



The role of parents' motivation in students' autonomous motivation for doing homework

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ABSTRACT

The present research employed Self-Determination Theory as a theoretical framework for investigating the role of parents in the quality of the motivation that students adopt towards homework. One hundred and thirty five dyads of 4th grade Jewish-Israeli children and one of their parents responded to surveys. The findings indicated that parents' behavior that supported the children's psychological needs was positively related to the children's autonomous motivation for doing homework. Parents' need-supportive behavior was associated with parents' own autonomous motivation for involvement in helping with homework – i.e., parents' identification with the importance of such involvement – with parents' competence beliefs, and with parents' positive attitudes towards the task of homework. The findings highlight the role of type of parents' involvement with their children's homework in the children's motivation toward homework, and of parents' own type of motivation for this task in the quality of their involvement.

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1. Introduction

Students have been required to supplement their learning in school by doing homework ever since the mid-nineteen century (Gill & Schlossman, 2004; Gordon, 1980). Research also indicates that policy-makers, administrators, teachers, and parents perceive homework as important for learning and achievement (Gill & Schlossman, 2004; Van Voorhis, 2004; Warton, 2001; Wiesenthal, Cooper, Greenblatt, & Marcus, 1997; Xu & Yuan, 2003). Yet, interestingly, as a topic of research, homework has been rather neglected (Murray et al., 2006; Trautwein & Köller, 2003). Moreover, commonly, rather than contributing to learning and achievement, homework constitutes a stressful issue among many parents and students (Coutts, 2004; Levin et al., 1997; Margolis, McCabe, & Alber, 2004). Hence, research is required for identifying processes and practices that could facilitate more adaptive engagement in homework.

Unfortunately, research indicates that many students engage in homework assignments not because of adaptive motivation such as interest or excitement about the task, but rather because of less adaptive motivations such as a sense of duty, desire to please, and avoidance of punishment (Walker, Hoover-Dempsey, Whetsel, & Green, 2004). Research suggests that these types of motivations are less desirable than motivation that is based on interest, enjoyment, and the purpose to learn and understand (Ames, 1992; Ryan & Deci, 2000).

Homework is a unique academic task in that it is administered at school but is conducted at home. Yet, relatively few studies have investigated the role of the home environment in students' motivation for homework. In the present study, we evaluated the role of parents in the type of motivation that students adopt for homework. More specifically, we tested a theoretical model that suggests that parents' characteristics are related to their behavior when interacting with their children around homework, which in turn, is related to their children's motivation for doing homework. Self-determination theory (Ryan & Deci, 2000) – a humanistic perspective on motivation and adaptive development – provides the theoretical framework for this study.

1.1. The self-determination perspective on students' motivation to learn

In the past three decades, research findings have emphasized the importance of students' motivation for their experience and performance in school (Alonso-Tapia & Pardo, 2006; Eccles, Wigfield, & Schiefele, 1998; Pintrich & Schunk, 2002; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004; Vansteenkiste, Simons, Lens, Soenens, & Matos, 2005). Results from studies employing experimental, correlational and qualitative methods have converged on the finding that when students engage in academic tasks out of intrinsic reasons such as interest, enjoyment, and the purpose to learn and understand, they engage more meaningfully, regulate their learning, achieve higher grades, retain the material, and manifest higher well-being than when they engage in academic tasks out of more extrinsic reasons such as a desire to please others, to demonstrate ability, to avoid feeling incapable, or to avoid punishment (Ames, 1992; Bouffard, Marcoux,

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Vezeau, & Bordeleau, 2003; Coutts, 2004; Grolnick, Ryan, & Deci, 1991; Hardre & Reeve, 2003; Midgley, 2002; Vansteenkiste et al., 2004, 2005.

One of the primary theoretical frameworks of motivation that has been applied to educational settings is self-determination theory (SDT). SDT (Deci & Ryan, 1985, 2000) is a macro theory of human motivation concerned with the development and functioning of personality within social contexts. The theory specifies a continuum of motivational orientations for activities, ranging from extrinsic/controlled regulation (engagement out of coercion or for achieving a reward), to intrinsic/autonomous motivation (engagement out of pleasure, interest, and enjoyment). Research results are quite consistent in suggesting that the more autonomous the motivation – or the locus of regulation of action – the higher the quality of engagement and the well-being of the student (Deci & Ryan, 2000).

SDT emerged from a humanistic perspective on human motivation. According to this theory, there are three basic human psychological needs – for autonomy, relatedness, and competence – that when satisfied enhance autonomous motivation and lead to autonomous internalization of behaviors of initial extrinsic origin (Ryan & Deci, 2000). The satisfaction of the three psychological needs depends on the support for these needs that is provided by the environment. Thus, unlike early need-based theories of motivation, which viewed motivation as an individual-difference characteristic that is mostly determined by personality or developmental processes (e.g., McClelland, 1961), SDT views motivation as dependent on context, and has been emphasizing the role of the environment in motivational change (Ryan & Deci, 2000). Hence, SDT assigns a primary role to significant others (e.g., teachers and parents) in providing support for children's psychological needs that contributes to the internalization of their motivation for activities (Assor, Kaplan, & Roth, 2002; Deci & Ryan, 1985; Furrer & Skinner, 2003; Katz, Kaplan, & Guetta, 2010; Reeve & Jang, 2006; Vallerand, Fortier, & Guay, 1997).

1.2. Parents' involvement in their children's education

Generally, parental involvement in their children's education is considered to be desirable. However, findings concerning the relations of parent involvement with students' outcomes are not ubiquitous. Whereas many studies found parental involvement to be positively related to adaptive student outcomes (e.g., Hill & Craft, 2003; Hoover-Dempsey & Sandler, 1995, 1997; Walker et al., 2004), other studies did not find such relations (e.g., Chen & Stevenson, 1989; Levin et al., 1997), and some studies even found indication of possible harm of parental involvement to students' achievement and well-being (e.g., Larson & Gillman, 1999; Nolen-Hoeksema, Wolfson, Mumme, & Guskin, 1995).

One possible reason for the inconsistent findings in research on parental involvement is the different definitions of the involvement and the outcome variables. Some researchers have defined involvement as parents' behavior at home (e.g., helping with homework), while other researchers have looked at parents' behavior at school (e.g., attending school events) or at parent-teacher interaction (Hoover-Dempsey et al., 2001). Similarly, some researchers have focused on the relations of parental involvement with students' achievement (e.g. Epstein & Van Voorhis, 2001; Pomerantz, Grolnick, & Price, 2005), while others have focused on students' well-being (e.g. Grolnick et al., 1991; Hoover-Dempsey et al., 2001), drop-out rates, and participation in advanced courses (Ma, 1999; Trusty, 1999).

About a decade ago, Hoover-Dempsey and Sandler (1995, 1997) responded to the scattered nature of the literature by proposing a theoretical model of the parental involvement process. The model, which was later revised by Walker, Wilkins, Dallaire, Sandler, and Hoover-Dempsey (2005), emphasizes parents' characteristics including parents' motivational beliefs of role construction and self-competence, parents' perceived invitation for involvement by others,

and parents' perceived life context such as availability of time and energy, skills, and knowledge. These characteristics were described as affecting various parents' involvement types, which in turn affects students' outcomes such as skills, knowledge, and self-competence. This theoretical model is said to present a “framework for examining the relation between parents' subjective involvement experiences and their actual involvement in children's schooling” (Walker et al., 2005, p. 100). The model provided a significant advancement in conceptualizing parents' involvement in children's schooling. Yet, the authors realized that the model was an initial framework that required further conceptual and empirical elaboration (Green, Walker, Hoover-Dempsey, & Sandler, 2007; Hoover-Dempsey et al., 2005).

In the present study, we suggest that an important aspect that could enhance the explanatory power of the parent involvement model is the conceptualization of parental involvement along the autonomous-controlled distinction emphasized by SDT. More specifically, we suggest that when parental involvement is perceived by students to be autonomy-supportive it will be related to adaptive outcomes such as high quality motivation to schoolwork. We investigate this hypothesis in the context of homework.

1.3. Parents' involvement in homework

Similar to research on general parental involvement, research on parental involvement in homework finds inconsistent relations (Forsberg, 2007; Patall, Cooper, & Robinson, 2008; Pomerantz, Moorman, & Litwack, 2007; Sharp et al., 2001). Some studies found positive relations of parents' involvement in homework with students' outcomes such as academic ability (e.g., Goldenberg, 1989; Hewison, 1988), while other studies did not (e.g., Pezdek, Berry, & Renno, 2002).

The findings regarding the relations of parental involvement and student outcomes, generally and in homework, may suggest that rather than the *level* of parental involvement, it is the quality or the type of involvement that would influence students' outcomes (Cooper, Lindsay, & Nye, 2000; Grolnick & Ryan, 1989; Patall et al., 2008; Pomerantz et al., 2007). Theory and research on parenting suggest that different types of parental involvement produce different types of parent-child interactions and hence different emotional outcomes. For example, Gonzalez, Holbein, and Quilter (2002) found that different parenting styles were associated with different motivational emphases to children and with different achievement goal orientations. Authoritative parenting style, which combines high expectations and demands with high warmth and support, was associated with mastery goals (the orientation to learn and understand). In contrast, authoritarian and permissive parenting styles, which are characterized by high demands with no warmth and by low demands and high warmth, respectively, were associated with performance goals (the orientation to demonstrate competence or avoid demonstrating incompetence).

Similarly, parents' involvement that included support for the child's autonomy through valuing and encouraging independent problem-solving, choice, and participation in decision-making was positively related to students' effort (Gonzalez-DeHass, Willems, & Doan Holbein, 2005), standardized test scores, higher teacher assigned grades, and more homework completed (Cooper et al., 2000), whereas involvement that is controlling was negatively related to these outcomes. Pomerantz et al. (2007) suggested that “how” parents get involved with their children's homework determines to a large extent the success of this involvement. These authors emphasized four dimensions that characterize the quality of parents' involvement in homework: autonomy support vs. control, process vs. person focus, positive vs. negative affect, and positive vs. negative beliefs about children's potential. They suggested that parents' involvement may be particularly beneficial for children when it is

autonomy supportive, process focused, characterized by positive affect, and accompanied by positive beliefs.

The above studies suggest that the quality of parents' involvement in their children's homework may be more important than the quantity of this involvement. However, whereas these studies have contributed extensively to the understanding of the dimensions that explain quality of parental behavior, they do not provide a comprehensive theoretical framework that may help conceptualize the complex processes relating parental motivational characteristics and practices with students' outcomes. In the current study we suggest that self-determination theory may provide such a theoretical framework. Employing the SDT perspective, we argue that these findings can be interpreted to suggest that parental involvement that provides support for students' basic psychological needs of autonomy, competence, and relatedness contributes to adaptive processes that manifest in desirable outcomes such as investment of effort and achievement.

Parental behavior that supports the child's need for of autonomy includes behaviors such as showing understanding for the child's perspective, providing a relevant rationale for the task, offering choice, and legitimizing the child's negative affect and criticism. Behaviors that support the child's need for competence include setting optimally challenging goals, helping to plan the work, and providing informative and non-comparative feedback. Behaviors that support the child's need for relatedness include acceptance and empathy and minimizing social comparisons and competition (Reeve, 2009).

In the current study, we hypothesize that parental involvement that is need-supportive would be related to students' autonomous motivation for engagement in homework—a type of motivation that has been shown to be beneficial for learning, achievement, and increased interest in the material (Gurland & Grolnick, 2005; Katz et al., 2010; Ryan & Deci, 2000). In line with assumptions of SDT, we conceptualize autonomous motivation as an outcome that is primarily related to environmental conditions, rather than as an individual-difference independent variable that contributes to achievement alongside parents' involvement (cf. Epstein, 1983; Pomerantz & Eaton, 2001; Schunk, Pintrich, & Meece, 2007).

Accordingly, in the current study we focus on environmental characteristics that may promote students' autonomous motivation for homework. Specifically, we attend to parental characteristics. Studies that investigated the role of parents in their children's academic motivation generally support the role of parents' characteristics, such as education, income, and self-competence, in the quality of their interaction with their children, which in turn has been related to the children's academic motivation and achievement (e.g., Turner & Johnson, 2003). However, research is still needed in order to identify the parental characteristics that are associated with more adaptive types of parental involvement which, in turn, contribute to more adaptive student motivation for homework (Cooper et al., 2000; Pomerantz, Fei-Yin, & Wang, 2006; Walker et al., 2004). The present study aims to investigate such parental characteristics.

1.4. Parental characteristics and their influence on parental need-supportive behavior

SDT (Ryan & Deci, 2000) suggests that parental behavior that promotes children's adaptive motivation would support the child's psychological needs of autonomy, competence, and relatedness. A question that was not examined previously is what differentiates parents who do support their children's needs and those who do not? In other words, we ask what characterizes parents who behave in a need supporting way? In the current study we focus on parental characteristics that the literature identifies as likely to promote need-supportive behavior in the context of homework: parents' perceived competence, parents' attitudes towards or valuing of the task of

homework, and parents' own type of motivation towards involvement in their child's homework.

Perceived competence is a central motivational construct which affects the level and quality of engagement in behavior (Bandura, 1997; Deci & Ryan, 2000). Parents' perceived competence in helping their children has been found to be related to their level and type of involvement with their child (Turner & Johnson, 2003). Parents with low perceived competence tend to engage in negative self-thoughts about their interaction with their child and manifest less attention and lower problem-solving skills when engaged with the child's task (Jackson, 2000). Unfortunately, there is some evidence that many parents do not feel competent to help their children with homework, even in the early grades (Murray et al., 2006). This low perceived competence may lead parents to avoid helping their children with homework and to behave in ways that may be detrimental to the child's motivation. In contrast, high perceived competence for involvement in homework may lead parents to be more comfortable in their involvement, behave more warmly towards the child, and be less controlling and more facilitative of the child's competence in the task. Therefore, we hypothesized that parents' perceived competence for involvement in homework, would be related to their need-supportive behavior in homework, which in turn will be related to students' adaptive motivation for homework.

Parents' attitude towards or valuing of the homework is likely to affect their level and quality of involvement in helping their child and thus affect the child's motivation. Hoover-Dempsey and Sandler (1997) suggested that parental attitudes towered their parental role influence their involvement in their child's education and eventually their child's psychological well being and academic performance. Friedel, Hruda, and Midgley (2001) found that parents' values and goals for schoolwork were associated with students' motivational orientations towards school. Most relevant to the current study, Cooper, Lindsay, Nye, and Greathouse (1998), found that positive parental attitudes towards homework (i.e., parental beliefs that homework contributes to the child's learning) were associated with more frequent homework persistence by the student and with higher grades in elementary school. Parental attitudes towards homework were also directly related to the student's positive attitudes and consistency in engagement in homework. Parents' positive attitudes towards homework are likely to be associated with parental emphasis on the importance of homework. When parents believe that homework is worth doing for its own sake, and not just because of conforming to school requirements, they are more likely to emphasize this rationale to their children and thus promote more autonomous reasons for engagement in homework (Assor et al., 2002). Moreover, such positive attitudes are likely to promote parental willingness to help their child with homework and to be associated with helping to structure working on homework at home — behavior that may support the child's need for competence.

Finally, parents' own type of motivation to be involved in homework is likely to be associated with their need-supportive behavior towards their child, and in turn to the child's type of motivation for homework. Deci and Ryan (1985, 2000) suggested that engagement in action out of intrinsic/autonomous motivation is associated with positive emotion and little stress. Parents who engage in helping their children in homework because they find it interesting, enjoyable, and valuable are likely to manifest this enjoyment and behave in ways that would support the child's needs for relatedness, competence and autonomy.

In summary, we hypothesize that parents' higher perceived competence, more positive attitudes towards the homework task, and higher autonomous motivation to getting involved in helping their children with homework would be positively related to these parents' need-supportive behavior. Moreover, we hypothesize that parents' need-supportive behavior would be, in turn, positively related to the children's autonomous motivation for homework. Our hypotheses are summarized in graphical form in Fig. 1.

2. Method

2.1. Participants

Participants included one hundred and thirty five dyads of 4th grade Jewish students (60 males and 75 females) and one of their parents (27 fathers and 108 mothers). The participating students were studying in two elementary schools located in one middle SES and one middle-high SES suburban neighborhoods in the southern part of Israel. This number represents 53% of the 4th grade students in the schools, which is a relatively high response rate for a study involving parental response on surveys through mail. Parental response rate was similar in the two schools, contributing to the confidence that the two SES groups were equally represented in the study.

Most Israeli students attend relatively small neighborhood elementary schools, with 2 to 4 classes in each grade-level with an average of 35 students per class. Homework is assigned in almost every lesson in the school. In the current sample, 60% of the parents reported that their children spend between 30 min to over an hour on homework every day. Only 11% of the parents indicated that their children spend less than 15 min a day on homework every day. Homework assignments vary in different lessons and range from worksheets to personal projects. While homework does not receive a separate grade, its satisfactory completion comprises a significant element in the students' evaluation. Parents are expected to be involved in their children's homework completion. However, there is no formal procedure for such involvement and practices vary among schools. In the current sample, over 60% of the parents reported being involved with their children's homework at least once a week, and 35% indicated being involved more than once a week or every day. Only 4% indicated that they are not involved in their children's homework.

2.2. Procedure

Permission to administer surveys to students and their parents was granted by the Israeli Ministry of Education, the school administration, and students' parents. Students responded to surveys during school-time in their classrooms. No teachers were present during administration. Research assistants explained to students that the purpose of the survey was to understand more about their attitude toward homework. Students were guaranteed confidentiality and were asked not to write their names on the survey. After a practice item, students read the survey and were given time to respond. They were also encouraged to ask questions about any item that they found to be unclear.

After a student had completed the survey, the research assistant marked the survey with a serial number and gave the student a sealed envelope with surveys to take home to their parents. These surveys were marked with the same serial number, which allowed matching their responses to those of their child without any names being indicated. Both parents of each student were asked to complete the surveys at home, but only the survey of the parent that was reported by the student as more involved in homework was used in the current study. Parents were encouraged to call the researcher with questions about any item that they found to be unclear.

2.3. Measures

Responses on all items were on a 5-point Likert scale ranging from 1 (not at all) to 5 (very much). All the measures were based on existing measures previously published. However, several measures were modified to focus on homework. Moreover, items were added to the measures in order to address the specific context of homework. Finally, most measures were not available in Hebrew and were

translated to Hebrew and independently back translated to English by bi-lingual researchers in order to guarantee that the meaning of the items was maintained. Due to the changes in the measures, we conducted exploratory factor analyses (EFAs) on all measures. All exploratory factor analyses were conducted with maximum likelihood extraction and with an oblique rotation because the factors were expected to correlate with each other. A combination of Eigen value greater than 1 and a visual Scree test were used to determine the number of factors in each analysis.

2.3.1. Students' motivation for homework

Students' motivation for homework was assessed with 19 items constructed according to the approach developed by Ryan, Connell, and their colleagues (Grolnick et al., 1991; Grolnick & Ryan, 1989; Ryan & Connell, 1989). Items were phrased to focus on homework. Participants indicated the extent to which they are engaged in homework out of autonomous reasons (identified or intrinsic reasons that reflect endorsing the value of the task or enjoying doing it; e.g., "I do homework in order to improve my understanding in this subject"; "I do my homework because it is fun") or controlled reasons (external or introjected forces or pressures, e.g., "I do my homework because I want to get a better grade"; "I do my homework because I'll feel ashamed if the teacher will find out I didn't do it").

Results of the EFA indicated that the items loaded on two distinct factors which accounted for 53% of the variance. Items loaded on their expected factors with no cross-loading over .30 on the other factor. The first factor accounted for 32% of the variance, and included 11 items assessing students' engagement in homework out of intrinsic/autonomous reasons ($\alpha = .93$) with loadings ranging from .54 to .86. The second factor accounted for 21% of the variance and included 8 items assessing students' engagement in homework out of extrinsic/controlled reasons ($\alpha = .88$) with loadings ranging from .57 to .77. The two factors were not correlated. As the purpose of this study is to investigate the process in which parents' behaviors are related to students' adaptive type of motivation to homework, we decided in this particular study to focus on the autonomous motivation scale as the dependent variable (see Katz et al., 2010; Williams, McGregor, Zeldman, Freedman, & Deci, 2004 for a similar approach).

2.3.2. Parents' attitudes towards homework

Parents' attitudes towards homework were assessed with a scale based on the attitudes section of the "Homework Process Inventory" (HPI) (Cooper et al., 1998). In the current study, the scale included 6 items with a Likert-type response scale ranging from 1 (not at all true) to 5 (very true) (sample item: "I think homework contributes to my child's ability to self-regulate his learning"). The results indicated that the 6 items loaded on one factor which accounted for 42% of the variance with loadings ranging from .54 to .73 ($\alpha = .78$). Higher scores indicate more positive attitudes towards, or valuing of, homework.

2.3.3. Parents' perceived competence

Parents' perceived competence was assessed with a 12 item scale adapted from a general parental ability scale (Johnston & Mash, 1989) that was modified to the context of homework (e.g. "I feel that I am qualified to help my child with homework"). The results indicated that the items loaded on two distinct factors which accounted for 46% of the variance, and with no cross-loading over .30. The first factor accounted for 31% of the variance, and included 7 items assessing high perceived competence with loadings ranging from .59 to .75 ($\alpha = .83$). The second factor accounted for 15% of the variance and included 5 items assessing low perceived competence with loadings ranging from .39 to .76 ($\alpha = .70$). The two factors were weakly and negatively correlated ($r = -.24$). The low negative correlation between the factors indicated that they may be assessing different aspects of parental perceived competence. In the current study, we selected to

use the 7-item factor explaining the higher percentage of variance which assessed high perceived parental competence.

2.3.4. Parents' motivation for help in homework

Parents' motivation for help in homework was assessed with two scales constructed on the basis of the scales developed by Ryan and Connell (1989). Items were phrased to focus on parents' motivation to be involved in their child's homework. Participants indicated the extent to which they are engaged in their child's homework out of autonomous reasons (identified or intrinsic reasons that reflect endorsing the value of the task or enjoyment; e.g., "I am involved in my child's homework because I enjoy it"; "I am involved in my child's homework because I see the importance of my involvement") or controlled reasons (external or introjected forces or pressures, e.g., "I am involved in my child's homework because I want him to be the first in class"; "I am involved in my child's homework because I'll feel bad about myself if the teacher will find out he didn't do it"). The results of the EFA indicated that the items loaded on two distinct factors which accounted for 52% of the variance. Items loaded on their expected factors with no cross-loading over .30 on the other factor. The first factor accounted for 39% of the variance, and included 9 items assessing parents' engagement in homework out of intrinsic/autonomous reasons ($\alpha = .90$) with loadings ranging from .39 to .90. The second factor accounted for 13% of the variance and included 8 items assessing parents' engagement in homework out of extrinsic/controlled reasons ($\alpha = .87$) with loadings ranging from .46 to .87. The two factors were positively correlated ($r = .50, p < .05$). Since in this specific study the focus is on parents' adaptive motivation, we employed the autonomous motivation variable as the independent variable (see Williams et al., 2004). However, because of the positive correlation between the two factors, and as conducted in previous studies (e.g. Katz et al., 2010), analyses included the controlled motivation variable as a covariate.

2.3.5. Parents' need supportive behavior

Parents' need supportive behavior was assessed with two indicators: (a) parents' reports of their need supportive behavior in homework; and (b) children's perceptions of their parents' need supportive behavior in homework. The scales were constructed on the basis of several scales assessing teachers' and parents' need supportive behaviors (e.g. Assor et al., 2002; Grolnick, Deci, & Ryan, 1997; Katz et al., 2010; Reeve, Jang, Carrell, Jeon, & Barch, 2004). Items in the two scales were modified to focus on the specific context of homework, and were parallel in the parent and child versions. The items assessing parents support of autonomy included items that tapped parents' behaviors such as showing understanding for students' perspective, providing a relevant rationale for the task, offering choice, and allowing criticism (4 items, Student version: e.g., "My parent explains the relevance of homework"; Parent version: e.g., "I explain the relevance of homework").

The items assessing parents support of relatedness tapped parents' behaviors such as showing acceptance and empathy and minimizing social comparisons (4 items, Student version: e.g., "My parent encourages me to talk with him/her about questions, problems or annoying things I experience with homework"; Parent version: e.g., "I encourage my child to talk to me about questions, problems or annoying things s/he experiences with homework"). The items assessing parents support of competence tapped parents' behaviors such as setting optimally challenging tasks, helping students to plan their work and providing informative and non-comparative feedback (3 items, Student version: e.g., "My parent tells me that I can overcome difficulties in homework"; Parent version: e.g., "I tell my child that s/he can overcome difficulties in homework").

The results of the EFA for Parents' need supportive behavior as perceived by the child indicated that the items loaded on two distinct factors which accounted for 40% of the variance. The first factor

accounted for 35% of the variance, and included 8 items ($\alpha = .80$) with loadings ranging from .36 to .80. The second factor accounted for 5% of the variance and included 3 items ($\alpha = .71$) with loadings ranging from .47 to .75. Cross-loading was lower than .30. However, there was no apparent difference in content between the factors. Moreover, the correlation between the two factors was positive and high ($r = .61$), and the reliability of a scale with all the items ($\alpha = .85$) was higher than the reliability of each factor separately. Hence, we combined the items into one variable of students' perceptions of parents' need-supportive behavior in homework (11 items).

The results of the EFA for Parents' need supportive behavior as reported by the parent also indicated that the items loaded on two distinct factors which accounted for 41% of the variance. The first factor accounted for 36% of the variance, and included 6 items ($\alpha = .81$) with loadings ranging from .33 to .75. The second factor accounted for 5% of the variance and included 5 items ($\alpha = .67$) with loadings ranging from .33 to .87. Similar to the case in students' perceptions of parents' need supportive behavior, there was no clear distinction in content between the factors, the correlation between the two factors was positive and high ($r = .62$), and the reliability of a scale with all the items ($\alpha = .85$) was higher than the reliability of each factor separately. Thus, we combined them into one variable assessing parents' report of their need supportive behavior (11 items).

These data indicated that students and parents do not distinguish between parents' behavior that supports different needs, but rather treat support for psychological needs globally. These findings are consistent with literature that suggests that students' perceptions of their teacher are grounded in a general halo that students have of the teacher (Patrick, Anderman, Ryan, Edelin, & Midgley, 2001; Urdan, Kneisel, & Mason, 1999). Similar to perceptions of the teacher, parents' behavior may be perceived as generally supportive or as generally less supportive of psychological needs.

3. Results

3.1. Descriptive statistics and correlations

Table 1 presents the descriptive statistics of the variables in the study and the correlations among the variables.

All variables manifested acceptable psychometric characteristics. The independent variables – parent's perceived competence for help in homework, parent's autonomous motivation, and parent's attitudes toward homework – were weakly to moderately positively associated among themselves (range of r s from .17 to .55). Students' autonomous motivation was positively correlated with parents' need supportive behavior as perceived by students ($r = .34$) and reported by parents ($r = .20$). Parental controlled motivation was positively associated with all the variables (range of r s from .20 to .50). The correlation between parental controlled and autonomous motivation was moderate–high ($r = .50$), indicating significant shared variance that may explain the other positive correlations among parental controlled motivation and the other adaptive variables. In later analyses, parental controlled motivation was statistically controlled for. T-tests that investigated differences between the two schools and T-tests that investigated difference between boys and girls on any of the variables found no significant differences. In addition, T-tests that investigated differences between fathers and mothers who were involved in their children's homework also did not find any significant differences. Therefore, the analyses below combine data from the two schools and the two genders among parents and among the students.

3.2. Path analysis

Path analysis was conducted using AMOS7 (Arbuckle, 2006). The path analysis is presented in Fig. 1. The model included three exogenous variables: parents' autonomous motivation for help with

Table 1
Descriptive statistics and correlations among the variables in the study.

| | Mean | StD | Skewness | Students' Aut. Mot | Students' Cont. Mot | Parents' Aut. Mot | Parents' Cont. Mot | Parents' Competence | Parents' attitudes | Students' perception of Parents' behavior | Parents perception of parents' behavior |
|--|------|------|----------|--------------------|---------------------|-------------------|--------------------|---------------------|--------------------|---|---|
| Students' Aut. Mot. | 3.20 | .99 | -.34 | – | .01 | .30** | .25** | .26** | .31** | .34** | .20* |
| Students' Cont. Mot. | 2.37 | 1.02 | .56 | – | – | .17* | .28** | .05 | .01 | .11 | .01 |
| Parents' Aut. Mot. | 3.77 | .87 | -.76 | – | – | – | .50** | .38** | .55** | .26** | .50** |
| Parents' Cont. Mot. | 2.05 | .95 | 1.76 | – | – | – | – | .20* | .47** | .20* | .23** |
| Parents' Competence. | 3.57 | .63 | -.22 | – | – | – | – | – | .40** | .11 | .36** |
| Parents' attitudes | 3.33 | .71 | .26 | – | – | – | – | – | – | .25** | .41** |
| Students' perception of parents' behavior. | 3.40 | .87 | -.17 | – | – | – | – | – | – | – | .23** |
| Parents' Perception of parents' behavior | 3.91 | .69 | -.41 | – | – | – | – | – | – | – | – |

Comment: N = 135; *p < .05; **p < .01. Aut.Mot. =Autonomous motivation; Cont. Mot. =controlled Motivation.

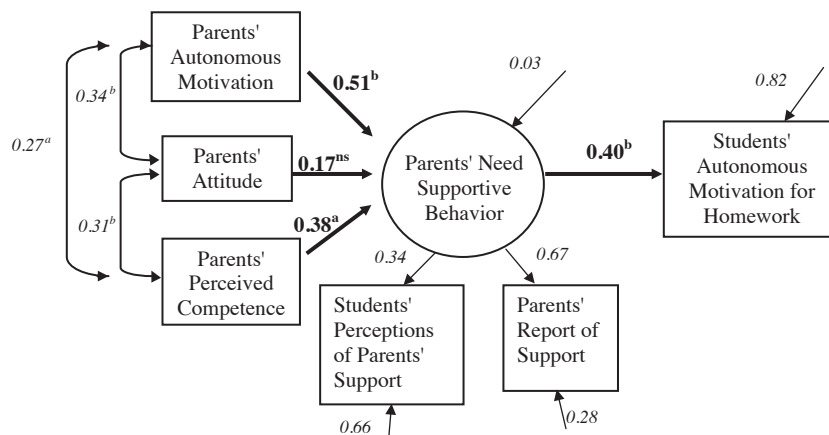
homework, parents' attitudes towards homework, and parents' competence beliefs for help in homework. Due to the relatively high correlation between Parents' Autonomous Motivation for Involvement in Homework and Parents' Controlled Motivation for Involvement in Homework ($r = .50, p < .01$) we included the Parent's Controlled Motivation for Involvement in Homework as a covariate. This was done in order to allow the relations between Parents' Autonomous Motivation with Parents' Need Supportive Behavior to be independent of Parents' Controlled Motivation. The model included two endogenous variables: Parents' Need-Supportive Behavior as a mediating variable and Students' Autonomous Motivation for Homework as the outcome variable. The variable of Parents' Need-Supportive Behavior was a latent variable with Parents' Reports of Need Supportive Behavior and Students' Perceptions of Parents' Supportive Behavior as its indicators.

The model fit the data relatively well ($\chi^2 = 16.69, df = 8, \chi^2/df = 2.09, p = .03; CFI = .96; RMSEA = .090, p = .13$). Coefficients are presented in Fig. 1. Paths testing the hypotheses appear in Fig. 1 in bold. The three parent characteristics were moderately or weakly correlated among themselves. All three parent characteristics were also related to Parents' Need-Supportive Behavior; however, whereas the relation of Parents' Autonomous Motivation to Parents' Need-Supportive Behavior was high, the relation of Parents' Perceived Competence with Parents' Need-Supportive Behavior was moderate, and the relation of Parents' Attitudes was not statistically significant. The relation of the controlled variable – Parent's Controlled Motivation for Involvement in Homework to Parents' Need-Supportive Behavior was also not significant, supporting the assumption that its

positive zero-order correlations with the adaptive variables was due to its shared variance with parents' autonomous motivation. In turn, Parents' Need-Supportive Behavior was moderately and significantly related to Students' Autonomous Motivation for Homework, explaining 18% of the variance in the outcome variable. None of the direct effects of the parents' characteristics was significant, supporting the mediating role of Parents' Need-Supportive Behavior of the relations between these characteristics and Students' Autonomous Motivation for Homework. Interestingly, whereas Parents' Reports of their need-supportive behavior were a strong indicator of the Parents' Need-Supportive Behavior variable, Students' Perceptions of their Parents' Behavior was a much weaker, albeit significant, indicator.

3.3. Alternative models

Whereas the analysis supported our hypothesized theoretical model, such analysis cannot rule out the possibility that other models would also fit the data as well, or even better, than the hypothesized model. Therefore, in order to provide further support for the hypothesized theoretical model, it is recommended to compare its findings to those from alternative models. We tested two alternative models to the one we put forth. Both of these models are based on the alternative theoretical hypothesis that it is students' autonomous motivation for homework that leads to parents' characteristics and behavior, rather than the other way. The two models represent a strong alternative and a moderate alternative to our hypothesized model.



Note: ^a - $p < .05$, ^b - $p < 0.01$
Parents' controlled motivation was included as a control for Parents' autonomous motivation, its relations with Parent's Need Supportive Behavior was not significant.

Fig. 1. Results of path Analysis with parents' characteristics, parents' behaviors and students' motivation in homework.

The first model proposed that student autonomous motivation to homework predicts the parental characteristics of autonomous motivation, competence, and attitudes, which in turn predict parental need-supportive behavior. We also included a direct path from students' autonomous motivation to parental need-supportive behavior. This model did not fit the data well ($\chi^2 = 136.13$, $df = 10$, $\chi^2/df = 11.55$, $p = .001$; CFI = .43; RMSEA = .307, $p = .001$) thus providing further support to our hypothesized model.

The second model tested a more moderate alternative to our hypothesized model. Rather than predicting parental characteristics, students' autonomous motivation was conceived of as contributing to parental need-supportive behavior *alongside* parental characteristics. This second alternative model fit the data better than the first alternative model ($\chi^2 = 14.29$, $df = 4$, $\chi^2/df = 3.57$, $p < .01$; CFI = .95; RMSEA = .139, $p = .03$). However, this fit was still less good than the fit of the original hypothesized model. Thus, whereas it is possible, and even likely, that students' motivation plays a role in parental need-supportive behavior, the original model that points to parental motivational characteristics as contributing to parental need-supportive behavior, which in turn contributes to students' motivation received stronger support in the current data.

4. Discussion

An increasing body of research has been supporting the relations between perceptions of need-supportive behavior by teachers and parents and students' adaptive engagement and affect in school (Assor et al., 2002; Deci & Ryan, 1985; Furrer & Skinner, 2003; Katz et al., 2010; Reeve & Jang, 2006; Vallerand et al., 1997). Self-determination theory (SDT) and an accumulating body of empirical support highlight the central role of parents' and teachers' need-supportive behavior in students' adaptive motivation, development, and well-being (Ryan & Deci, 2000). Yet, research is relatively scarce with regard to the factors that might facilitate adoption of need-supportive behavior by significant others—particularly in domains in which students' motivation is low or maladaptive. The present study made a step in amending this situation by investigating the parental characteristics that would contribute to need-supportive behavior in parental involvement in their children's homework. We hypothesized that the three parents' characteristics of Perceived Competence, Attitudes, and Autonomous Motivation would be related to Parents' Need-Supportive Behavior, which, in turn, would be related to students' Autonomous Motivation for homework.

The findings of the study suggest that parents' type of motivation for involvement in homework, parents' attitudes towards homework, and parents' perceived competence for helping their child in homework are associated with their level of support of their children psychological needs during involvement in homework. The level of need-supportive behavior was, in turn, related to the students' autonomous motivation for homework.

More specifically, however, the findings indicated that relative to other parents' characteristics, it was the parents' autonomous motivation for involvement in their child's homework that was the strongest predictor of parents' need-supportive behavior. Parents who engage in helping their children with homework because they find this interaction enjoyable, valuable, and overall as self-determined would be more likely to manifest positive emotion and little stress, and therefore may be more able to be empathetic to their child and behave in ways that support the child's needs for relatedness, competence and autonomy.

Parents' perceived competence for helping their child in homework was also found as an independent, positive predictor of parents' need-supportive behavior. This finding is in accord with the vast research that indicates the positive relations between level of perceived competence and the level and quality of engagement in behavior (Bandura, 1997). Parents who have high perceived compe-

tence for helping their children would be likely to engage in more positive self-thoughts about their interaction with their child, manifest more attention and higher problem-solving skills, be more comfortable in their involvement, behave more warmly towards the child, and be less controlling and more facilitative of the child's competence in the task (Jackson, 2000).

Interestingly, parents' positive attitudes and valuing of homework were not found to be an independent predictor of need-supportive behavior. The findings seem to suggest that the positive relations between parents' positive attitudes and need-supportive behavior were explained by shared variance with parents' autonomous motivation and perceived competence. It may be that parents' autonomous motivation serves as a mediator between parental positive attitudes towards homework and their need-supportive behavior of their child. The current analysis did not test for such mediation. However, such a hypothesis would be compatible with SDT which conceives of autonomous motivation as the proximal psychological process to behavior (Ryan, 1993).

The above findings corroborate the emphasis in the SDT literature on environmental support of students' psychological needs for promoting their adaptive motivation. However, the findings also suggest that promotion of environmental support of students' psychological needs requires attention to the characteristics of those who should be providing the support. The findings that parents' self-determined motivation towards involvement in homework and their perceived competence in helping in homework were related to their need-supportive behavior suggest that parents would be more likely to engage in such behavior when their own psychological needs are satisfied. Future research should pursue this theoretical hypothesis and include also a measure of the sense of relatedness between parents and children as an additional parental characteristic that could contribute to parental support of the child's psychological needs. Moreover, support for such a hypothesis implies that interventions aiming to facilitate students' adaptive motivation should attend to the psychological needs of those providing support for the students. Future research should pursue other characteristics of parents and teachers that may promote need-supportive behavior, including demographics (e.g. gender, socioeconomic status, and education level) but more importantly perhaps, skills and orientations that could be targets for interventions (e.g., stress management strategies).

An interesting finding in this regard, was the relatively high correlation found between parents' autonomous and controlled motivation for involvement in homework. This is not a unique finding and occurs in other SDT based research (e.g., Katz et al., 2010; Roth, Kanat-Maymon, Assor, & Kaplan, 2006). However, while SDT does not provide a ready explanation for such an occurrence, this issue was widely studied in other motivational theories. Research in achievement goal theory for example, commonly finds people to pursue multiple goals (e.g., mastery-approach and performance-approach) that can be considered a combination of autonomous and controlled motivations (Barron & Harackiewicz, 2001; Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002). In achievement goal theory, explanations for such joint pursuit of different motivations is based in either individual differences or in environmental emphases (see Kaplan & Maehr, 2007). Regarding SDT, until now, no systematic research was done in order to investigate what is the reason for joint pursuit of autonomous and controlled motivations, and this is certainly an important direction for further research. It is possible, for example, that a high positive correlation between autonomous and controlled motivation will be found in certain tasks more so than in others—perhaps in tasks that combine strong external and internal incentives like the homework task. Researchers should attend to the psychological mechanisms that may underlie such a positive correlation and investigate whether it is spurious (e.g., represents an overall high motivational disposition) or meaningful, and represents a case in which both motives in fact facilitate each other. Future

research should pursue these issues and their implications to SDT and to people's psychological need satisfaction, adaptive engagement, and well-being.

A unique contribution of the current study was the assessment of parents' need supportive behavior with indicators of both the parents' and the children's perceptions of this behavior. A common criticism of research that investigates parents' or teachers' behaviors is that students' perceptions of these behaviors may not reflect the adult's actual behavior. Assessing need-supportive behavior with reports from both parties to the interaction enabled us not only to validate the measures, but also to get a view of the differences and similarities in which the children and the parent perceive the same interaction. The correlation between the parents' and students' perceptions of parents' behavior was relatively weak. This finding replicates other findings in the literature that show weak or no correlation between the parents' and children's perception of parenting (e.g. Sessa, Avenevoli, Steinberg, & Morris, 2001). An interesting finding of the current study was that it was parents' reports of their need-supportive behavior, rather than the students' reports of their perceptions of their parents' behavior, that was the stronger predictor of the latent variable that was associated with students' autonomous motivation. Clearly, this issue requires further scrutiny and future research should investigate the processes that may contribute to closing the gap between the parents' and children's interpretation of parent behavior as need-supportive.

Another issue in assessing parents' need-supportive behavior and children's perceptions of their parents' need supportive behavior is that the factor analyses indicated that both the parents and their children did not distinguish between items assessing support for the three different needs. It may be that the focus of the current study made salient to both parents and children a larger unit-of-analysis to focus on than the specific behaviors, which may have contributed to the failure to distinguish among the three needs. Some research found that students are able to distinguish between different types of adult behaviors such as different types of autonomy or relational supportive practices (Assor et al., 2002; Roth et al., 2006). However, other research suggests that students' perceptions of adults may manifest a halo effect (Urdan et al., 1999) that can overshadow distinctions of different adults' behaviors. Since self-determination theory contends that all three needs should be supported for adaptive motivation, many researchers opted on using an "overall need satisfaction" construct that assesses need satisfaction across all three needs (e.g. Deci et al., 2001; Patrick, Knee, Canevello, & Lonsbary, 2007). Still, future research should investigate this issue; and particularly, how priming different units-of-analysis in participants may contribute to more or less distinction in perceiving different need-supportive practices.

The study has several limitations that need to be acknowledged and that should inform future investigations. First, whereas students completed the surveys in school and were monitored by research assistants, parents filled the surveys at home and there is a risk of biases in survey completion. In addition, whereas the parents' response rate was typical for, or even higher than, studies using the mail-back method, there were a significant number of families who did not return the surveys. This may have excluded from the study groups of parents who use different homework practices from those who did return the surveys. Whereas the study's aim was to support theoretical hypotheses, and not to investigate these processes among diverse populations, future research should attempt to replicate these findings also among parents whose motivation to participate in such studies may be lower (e.g. parents from diverse cultures or socioeconomic backgrounds). Future research may reduce such limitations by interviewing parents at their homes.

Future research, and perhaps a qualitative interview method, may also address another limitation of the current study: the relatively small sample. Collecting parent-child dyadic data commonly involves

difficulties that result with less than optimal samples. Our sample size is respectable in light of this challenge. However, the sample size does put limitations on the statistical power of the analyses and poses risks to the reliability of the findings. For example, whereas we did not find significant differences in the analyses between boys and girls, mothers and fathers, and between parents in different schools (and SES), it very well may be that larger samples that result with greater statistical power would find such differences. The small sample size may also be the reason of for the variable and less than perfect model fit statistics. This limitation notwithstanding, the analyses did satisfy normative assumptions concerning ratio of sample size to variable estimation (e.g., Gorusch, 1983), and the theoretical underpinning of the model, and its relative superior fit over logical alternative models, enhance the confidence in the reliability of the findings (cf. Marsh, Hau, & Wen, 2004).

A third limitation of the study is the stratification of students to fourth grade. Research findings point to significant differences in motivation and in perceptions of environmental need-support among students of different ages. Future research should investigate the hypothesized relations among students of various ages. Similarly, the two schools from which students came share similar homework practices. Future research should investigate the relations among parental need-supportive behavior and students' motivation to homework in educational settings that employ different homework practices. Finally, our study asked parents and students to report on homework generally. However, parents and students may hold different perceptions and adopt different practices in different subject matters in school. Future research should investigate these processes also in specific subject domains.

5. Conclusion

Many educators recognize the important role that parents play in their children's motivation and success in schoolwork and attempt to form relationship with parents and encourage their involvement. Homework is one such focal task in which parents have the opportunity to cooperate with the educators, socialize their children to school values, and promote their children's motivation and academic success. Unfortunately, homework is often a sore issue in parent-child interaction. The findings of the current study highlight the important role of parents' own psychological characteristics, most particularly their autonomous motivation for involvement in helping with their children's homework, in supporting their children's psychological needs, and in the quality of their children's motivation to homework. This is an important insight for educators who aim to encourage more constructive parent involvement with their children's education and homework, and for parents themselves. This understanding is also important for other research seeking to identify meaningful parental characteristics that contribute to the family well-being.

Appendix A. Scales and Items Used in the Study

Students' motivation for doing homework

Autonomous Motivation

1. I do homework in order to learn and make progress.
2. I do homework because it can help me in the future.
3. I do my homework because I understand that it helps me succeed in school.
4. I do homework because of the value and contribution of the homework to my learning.
5. I do homework because I think it is important to do homework.
6. I do homework because it is interesting to me.
7. I do homework in order to improve my understanding in this subject.

8. I do homework because I love to learn.
9. I do my homework because it is fun.
10. I do homework because I feel good when I do it
11. I do homework because it is challenging to me.

Controlled motivation

1. I do my homework because if I didn't I would feel bad when I meet the teacher.
2. I do homework so that my parents don't punish me.
3. I do homework because the teacher writes down who did and didn't do it.
4. I do my homework because if I didn't I would feel bad when I meet my parents.
5. I do homework so that the teacher doesn't yell at me.
6. I do my homework because I want to get a better grade.
7. I do my homework because if I didn't would feel bad when I meet my friends.
8. I do my homework because I would feel ashamed if the teacher will find out I didn't do it.

Parents' motivation for help in homework

Autonomous motivation

1. I am involved in my child's homework because it can help my child in the future.
2. I am involved in my child's homework because it is important to me that my child understand that learning is an important thing.
3. I am involved in my child's homework so that my child will enjoy learning more.
4. I am involved in my child's homework in order to enhance my child's interest in learning.
5. I am involved in my child's homework in order to be more involved in my child's life.
6. I am involved in my child's homework because I see the importance of my involvement.
7. I am involved in my child's homework because it is important to me that my child understands the material deeply.
8. I am involved in my child's homework because I enjoy it.
9. I am involved in my child's homework because it is an opportunity for me to be with my child.

Controlled motivation

1. I am involved in my child's homework because if my child didn't do it, I will feel bad when I meet the teacher.
2. I am involved in my child's homework so that the teacher doesn't think that I'm a bad parent.
3. I am involved in my child's homework because the teacher writes down who did and who didn't do it.
4. I am involved in my child's homework because I would feel bad about myself if the teacher will find out he didn't do it.
5. I am involved in my child's homework because I want him to be the best student in class.
6. I am involved in my child's homework because that is what I'm expected to do.
7. I am involved in my child's homework because if s/he didn't, s/he would feel bad when meeting friends.
8. I am involved in my child's homework because otherwise I would feel bad about myself.

Parent need support

Autonomy

1. While working on homework, I'm willing to hear my child provide answers that are different from mine.
2. I allow my child to talk about things that annoy him/her in homework.
3. I explain to my child why it is important to learn and do homework.
4. I try to allow my child to do the homework that matches his/her interests, or change the homework so that the assignment is interesting for him/her.
5. I talk to my child about the relations between the homework and things that happen in life.

Competence

1. I comment on my child's mistakes in homework privately and not in front of other people.
2. I'm glad if my child provides an answer in homework that is different from what's expected but is interesting.
3. I tell my child that I believe s/he has the ability to overcome difficulties in homework.

Relatedness

1. I tell my child that s/he can come to me with any question or problem in relation to homework.
2. While working on homework, I give my child the feeling that s/he is important and special.
3. I give my child the feeling that I respect and value him/her even if s/he does not understand the homework.

Child perceptions of parent need support

Autonomy

1. While working on homework, my parent is willing to hear also answers that are different from hers/his.
2. My parent allows me to talk about things that annoy me in homework.
3. My parent explains to me why it is important to learn and do homework.
4. My parent tries to allow me to do the homework that matches my interests, or change the homework so that the assignment is interesting to me.
5. My parent talks to me about the relations between the homework and things that happen in life.

Competence

1. My parent comments on my mistakes privately and not in front of other people.
2. My parent is glad if I provide an answer in homework that is different from what's expected but is interesting.
3. My parent tells me that s/he believes I'm able to overcome difficulties in homework.

Relatedness

1. My parent tells me that I can come to her/him with any question or problem in relation to homework.
2. While working on homework, my parent gives me the feeling that I'm important and special.

3. My parent gives me the feeling that s/he respects and values me even if I don't understand the homework.

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