may invite parents to become involved in their schooling less frequently than children in primary school do (Pomerantz & Grolnick, 2017; Wei et al., 2019). On the other hand, parents may perceive their involvement as being less normative in middle school than it is in elementary school (Wei et al., 2019). It may also be that due to school-related and developmental changes, parents expect adolescents to do homework on their own and may perceive even autonomy support as being restrictive of adolescents' autonomy and independence, and consequently end up avoiding involvement (Gonida & Cortina, 2014; Hill & Tyson, 2009). In this study, we aimed to broaden our understanding of the stability and change of maternal homework involvement patterns during adolescents' transition to lower secondary school.

1.3. The role of adolescents' motivational behavior and prior achievement in parental homework involvement patterns

According to the theories of the evocative effect (Bell, 1968; Scarr & McCartney, 1983), children's characteristics play a role in the behavior of their parents. Previous variable-oriented studies have shown that adolescents' achievement as well as their motivational behavior, such as task-persistent vs. task-avoidant behavior, are significant antecedents of parental involvement (Dumont et al., 2014; Viljaranta et al., 2018). Task-avoidant behavior refers to an adolescent's tendency to lose focus when given a challenging task, which manifests itself through distractibility and giving up (Aunola et al., 2002; Onatsu-Arviolommi & Nurmi, 2000). Adolescents who avoid tasks are at risk for failing in the future and performing poorly academically (Georgiou et al., 2010; Zhang et al., 2011). Previous studies have generally shown that poorer achievement (Dumont et al., 2014; Silinskas & Kikas, 2019) and lower persistence (Viljaranta et al., 2018) are related to higher levels of intrusive and controlling parental involvement practices, whereas adolescents with higher achievement (Cooper et al., 2000; Dumont et al., 2014) and higher persistence (Dumont et al., 2012) receive more autonomy support from their parents.

Although there is variable-oriented research on the role of adolescents' academic functioning in parental involvement, to our knowledge, no previous study has examined adolescents' motivational behavior and prior achievement as antecedents of parental homework involvement patterns and related transitions during critical educational transitions. More understanding of the role of these antecedents in parental homework involvement patterns is needed because not all parents are expected to react to their child's academic functioning in a similar manner (see Hayes & Berthelsen, 2020). It is known that during and after school transitions, adolescents may experience academic and motivational decline (Barber & Olsen, 2004; Eccles et al., 1993), which may be reflected in parental homework involvement. For example, some parents may perceive adolescents' lack of persistence and academic problems as alarming, and hence they attempt to get involved in adolescents' homework using every possible method (Dwairy et al., 2013). Adolescents who have a long history of failure and poor achievement may be particularly sensitive to controlling and intrusive involvement practices due to such involvement depriving them of their inner resources, which, in turn, serves as a risk factor for future failure and poor achievement (Pomerantz et al., 2005). Consequently, focusing on the antecedents of parental homework involvement patterns may provide useful knowledge on how to identify those parents that would benefit from more knowledge and understanding of their reactions to adolescents' poor academic functioning. Thus, in this study, we examined the role of adolescents' prior achievement and task avoidance as antecedents of patterns of maternal homework involvement across the transition from primary to lower secondary school.

1.4. The present study

In this study, the following research questions were addressed. First, we examined what kind of patterns of mothers' homework involvement can be identified based on the quantity (monitoring and help), quality (autonomy support and psychological control), and source of initiative (mother-initiated vs. adolescent-initiated monitoring and help) in Grades 6 and 7. Due to the lack of previous studies including all these aspects of homework involvement, no exact hypotheses can be set. However, based on previous findings on the quantity and quality of homework involvement (Dwairy et al., 2013; Lara & Saracostti, 2019; Moroni et al., 2016), we expected that the following patterns of maternal homework involvement could be identified. First, we expected that there would be a pattern characterized by average levels of all involvement practices, which was expected to be the most typical pattern. Second, it was expected that there would be a pattern characterized by high levels of maternal autonomy support and low levels of direct and controlling involvement practices (e.g., help and psychological control). Third, we expected that there would be an opposite pattern characterized by high levels of direct and controlling involvement practices (e.g., help and psychological control) and low autonomy support. Fourth, it was expected that there would be a pattern characterized by low levels of autonomy support as well as of direct and controlling involvement practices (e.g., psychological control and help), and possibly an opposite pattern characterized by high levels of autonomy support as well as of direct and controlling involvement practices (e.g., psychological control and help).

Second, we examined the extent to which the identified patterns of maternal homework involvement change from Grade 6 to Grade 7. It was expected that the patterns would be relatively stable across the transition. Because parental direct and controlling involvement practices have been shown to decrease during adolescence (Cooper et al., 2000; Silinskas & Kikas, 2019), it was also expected that mothers characterized by high levels of autonomy support as well as of direct and controlling involvement practices, along with mothers characterized by average levels of involvement practices, would be more likely to transition to maternal pattern characterized by low levels of autonomy support, direct and controlling involvement practices.

Third, we examined the extent to which an adolescent's task avoidance in homework situations and prior achievement in Grade 6 predict maternal homework involvement patterns in Grade 6 and transitions between these patterns from Grade 6 to Grade 7. Based on variable-oriented results (Dumont et al., 2014; Viljaranta et al., 2018), it was expected that lower levels of adolescent task avoidance and higher prior achievement would be associated with a maternal pattern characterized by low levels of autonomy support as well as of direct and controlling involvement practices. In turn, higher levels of adolescent task avoidance and poorer prior achievement were expected to be related to a maternal pattern characterized by high levels of direct and controlling involvement practices as well as of low levels of autonomy support.

We controlled for the effects of the adolescents' gender on maternal homework involvement patterns due to previous research showing parental homework involvement in boys' homework being more controlling, whereas girls may receive more support from their parents (Dumont et al., 2012). Moreover, due to some findings showing that parents with higher education may be less controlling and more supportive in homework situations, mothers' educational level was controlled for (Moroni et al., 2015; Su et al., 2015).

2. Method

2.1. Participants

This study was part of a broader longitudinal study following Finnish adolescents across the transition from primary to lower secondary school. Participants came from a large sample of one age cohort from

two towns in Central Finland. The procedures were in accordance with the principles of the Helsinki Declaration on research with human subjects. Written consent to participate was collected from participants and the research plan of the project was approved by the Human Sciences Ethics Committee of the local university (February 12, 2014). A total of 848 Finnish adolescents (391 boys; mean age = 12.32 years, SD = 0.36) participated in this study in Grade 6. A total of 96.7% of these adolescents had Finnish as their mother tongue, 1.6% were bilingual, and 1.4% were other than Finnish speakers. Of these adolescents, 0.3% did not report their mother tongue. According to the Official Statistics of Finland (2021a), 3.6% of the population outside of the Helsinki (capital) metropolitan area were foreign-language speakers and 3.7% had a foreign background. Thus, our sample was consistent with the demographics of the Finnish population.

Mothers of the adolescents were also invited to participate in the study. Mothers received questionnaires in the mail or electronically when adolescents were in Grades 6 and 7. In Grade 6 fall, 680 mothers provided answers (mean age 41.95, SD = 5.49), and in Grade 7 fall, 665 answered. 735 mothers provided responses either in Grade 6 or in Grade 7. Of the mothers, 659 reported their own education: 2.3% had no vocational education, 1.5% had taken employment or vocational courses (minimum of 4 months), 29.0% had finished vocational upper secondary education, 23.4% had post-secondary education, 16.5% had a bachelor's or vocational college degree, 24.0% had completed university or other higher education, and 3.3% had a postgraduate degree. The sample was fairly representative of the demographics of the Finnish population (Official Statistics of Finland, 2021b).

2.2. Measures

The psychometric properties of the study variables and their Cronbach's alpha reliabilities are presented in Table 1.

Quantity of maternal homework involvement (Grades 6 and 7). Questions measuring monitoring and help were adapted from Pomerantz and Eaton (2001) and Pomerantz and Ruble (1998); Tunkkari et al. (2021). Monitoring (e.g., "Do you check your child's homework?") and help (e.g., "Do you help or guide your child in his/her homework?") were both measured with three items using a five-point scale (1 = *never*, 5 = *always*).

Quality of maternal homework involvement (Grades 6 and 7). The quality of maternal homework involvement was measured by autonomy support and psychological control in homework situations. Mothers evaluated autonomy support with a short version of the Learning Climate Questionnaire (Black & Deci, 2000; for reliability and validity, see Yu et al., 2018) consisting of six items on a five-point scale (1 = *never*, 5 = *always*; e.g., "I try to understand the child's point of view"). Mothers rated psychological control with two items using a five-point scale (1 = *never*, 5 = *always*; e.g., "I show how disappointed I am if the child has not done his/her homework/gets a bad grade on a test"; Tunkkari et al., 2021).

Source of initiative (Grades 6 and 7). The source of initiative was measured by mother-reported monitoring and help adapted from Pomerantz and Ruble (1998). The source of initiated monitoring (e.g., "On whose initiative do you check your child's homework?") and help (e.g., "On whose initiative do you help or guide your child in his/her homework?") were both measured with three items using a six-point scale (0 = *from no one*, 1 = *always from the child*, 2 = *mostly from the child*, 3 = *sometimes from the child and sometimes from me*, 4 = *mostly from me*, 5 = *always from me*; Tunkkari et al., 2021).

Adolescents' task avoidance in homework situations (Grade 6). Mothers rated adolescents' task avoidance in homework situations using the Behavioral Strategy Rating Scale (Aunola et al., 2000; for validity see Zhang et al., 2011). The rating scale consists of five statements on a five-point scale (1 = *never*, 5 = *always*; e.g., "Does the child give up easily?").

Adolescents' academic achievement. Adolescents' academic achievement was based on GPA across all school subjects (range = 5 to

Table 1
Descriptive statistics and Pearson correlations of study variables.

	π	M	SD	α	1	2	3	4	5	6	7	8	9	10	11	12	13	
1 Adolescent GPA, T0	694	8.25	0.66															
2 Adolescent Task avoidance, T1	661	2.22	0.85	0.89	-0.51***													
3 Monitoring, T1	661	2.89	0.87	0.83	-0.23***	0.18***												
4 Monitoring, T2	663	2.58	0.85	0.82	-0.26***	0.18***	0.66***											
5 Help, T1	661	2.96	0.62	0.73	-0.26***	0.18***	0.58***	0.44***										
6 Help, T2	663	2.85	0.58	0.71	-0.23***	0.22***	0.47***	0.56***	0.68***									
7 Autonomy support, T1	659	3.87	0.48	0.74	0.20***	-0.37***	-0.01	-0.04	0.01	-0.06								
8 Autonomy support, T2	661	4.00	0.49	0.77	0.22***	-0.37***	-0.02	-0.07	0.01	-0.06	0.53***							
9 Psychological control, T1	660	2.29	0.84	0.55	-0.41***	0.54***	0.25***	0.24***	0.17***	0.17***	-0.28***	-0.33***						
10 Psychological control, T2	662	2.35	0.84	0.61	-0.36***	0.49***	0.17***	0.26***	0.16***	0.21***	-0.28***	-0.38***	0.64***					
11 Mother vs. adolescent initiated monitoring, T1	657	3.02	1.35	0.80	-0.31***	0.27***	0.60***	0.38***	0.28***	0.21***	-0.11**	-0.07	0.36***	0.24***				
12 Mother vs. adolescent initiated monitoring, T2	661	2.48	1.42	0.81	-0.29***	0.24***	0.48***	0.67***	0.24***	0.34***	-0.07	-0.11**	0.31***	0.35***	0.50***			
13 Mother vs. adolescent initiated help, T1	659	2.31	0.88	0.77	-0.34***	0.29***	0.45***	0.37***	0.49***	0.39***	-0.10**	-0.12**	0.36***	0.30***	0.55***	0.40***		
14 Mother vs. adolescent initiated help, T2	662	2.15	0.91	0.80	-0.30***	0.28***	0.37***	0.46***	0.33***	0.47***	-0.10*	-0.16***	0.32***	0.34***	0.37***	0.60***	0.55***	

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. T0 = Grade 5, spring, T1 = Grade 6, fall, T2 = Grade 7, fall.

10) in the spring of Grade 5 (closest proxy of Grade 6 fall) as gathered from registers.

2.3. Data analysis

All measures were standardized to have them on the same scale. The analyses were then carried out along the following steps. First, to answer the first and second research questions, we used latent transition analysis (LTA) to examine the prevalence of latent maternal homework involvement patterns and transitions between maternal homework involvement patterns across Grade 6 to Grade 7 based on the quantity (monitoring and help), quality (autonomy support and psychological control) and source of initiative (mother-initiated vs. adolescent-initiated monitoring and help). In LTAs, the structure of the patterns was restricted to be the same for both measurement points by fixing the intercepts to be equal across time. This made it possible to reliably examine the prevalence of latent patterns at different time points and interpret transitions between these patterns (Nylund, 2007). A large number of random starts were used to avoid local maxima and to increase the validity of the found patterns. Model estimations were done gradually, starting with a one-pattern solution and then increasing the number of patterns step by step to find the best model. To compare different solutions, we examined the interpretability of the solutions, fit indices and latent group sizes. For the fit indices, we used the following criteria: the log-likelihood value (Log L), the Bayesian information criterion (BIC), the sample-size adjusted Bayesian information criterion (aBIC), the Parametric Bootstrapped Likelihood Ratio Test (BLRT), and entropy. A higher log-likelihood value and lower values of BIC and aBIC indicate a better model, whereas a significant BLRT value indicates a higher number of groups. Entropy values range from 0 to 1, with 1 indicating greater classification certainty. Previous findings have shown that BLRT and BIC are effective when deciding the right number of latent groups (Tolvanen, 2007).

Finally, to answer the third research question, multinomial logistic regression was used to examine the extent to which adolescents' task avoidance and prior achievement predicted maternal homework involvement patterns in Grade 6 and transitions between patterns from Grades 6 to 7. Adolescents' task avoidance and achievement were added to the LTA model to predict patterns and changes in patterns across Grade 6 to Grade 7. The effects of the adolescents' gender and mothers' education were controlled for.

All the analyses were carried out using the Mplus statistical package, version 8.4 (Muthén & Muthén, 1998–2017). All models were estimated using maximum likelihood estimation with robust standard errors (MLR).

3. Results

3.1. Identification of maternal homework involvement patterns and their change from Grade 6 to Grade 7

To answer our first and second research questions, LTA was utilized. The fit indices of the LTA models and their group sizes are presented in Table 2. The fit indices suggested that the four-pattern solution fit the data best. In addition, because two of the latent patterns in the five-pattern solution were relatively small and theoretically hard to justify, the four-pattern solution was considered the most appropriate model.

Based on the LTA analysis, the following four maternal homework involvement patterns were identified (Fig. 1). The first, *averagely involved pattern* (39% Grade 6, 36% Grade 7), was characterized by an average level of all aspects of maternal homework involvement. The second, *psychologically controlling and intrusive pattern* (28% Grade 6, 26% Grade 7), was characterized by low maternal autonomy support and high monitoring, help, and psychological control, and high initiative from mothers in monitoring and help. The third, *noninvolved pattern* (22% Grade 6, 28% Grade 7), was characterized by low monitoring,

Table 2
Fit indices for LTA models across Grade 6 to Grade 7 (selected solution in bold).

Number of patterns	Log L	aBIC	BIC	Entropy	Group sizes in Grade 6	Group sizes in Grade 7
1	–	–	–	–	–	–
2	–10355.13	20802.72	20888.45	0.813	446, 213	401, 258
3	–10130.53	20384.35	20498.66	0.809	353, 205, 177	325, 199, 211
4	–10010.39	20195.42	20357.36	0.810	213, 165, 284, 73	205, 195, 265, 70
5	–10035.88	20246.41	20408.35	0.758	179, 345, 106, 25, 80	166, 286, 196, 32, 55

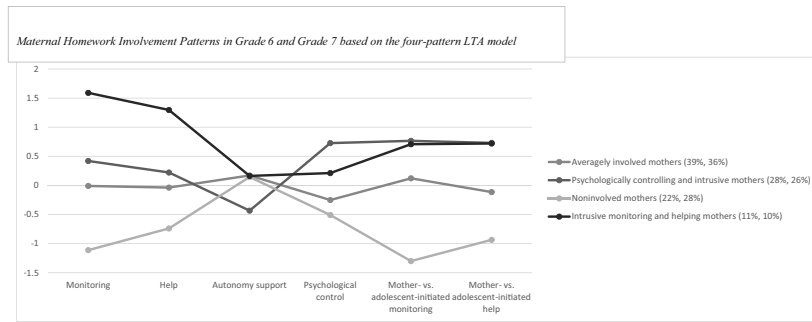


Fig. 1. Maternal homework involvement patterns in Grade 6 and Grade 7 based on the four-pattern LTA model.

help, psychological control, and initiative from mothers in monitoring and help, and average levels of autonomy support. Finally, the *intrusive monitoring and helping pattern* (11% Grade 6, 10% Grade 7), was characterized by high monitoring, help, and initiative from mothers in monitoring and help, and average levels of psychological control and autonomy support.

Latent transition probabilities are presented in Table 3. Stabilities and transitions in patterns between Grades 6 and 7 are presented in Fig. 2. Overall, maternal homework involvement patterns were quite stable across Grade 6 to Grade 7 (Table 3). The psychologically controlling and intrusive pattern was the most stable pattern with a 91% chance of remaining in that pattern across Grades 6 to 7. In contrast, the averagely involved pattern and noninvolved pattern were the least stable patterns across Grades 6 to 7 with a 77% and 75% chance of remaining in those particular patterns. Despite the strong stabilities, some statistically significant changes in patterns were also detected (Fig. 2). For example, mothers in the noninvolved pattern in Grade 6 had the highest likelihood to transition to the averagely involved pattern in

Grade 7. In turn, mothers in the averagely involved pattern in Grade 6 had the highest likelihood to transition to the noninvolved pattern in Grade 7.

3.2. The role of adolescents' task avoidance and prior achievement in maternal homework involvement patterns

Finally, to answer the third research question, adolescents' task-avoidance and prior achievement were added as predictors in the final LTA model to predict homework involvement pattern membership probability in Grade 6 as well as the transition probabilities between different patterns from Grade 6 to Grade 7. Betas and odds ratios with 95% confidence intervals of the multinomial logistic regression analyses are presented in Table 4. The results showed first that adolescents' task avoidance predicted maternal involvement patterns in Grade 6: The more adolescents showed task avoidance in homework situations, the more likely their mothers were to be in the psychologically controlling and intrusive pattern or in the intrusive monitoring and helping pattern in Grade 6 relative to the noninvolved pattern. Second, adolescents' task-avoidance predicted one maternal pattern longitudinally from Grade 6 to Grade 7: The more adolescents showed task avoidance in homework situations, the more likely their mothers were to stay in the intrusive monitoring and helping pattern from Grade 6 to Grade 7 compared to the noninvolved pattern.

The results also showed that adolescents' prior achievement predicted maternal involvement patterns in Grade 6 (Table 4). First, the better adolescents achieved, the more likely their mothers were to be in the noninvolved pattern in Grade 6 relative to the averagely involved pattern. Second, the better adolescents achieved, the less likely their mothers were to be in the intrusive monitoring and helping pattern in Grade 6 relative to the noninvolved pattern. Finally, adolescents' prior achievement predicted the maternal pattern longitudinally from Grade 6 to Grade 7: The better adolescents achieved, the less likely their mothers were to stay in the psychologically controlling and intrusive pattern longitudinally from Grade 6 to Grade 7 relative to the noninvolved pattern.

Regarding control factors (mothers' education and adolescent gender), only one significant result was found: Mothers with boys were more likely to show an intrusive monitoring and helping pattern in Grade 6 than they were to show a noninvolved pattern ($b = 1.23, SE =$

Table 3
Latent transition probabilities of the four-pattern LTA model from Grade 6 to Grade 7.

Grade 6	Grade 7			
	Averagely involved mothers	Psychologically controlling and intrusive mothers	Noninvolved mothers	Intrusive monitoring and helping mothers
Averagely involved mothers	0.77	0.02	0.22	0.01
Psychologically controlling and intrusive mothers	0.01	0.91	0.06	0.02
Noninvolved mothers	0.24	0.00	0.75	0.01
Intrusive monitoring and helping mothers	0.07	0.00	0.05	0.88

Note. Bold values indicate probability of remaining in that particular pattern from Grade 6 to Grade 7.

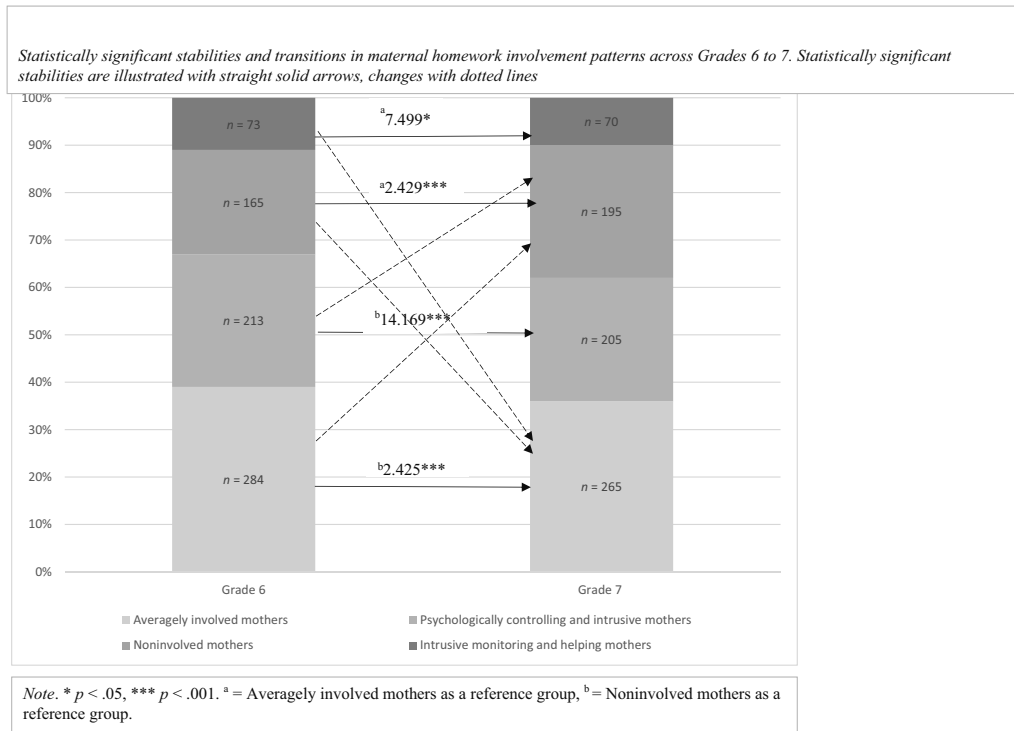


Fig. 2. Statistically significant stabilities and transitions in maternal homework involvement patterns across Grades 6 to 7. Statistically significant stabilities are illustrated with straight solid arrows, changes with dotted lines.
 Note. * $p < .05$, *** $p < .001$. ^a = Averagely involved mothers as a reference group, ^b = Noninvolved mothers as a reference group.

Table 4
 Multinomial logistic regression analyses with adolescent task avoidance and prior academic achievement as predictors of maternal homework involvement patterns in Grade 6 and transitions between patterns from Grade 6 to Grade 7. Statistically significant results are bolded.

Predictor	Averagely involved mothers		Noninvolved mothers		Psychologically controlling and intrusive mothers		Intrusive monitoring and helping mothers	
	b (SE)	OR with 95% CI	b (SE)	OR with 95% CI	b (SE)	OR with 95% CI	b (SE)	OR with 95% CI
Grade 6								
Adolescent task avoidance	^b -0.07 (0.33)	0.93 (0.49, 1.76)	^a 0.07 (0.35)	1.07 (0.54, 2.13)	^b1.38***	3.97 (1.89, 8.37)	^b1.52***	4.58 (2.13, 9.82)
Adolescent prior academic achievement	^b-0.68**	0.51 (0.33, 0.78)	^a0.68**	1.98 (1.29, 3.03)	^b -0.49 ⁺ (0.26)	0.61 (0.37, 1.03)	^b-1.18***	0.31 (0.19, 0.51)
From Grade 6 to Grade 7								
Adolescent task avoidance	^b 0.18 (0.32)	1.20 (0.65, 2.21)	^a -0.21 (0.36)	0.81 (0.40, 1.66)	^b 1.64 (1.03)	5.15 (0.68, 38.85)	^b1.88* (0.96)	6.56 (1.01, 42.83)
Adolescent prior academic achievement	^b -0.10 (0.30)	0.91 (0.51, 1.62)	^a 0.08 (0.31)	1.09 (0.60, 1.98)	^b-1.69*	0.19 (0.04, 0.78)	^b -1.04 (0.79)	0.35 (0.08, 1.65)

Note. ⁺ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$. ^a = Averagely involved mothers as a reference group, ^b = Noninvolved mothers as a reference group.

0.46, $p < .01$, OR = 3.43; 95% CI [1.40, 8.39]).

4. Discussion

Even though parental involvement is a multifaceted construct (Grolnick & Slowiaczek, 1994), previous studies have rarely examined different combinations of homework involvement dimensions. We aimed to identify patterns of maternal homework involvement based on the quantity (monitoring and help), quality (autonomy support and psychological control), and source of initiative (adolescent-initiated vs. mother-initiated monitoring and help), and found four relatively stable

maternal homework involvement patterns among the mothers of Finnish sixth- and seventh-grade adolescents: averagely involved, psychologically controlling and intrusive, noninvolved, and intrusive monitoring and helping. The results showed further that the higher adolescents' task avoidance was, the more likely their mothers were to demonstrate the psychologically controlling and intrusive pattern or the intrusive monitoring and helping pattern than they were the noninvolved pattern. In contrast, the better achievement adolescents showed, the more likely their mothers were to demonstrate the noninvolved pattern instead of the intrusive monitoring and helping pattern or the psychologically controlling and intrusive pattern. These results suggest that mothers

react somewhat differently to adolescents' motivational and academic problems. Taken together, some mothers may benefit from more knowledge of how to be involved in adolescents' homework in a more supportive manner during the educational transition.

The aim of our study was to identify what kind of patterns mothers show in their homework involvement during the transition to lower secondary school. In addition, the stability and change in maternal homework involvement patterns and the extent to which adolescents' task avoidance and prior achievement predicted the stability and change between these patterns across the transition was examined. In line with our expectations and previous findings (Lara & Saracostti, 2019; Moroni et al., 2016), we found a relatively large pattern, from 36% (Grade 7) to 39% (Grade 6), of mothers with average levels of all involvement practices. These results support previous findings (Exeler & Wild, 2003) by suggesting that the majority of mothers use similarly both supportive and controlling involvement practices when involving themselves in adolescents' homework. Second, in line with previous studies (Lara & Saracostti, 2019; Moroni et al., 2016) and our expectations, we found a pattern of noninvolved mothers (22% in Grade 6 and 28% in Grade 7) characterized by low levels of monitoring, help, psychological control, and initiative from mothers in monitoring and help, and average levels of autonomy support. The main difference between these patterns lies in the relationship between autonomy supportive and controlling involvement practices: While the averagely involved mothers used similarly both autonomy support and self-initiated and controlling involvement practices, the noninvolved mothers exhibited more autonomy support than self-initiated and controlling involvement practices. Following SDT (Ryan & Deci, 2017), mothers who are more autonomy supportive than controlling in homework situations may better satisfy adolescents' needs to be autonomous, competent, and connected with others. In turn, average levels of maternal self-initiated and controlling involvement practices may, however, threaten the satisfaction of adolescents' needs for autonomy, competence, and relatedness when they are accompanied with only average levels of autonomy support (Moroni et al., 2016; Ryan & Deci, 2017).

The results showed further that adolescents' prior achievement predicted the mothers' averagely involved pattern and the noninvolved pattern but only before the educational transition. Consistent with our expectations and previous variable-oriented studies (Cooper et al., 2000; Dumont et al., 2014), the higher adolescents' achievement was, the more likely their mothers were to show the noninvolved pattern than the averagely involved pattern in Grade 6. This would suggest that when adolescents are achieving well in primary school, mothers trust in their abilities to do homework independently and are less likely to exhibit high controlling and self-initiated involvement practices and more likely to support adolescents' autonomy (Cooper et al., 2000; Viljaranta et al., 2018). Even though noninvolved mothers showed the lowest likelihood to exhibit similar behaviors before and after the transition (i.e., stability), the prevalence of this pattern somewhat increased from Grade 6 (22%) to Grade 7 (28%). This can be explained by the fact that, following our expectations and variable-oriented research (Cooper et al., 2000; Gonida & Cortina, 2014), some mothers from the averagely involved pattern in Grade 6 moved to the noninvolved pattern in Grade 7. Interestingly, mothers in the averagely involved pattern in Grade 6 had approximately a similar likelihood to move to the noninvolved pattern in Grade 7, which might suggest that these patterns are somewhat relative to one another. There may be several reasons for these transitions. For example, mothers who transition to the noninvolved pattern may think that adolescents should take care of their homework by themselves or may be concerned that their involvement is perceived as controlling by the adolescents. Consequently, the mothers may decrease their self-initiated and direct involvement practices and provide more autonomy when adolescents move from primary to lower secondary school (Silinskas et al., 2015; Silinskas & Kikas, 2019). On the other hand, adolescents may also show fewer invitations for maternal homework involvement or mothers themselves may perceive fewer

normative expectations for homework involvement, which may also decrease their self-initiated and direct involvement practices (Green et al., 2007; Wei et al., 2019). In turn, the mothers who transition to the averagely involved pattern may have lower beliefs in adolescents' abilities to do more difficult homework assignments independently in lower secondary school (Gonida & Cortina, 2014; Hyde et al., 2006) and may react to this by somewhat increasing their controlling and self-initiated involvement.

We also found two highly stable and essentially different controlling and intrusive maternal homework involvement patterns from Grade 6 to Grade 7. Consistent with our expectations and previous findings of parenting patterns (Dwairy et al., 2013), the third pattern we found, called psychologically controlling and intrusive mothers (28% in Grade 6 and 26% in Grade 7), was characterized by high levels of monitoring, help, psychological control, and high initiative from mothers in monitoring and help alongside low levels of autonomy support. Furthermore, the fourth pattern of intrusive monitoring and helping mothers (11% in Grade 6 and 10% in Grade 7) was characterized by high levels of monitoring, help, and initiative from mothers in monitoring and help, and average levels of psychological control and autonomy support. The main difference between these two patterns lies in the level of psychological control and autonomy support: The psychologically controlling and intrusive mothers were overusing dominating, pressuring, and self-initiated involvement practices and, at the same time, providing very little support for adolescents' autonomy. The intrusive monitoring and helping mothers, in turn, were highly monitoring and were helping adolescents with their homework on their own initiative but without highly intruding on adolescents' psychological world but were nevertheless providing some support for adolescents' autonomy. One possible explanation for the differential role of psychological control in these maternal homework involvement patterns may be related to mothers' parenting style: Mothers who exhibit high levels of psychological control in homework situations may also be more psychologically controlling in other situations (Darling & Steinberg, 1993). Following SDT (Ryan & Deci, 2017), high self-initiated and psychologically controlling involvement practices together with low autonomy support may be particularly detrimental for adolescents' needs for autonomy, competence, and relatedness due to such involvement practices restricting their self-expression, initiative, and sense of mastery and increasing their emotional dependence on their mother (Barber, 1996; Chorpita et al., 2016; Grolnick & Pomerantz, 2009). By contrast, mothers who are highly monitoring and helping adolescents with their homework by their own initiative without high intrusion on adolescents' psychological world, may nevertheless, despite providing some level of autonomy support, threaten adolescents' initiative, imply mothers' mistrust in their abilities, and cause friction in the adolescent-mother relationship which, in turn, may lead to adolescents' decreased sense of autonomy, competence, and relatedness (Pomerantz & Grolnick, 2017; Ryan & Deci, 2017; Soenens & Vansteenkiste, 2010).

Overall, the results showed that the psychologically controlling and intrusive pattern and the intrusive monitoring and helping pattern were highly stable across the transition and that these stabilities were predicted by adolescents' task avoidance and prior achievement. Consistent with our expectations and previous variable-oriented studies (Dumont et al., 2014; Viljaranta et al., 2018), the higher adolescents' task avoidance was, the more likely their mothers were to display the psychologically controlling and intrusive pattern in Grade 6 or the intrusive monitoring and helping pattern across the transition than the noninvolved pattern. These results would indicate that mothers respond to adolescents' lack of persistence in a somewhat different manner (see also Hayes & Berthelsen, 2020). Mothers who exhibit the psychologically controlling and intrusive pattern may perceive that adolescents are not putting enough effort into their homework, which they respond to by pressuring and expressing their disappointment in the interactions with their children along with demonstrating high self-initiated monitoring and help (Barber, 1996; Dumont et al., 2014). In turn, mothers who

show the intrusive monitoring and helping pattern longitudinally may perceive adolescents' lack of persistence as a sign of inability, which they respond to by utilizing high self-initiated monitoring and help (Kikas & Silinskas, 2016).

Moreover, the results showed, consistent with previous findings (Dumont et al., 2014; Silinskas & Kikas, 2019), that the poorer adolescents' achievement was, the more likely their mothers were to demonstrate the intrusive monitoring and helping pattern in Grade 6 or the psychologically controlling and intrusive pattern across the transition than the noninvolved pattern. These results can be well understood because, at the mean level, mothers in the psychologically controlling and intrusive pattern had adolescents who achieved more poorly in Grade 6 compared with adolescents whose mothers showed the intrusive monitoring and helping pattern. Overall, these findings would suggest that mothers of low-achieving adolescents may have been worried about their children's performance and were therefore more likely to apply either high self-initiated monitoring and help or high psychological control and self-initiated involvement longitudinally (Grolnick, 2003; Silinskas et al., 2015).

Despite high stabilities, some mothers in the psychologically controlling and intrusive pattern and in the intrusive monitoring and helping pattern decreased their high controlling and self-initiated involvement practices after the educational transition. To be more specific, a few mothers from the psychologically controlling and intrusive pattern in Grade 6 moved to the noninvolved pattern in Grade 7. Similar movements were detected from the intrusive monitoring and helping pattern in Grade 6 to the averagely involved pattern in Grade 7. These results would suggest that after the school transition, some mothers may become more sensitive to adolescents' developmental needs (Eccles et al., 1993) and support adolescents' heightened need for autonomy (Ryan & Deci, 2017).

4.1. Limitations and future directions

When interpreting the results of this study, there are some limitations that should be taken into account. First, we examined patterns of homework involvement only among mothers. In future studies, it would be advisable to also investigate fathers' homework involvement patterns as well as to examine possible differences in the patterns of maternal and paternal homework involvement. Second, homework involvement measures were based on mothers' perceptions because only mother-rated quantity, quality, and source of initiative measures were available. There is some evidence to suggest that mothers and adolescents experience the quality of homework involvement differently (Cheung et al., 2016; Su et al., 2015). As a consequence, future studies should consider using both adolescents' and parents' perceptions in homework involvement patterns. Third, the influence of mothers' marital status was not controlled for in the analyses because such information was not available. Thus, future studies should consider controlling the effects of contextual factors on mothers' homework involvement patterns (see Belsky, 1984). Fourth, we studied maternal homework involvement patterns in a Finnish educational and cultural context, which should be taken into account when generalizing these results to other countries and school systems. Fifth, we did not examine the achievement-related and motivational outcomes of maternal homework involvement patterns. Due to previous research showing mixed results for the significance of parental homework involvement especially in the adolescence period (Hill & Tyson, 2009; Patall et al., 2008), more studies are needed to increase understanding of the effects of maternal homework involvement patterns on children's and adolescents' motivation and achievement. In this study, maternal homework involvement patterns were examined during the educational transition to lower secondary school. We assume mothers have developed their involvement patterns during earlier primary school years. By following maternal homework involvement patterns over a longer period, more changes in patterns may be observed.

4.2. Conclusions and practical implications

Despite its limitations, this study provided novel understanding of the patterns of maternal homework involvement during adolescents' educational transition. Based on three central aspects of homework involvement (i.e., the quantity, quality, and source of initiative), the results identified four relatively stable maternal homework involvement patterns in Grades 6 and 7, which would suggest that the majority of the mothers use similar combinations of supportive and controlling involvement practices before and after the transition. The results of this study add to variable-oriented research by showing that mothers react somewhat differently to adolescents' lack of persistence and poor achievement and that some of these maternal behaviors are more stable than others.

The results of the present study suggest that mothers would benefit from knowledge and concrete tools on how to support adolescents in an optimal way during the transition to lower secondary school. These would include being sensitive and responsive to adolescents' developmental challenges and satisfaction of the psychological needs. In practice, approaching situations in an autonomy-supportive manner could be recommended (see Moè et al., 2018; Soenens & Vansteenkiste, 2010). In addition, as mothers seem to be responsive to adolescents' characteristics, more support should be provided to mothers whose adolescents are experiencing motivational and academic struggles. Consequently, strong family-school partnership between parents and school personnel (teachers, school psychologists, and counselors) may prove to be useful when trying to increase mothers' knowledge of how to provide optimal assistance with homework during the educational transition (Harris & Goodall, 2008).

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Declaration of competing interest

None.

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