

A STUDY OF ASSOCIATIONS BETWEEN PARENTAL PRACTICES AND
CHILDREN'S MOTIVATIONAL ORIENTATION AND ACADEMIC
ACHIEVEMENT

by

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Abstract

The significance of motivation in children's development and achievement is well supported by research findings highlighting the role of intrinsic and extrinsic motivation in educational outcomes and children's general welfare. This study aimed to explore any possible associations between autonomy supportive or controlling parental practices regarding homework surveillance and reaction to grades and children's intrinsic and extrinsic motivation and academic performance to contribute to the realization of the implications of these practices. This correlation is understudied in Greece, where intrinsic motivation has been investigated without considering the parental affect. A relevant questionnaire was completed online by Greek primary caregivers of children in elementary school. Based on existing literature, the researcher hypothesized that parental controlling practices would correlate negatively with intrinsic motivation and academic achievement and positively with high extrinsic motivation, while autonomy supportive practices would be positively associated with higher levels of intrinsic motivation and school performance and lower levels of extrinsic motivation. Results supported these hypotheses. Findings of this study may be useful when designing psychoeducational programs families and classroom interventions for increasing children's intrinsic motivation.

Keywords: motivation, self-determination theory, child, parents, control, autonomy

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A Study of Associations Between Parental Practices and Children's Motivational Orientation and Academic Achievement

The significance of motivation in children's development and achievement is well supported by research findings highlighting the role of intrinsic and extrinsic motivation in educational outcomes and children's general welfare (Deci et al., 1991; Deci & Ryan, 1985, 2008; Gottfried et al., 1994; Burton et al., 2006; Gilet et al., 2012; Ryan & Deci, 2020). Intrinsically motivated students will engage in an activity for the enjoyment and excitement it brings, rather than to get a reward, either in form of praise or tangible, or to avoid punishment or embarrassment. Whereas intrinsically motivated behaviors are driven out of own interest, volition and determination, extrinsically motivated behaviors are promoted by the thought of being instrumental to some consequence (Deci et al., 1991; Deci & Ryan, 2000; Ryan & Deci, 2020).

Intrinsic motivation seems to foster learning, academic performance and school enjoyment (Deci et al., 1981; Froiland, 2011; Froiland & Davison, 2016; Gillet et al., 2012; Ginsburg & Bronstein, 1993; Lepper et al, 2005). It affects positively task persistence, perceived competence and causality for academic success or failure, and is positively correlated with self-directed learning, which is the ideal model for education. Extrinsic motivation tends to undermine these outcomes (Deci et al., 1981; Deci & Ryan, 2000; Ginsburg & Bronstein, 1993; Gillet et al., 2012; Taylor et al. 2014; Vansteenkiste et al., 2004). It has been associated with negative feelings and maladaptive coping strategies (Boggiano, 1998; Ryan & Connell, 1989), superficial learning and poor academic achievement (Lepper et al., 2005; Ryan & Deci, 2000a).

Parental practices should not be overlooked when assessing the development of motivation in children (Harter, 1978). The quality of parent-child interactions significantly influences the development and orientation of children's motivation and, therefore, affects children's school-related competence and performance as illuminated by both parents and children in various studies conducted in clinical and school settings (Eccles et al., 1998; Ginsburg & Bronstein, 1993; Gottfried et al., 1994; Wigfield et al., 2006; Wigfield et al., 2015). The purpose of this study is to investigate the relationship between family practices and children's motivational orientation and school achievement using Greek families with children in elementary school living in Athens. The topic is understudied in Greece, where most studies on motivation focus on its correlation with physical education (Christodoulidis et al., 2001; Digelidis & Papaioannou, 2007; Goudas, 1998; Ntoumanis et al., 2009; Papacharissis et al., 2003; Papaioannou, 1997; Papaioannou et al., 2007) or academic achievement (Agaliotis & Kalyva, 2019; Makri-Botsari, 1999; Zisimopoulos & Galanaki, 2009) without taking parental influences on motivation into consideration. The researcher believes that investigating the connection between parental practices and children's motivational orientation and school performance will throw some light on their impact and facilitate the realization of their implications on children's current and future academic success and wellbeing.

Self-Determination Theory

Self-determination theory (SDT) is a broad theory of human development and well-being that was initially developed in the 1970s and comprehensively conceptualized within the next decade. As a human motivation theory, SDT affects and analyses personality development, vigor, self-regulation, aspirations, cultural and

social influences on motivation, human behavior and wellbeing (Deci & Ryan, 1985, 2008). Self-determination theory is based on the concept of the satisfaction of the basic psychological needs that lead one's path towards growth and welfare by integrating goal contents and regulatory processes (Deci & Ryan, 2000). The need for autonomy refers to having our actions under our control, the need of competence touches on humans' natural tendency to master their environments, and the need of relatedness underpins the importance of connecting to significant others (Deci & Ryan, 1980; Deci et al, 1991; Wigfield et al., 2021). Motivation, performance, and development are maximized in social contexts that allow opportunities to meet these basic needs (Deci et al., 1991).

Whereas other motivational theories conceptualize the strength of the psychological needs as the individual difference in motivational development and orientation, based on the idea that needs are learned and that human beings develop different needs to different extent, SDT focuses on causality and life goals orientation, which are related with the degree of our innate needs' satisfaction (Deci & Ryan, 2008). According to SDT, an autonomous causality orientation is the outcome of the satisfaction of all three basic needs, whereas a controlled causality orientation results from some satisfaction of competence and relatedness only, and lastly, impersonal causality orientation is the product of unsatisfied needs. Affiliation and personal development are examples of intrinsic life goals, whereas money, fame, and image are examples of extrinsic goals (Vansteenkiste et al., 2004; Deci & Ryan, 2008).

Motivation is the process that elicits and nourishes goal-directed activities and leads to outcomes such as choice, effort, persistence, achievement, and self-regulation (Schunk & DiBenedetto, 2020). Self-determination theory suggests that there are two

types of motivated behaviors: the consciously chosen, self-determined behaviors that serve intrinsic or extrinsic needs and the unconsciously, automated behaviors that require less involvement of cognitive functions. Every individual has an active role not only in the process of making choices that mediate behavior and enhance goal pursuit and attainment, but also in holding back motives that cannot be satisfied at a certain time. Self-determination theory asserts that intrinsic motivation provides the essential bedrock for making decisions and managing motives and proposes that intrinsic motivation works complementary with internalization to foster vigor, growth and adaptation (Deci & Ryan, 1980, 2000). People high in self-determination believe that they can assert control over their lives, that they can overcome challenges through good choices and hard work, they are intrinsically driven and do things for enjoyment, interest, and satisfaction for the action itself (Ryan & Deci, 2000, 2020).

Autonomy, Competence and Relatedness

The need for autonomy is the central aspect of SDT. Autonomy pertains to the development of a sense of self-regulation and initiation of our own actions. It refers to the level of volition in relation to our conduct rather than the amount of independence, and it is a life span indicator rather than a feature of a certain developmental stage. It is promoted by experiences of interest and diminished by external control (Deci & Ryan, 2008; Grolnick & Raftery-Helmer, 2013; Ryan & Deci, 2000b). The importance of autonomy for the maintenance of intrinsic motivation has been observed in studies of classroom learning, which showed that autonomy-supportive teachers catalyze in their student's greater intrinsic motivation, curiosity and desire for challenge (Deci et al., 1981; Ryan & Grolnick, 1986; Ryan & Deci, 2000a). Similarly, studies on parenting show that children of autonomy supportive parents are

more likely to spontaneously explore and extend their knowledge and skills and develop autonomous self-regulation and higher school performance than children of controlling parents (Grolnick & Raftery-Helmer, 2013; Grolnick et al., 2014; Lerner & Grolnick, 2020; Turner et al., 2009). Autonomously regulated children demonstrate a variety of positive outcomes, including higher quality performance, psychological wellbeing and positive behavioral outcomes (Burton et al., 2006; Ryan & Deci, 2020).

Competence concerns learning new skills, developing feelings of mastery and self-efficacy that will lead to success and growth. Children begin comprehending competence in the first years of elementary school, mostly through peer comparison and by validating their competence-related beliefs against their performance. Correlations are quite low during early childhood, but they gradually increase to reach stability during transition to adolescence, when children engage in more internal comparisons about their abilities and achievement and develop their own sense of value for an activity (Jacobs et al., 2002; Ryan & Deci, 2000b; Wigfield et al., 2015, 2021). Positive competence related beliefs foster the sense of being efficacious and may direct children to increase effort and persistence at tasks leading to higher chances for a successful outcome by producing intrinsic motivated behaviors. Research findings support the correlation of perceived competence and overriding negative effects of prior performance even for students, who have been encountering many difficulties with learning (Bouffard et al., 2003; Schunk & DiBenedetto, 2020).

Relatedness illuminates the need of belonging and attachment to other people, which is fulfilled by the development of secure and satisfying relationships with individuals of our social network (Deci et al, 1991; Froiland, 2011; Gillet et al., 2012; Ryan & Deci, 2000a). The significant role of relatedness in the development of

intrinsic motivation is also implicit in Bowlby's attachment theory. Securely attached infants demonstrated higher levels of intrinsic motivation, observable as exploratory behavior, compared to those insecurely attached (Bowlby, 1979; Deci & Ryan, 2000). Building on the attachment theory, SDT hypothesizes that the same rules govern our relationships over the life span, and therefore, intrinsic motivation is more likely to thrive in environments fostering security and relatedness (Ryan & Deci, 2000b). Research findings have highlighted the link between secure parent and teacher attachment with academic motivation and self-concept (Learner & Kruger, 1997). Relatedness may have an energetic function by arousing enthusiasm, volition, and readiness to engage in academic pursuits. The sense of belonging may buffer against negative emotions, minimizing feelings of boredom, anxiety, pressure, or frustration (Furrer & Skinner, 2003).

Motivational Systems

Motivation is not a unitary phenomenon. Different people demonstrate different amounts and types of motivation. Human drives, innate needs, and reinforcements have been proposed as the primary sources for motivation. Drive theories, however, could not explain the curiosity or the desire to manipulate or control the environment that was evident in research on these theories. Current theory and research on motivation focuses on individuals' beliefs, values, and goals that provide reasoning for an action as primary factors influencing its development and orientation, which implies that some of the processes affecting motivation are cognitive, conscious and emotional. As an example, a child can be motivated to do homework out of personal interest or, alternatively, for procuring the approval of a teacher or parent (Deci & Ryan, 2000; Ryan & Deci, 2000a, 2020).

Self-determination theory makes a distinction between the quantity, amount, and intensity of motivation and the quality or type of motivation and suggests that higher levels of motivation do not necessarily bring more desirable outcomes if the motivation is controlled and, therefore, of low quality (Ryan & Deci, 2000b; Vansteenkiste et al., 2009). The idea is that the quality of a person's motivation is more important than its quantity for predicting significant outcomes such as welfare, psychological health, effective performance, creative problem solving, and conceptual learning (Deci & Ryan, 2008). Deci and Ryan (2000) proposed that motivation ranges from amotivation to various types of extrinsic motivation and finally to intrinsic motivation. Depending on their motivational orientation, some individuals approach activities in different areas with great persistence and enthusiasm and are willing to work their way through difficulties, whereas others seek to avoid these activities (Eccles et al., 1998; Wigfield et al., 2015).

Amotivation

The amotivational subsystem is based on the shortfall of an intention to act. The amotivated individual is characterized by total lack of goals and motivation. No relationship can be recognized between behaviors and outcomes. This system is characterized by non- activity rather than any type of intrinsically or extrinsically motivated behavior (Deci & Ryan, 1980). Amotivation may result from lack of value for an activity, feelings of incompetence or from the belief that the activity will not yield a desired outcome (Ryan & Deci, 2000a, 2020). Long lasting amotivation is considered as a strong indicator of mental health issues (Deci & Ryan, 1980).

Extrinsic Motivation

The extrinsic motivational subsystem is based on primary drives and acquired needs, like money or status (Deci & Ryan, 1980; Ryan & Deci, 2000b). Self-determination theory postulates that extrinsic motivation varies in the degree it encompasses autonomy. A student, who does his homework because of parental fear, and is therefore, extrinsically motivated to study to avoid possible parental sanctions differs greatly in terms of motivation from a student, who completes homework because he thinks it is necessary for his future career and is, therefore, extrinsically motivated by the instrumental value of the task (Ryan & Deci, 2000a). These different motivations reflect the degree of internalization and integration of the behavior. Internalization refers to adopting a value, which was originally externally regulated and integration illuminates the transformation of that regulation into one's own in connection to the contingency with an external reward (Garn et al., 2010, 2012; Ryan & Deci, 2000b; Vansteenkiste et al., 2006).

The types of extrinsic motivation move from totally extrinsic (controlled by external rewards and punishments) to highly internally identified extrinsic motivation, where individuals internalize the reasons for engaging in activities even if they did not fully choose them (Wigfield et al., 2021). External regulation is the totally non-autonomous type of extrinsic motivation and is manifested in actions that satisfy an external demand or behaviors that lead to an externally imposed reward. A student will study hard to enter university to get a parental reward, such a new car. The perceived locus of causality is external and the associated actions or behaviors have poor maintenance and transfer (Deci & Ryan, 1980; Ryan & Deci, 2000a, 2020; Vansteenkiste et al., 2006).

Introjected regulation is considered as the second type of extrinsic motivation. Introjection represents a partial internalization and regulation of behavior as a result of succumbing to an inner pressure to obtain social approval and maintain or enhance self-esteem and the feeling of worth or to avoid feelings of shame, guilt or anxiety. Behavior is partially internalized, but not accepted as one's own. It is experienced as an outcome of coercion and is represented by an external perceived locus of causality (deCharms, 1968; Ryan & Deci, 2000a, 2020; Vansteenkiste et al., 2006). The resulting behaviors are not self-determined, however they are more likely to be maintained over time compared to externally regulated behaviors (Deci & Ryan, 2000; Tang et al., 2018). When a student studies for a test to please his parents, he is driven by the introjected regulation type of extrinsic motivation (Garn et al., 2010)

Identified regulation is the third type of extrinsic motivation. Identification is the process through which people recognize and accept the underlying value of a behavior, identify the self with its significance and integrate those identifications with other aspects of the self. The internalization is greater than with introjection, and the behavior tends to become part of one's identity due to personal relevance with the task. Identification is characterized by internal locus of causality and maintenance of the motivated behaviors, with which the person consciously identifies (Deci & Ryan, 2000; Ryan & Deci, 2000a, 2020; Tang et al., 2018; Vansteenkiste et al., 2004, 2006). Identified regulation can be observed in students, who are not naturally drawn to their studies, however, they will still study autonomously, because learning serves a personally endorsed goal such as getting accepted at the preferred university (Vansteenkiste et al., 2004, 2006).

The most autonomous form of extrinsic motivation is called integrated regulation. It occurs when an individual has fully internalized the external rewards for engaging in behavior. The reward becomes integrated with the self and the individual recognizes and identifies with the value of the activity, which becomes congruent with the individual's major interests and values. For a student, who performs well at school motivated by grades (external reward) but at the same time thinks of herself/himself as a good student, the external outcome of getting good grades is intertwined with personal value of being a good student. Integrated regulation is considered the most self-determined form of extrinsic motivation and leads to high levels of self-regulation (Ryan & Deci, 2000a, 2020).

Intrinsic Motivation

The intrinsic motivational subsystem is the center of the theory of self-determination. It was first acknowledged in experimental studies of animal behavior. Experiments showed that animals could engage in playful, curiosity-driven and exploratory behaviors even in the absence of any form of reinforcement (White, 1959; Ryan & Deci, 2000a). This inherent motivating inclination has been noticed in humans of all ages and is thought to be an important component of our physical, cognitive, and social development. Taking interest in new knowledge, exploring our environment, and creatively applying our skills is a significant feature of human nature (Ryan & Deci, 2000a).

Intrinsically motivated behaviors are driven by pure curiosity and interest, with no need for separate rewards or avoidance of consequences and are sustained by the satisfaction of our core innate needs. The involvement and commitment with interesting activities fulfills the needs of autonomy, competence and relatedness, the

satisfaction of which defines the level of involvement (Deci & Ryan, 2000). Whereas extrinsically motivated students seek for approbation and external indicators of worth, intrinsically motivated students desire autonomy, fulfillment, mastery and pleasure when engaging in an activity (Bye et al., 2007; Garn, 2012; Sansone & Smith, 2000).

Intrinsically motivated individuals have internal locus of causality and control. Their actions and attitudes are driven by a personal need for accomplishment (Deci & Ryan, 1980; Deci et al., 1991). Intrinsic motivation is positively associated with self-concept, sense of competence, enjoyment and mastery-related behaviors such as creativity, exploration, and preference for challenges (Boggiano, 1998; Ginsburg & Bronstein, 1993; Ryan & Deci, 2020). High levels of positive affect are elicited when intrinsic motivation is reinforced, which lead to improved coping abilities, resilience, goal orientation and persistence, even at no so interesting, but significant, tasks (Bye et al., 2007; Gottfried, 1983; Harter, 1981; Ryan & Connell, 1989; Ryan & Deci, 2000b). Intrinsically motivated people are more likely to think strategically, come up with more creative ideas, persevere in the face of adversity, and gain more from their experiences (Ryan & Deci, 2000b). Possessing high levels of intrinsic motivation leads to increased flexibility of adapting to a wide range of situations (Burton et al., 2006).

Students, who learn out of curiosity and personal challenge, value learning opportunities and consider studying useful and meaningful. They are more satisfied and involved in the learning process and can integrate the material much better (Deci et al., 1981; Froiland, 2011; Ginsburg & Bronstein, 1993). Students' intrinsic motivation fosters positive emotions toward homework and leads to better classroom tasks and academic performance (Froiland & Davison, 2016; Lepper et al, 2005; Ryan

& Connell, 1989), better cognitive processing and greater use of adaptive meta-cognitive strategies such as planning and time management (Larson & Rusk, 2011; Manganelli et al., 2019; Pintrich & de Groot, 1990; Vansteenkiste et al., 2005).

Findings from several single studies and a meta-analysis have revealed a link between intrinsic motivation and academic achievement among students of various ethnicities, races and cultures (Froiland & Worrel, 2016; Lepper et al., 2005; Soenens & Vansteenkiste, 2005; Taylor et al., 2014; Vansteenkiste et al., 2004). When compared to students who dropped out, students who persisted with their studies demonstrated higher levels of intrinsic motivation (Vansteenkiste & Bisonette, 1992; Vansteenkiste et al., 2009). Findings from an experiment conducted by Vansteenkiste et al. (2004) demonstrated that students in the intrinsic motivation condition read more thoroughly, obtained better scores, and exhibited greater perseverance than students in the extrinsic motivation condition. Intrinsic motivation has been also positively correlated with psychological wellbeing throughout our life span (Larson & Rusk, 2011; Ryan & Deci, 2000b).

Age Related Intrinsic Motivation Decline

In a longitudinal study of children in the United States, findings illuminated a general pattern of decline in children's intrinsic motivation for math and school from ages 10 to 17 (Gottfried et al., 2001). Taylor et al. (2014) confirmed these findings in a metanalysis of 18 studies and in three empirical studies conducted in Canada and Sweden. A study assessing motivational orientation and development in a sample of 1,600 elementary and high school students revealed a systematic decrease in intrinsic motivation in late childhood and a slow stabilization during early adolescence (Gillet et al., 2012). Results from a study examining motivation movement from early

childhood to adolescence among gifted, intermediate, and at-risk students, validated the decrease of motivation during the late elementary school years and the stability or decline during transition and adolescence. Interestingly, this decline was less observed in high achievers (Marcoulides et al. 2008). Other studies investigating the developmental course of intrinsic motivation in relation to academic achievement in children from the United States and Europe also confirm the negative correlation between age and intrinsic motivation levels and highlight the unlikelihood that a decline in intrinsic motivation will be positively changed with age (Corpus et al., 2009; Gottfried et al. 2009; Lepper et al., 1997, 2005).

Possible explanations for these findings should be looked for in particular aspects of teaching and instruction during the early school years. Instruction strategies characterized by few attempts to trigger children's interest, strict classroom management, high achievement pressure, low levels of clarity of knowledge presentation, low cognitively stimulating experiences and general poor teacher-student relations diminish intrinsic motivation (Dweck, 2002; Eccles & Roeser, 2012; Wigfield et al. 2006, 2015, 2016). Children's competence beliefs and valuing of academic subjects also tend to decrease across the school years, affected to a great extent by evaluative information such as grade reports cards and performance feedback (Jacobs et al., 2002; Wigfield et al., 2016). Student's capacity to understand their own performance and make comparisons of their abilities with those of their peers increases the older they get. This realization of perceived competence might also affect the decline of intrinsic motivation in older children (Wigfield et al., 2015). The developmental decrease of intrinsic motivation may also be explained by the simultaneously increasing extrinsic motivation, built on the emphasis on external

contingencies, such as studying merely to receive good grades or pass an exam or please one's parents (Lepper et al., 1997; Lepper & Henderlong, 2000).

Cognitive Evaluation Theory

Cognitive Evaluation Theory (CET) was presented by Deci and Ryan (1985) to specify the factors in social contexts that produce variability in motivation development. The theory proposes that interpersonal events and structures affecting feelings of competence can enhance intrinsic motivation for an action because they facilitate satisfaction of the basic psychological need for competence (Deci et al., 1999, 2001). The connection of perceived competence or self-efficacy with self-determination seems to maintain or enhance intrinsic motivation. However, feelings of competence will enhance intrinsic motivation only when accompanied by a sense of autonomy which strongly relates to internal locus of causality (deCharms, 1968; Ryan & Deci, 2000a).

The CET aspect of SDT suggests that classroom and home environments can facilitate or hinder the development of intrinsic motivation by reinforcing versus thwarting the needs for autonomy and competence (Ryan & Deci, 2000a). External events, such as the provision of prizes, the delivery of assessments, the establishment of deadlines, and other motivational inputs, influence intrinsic motivation based on how these events affect a person's conceptions of competence and self-determination. Events that decrease perceived self-determination and lead to a more external perceived locus of causality will undermine intrinsic motivation, whereas those that increase perceived self-efficacy, like optimal challenges, positive feedback, and freedom from degrading evaluations, promote intrinsic motivation (Deci et al., 1999; 2001).

Parenting Components Influencing Self-Determination

The extent, to which the innate psychological needs of autonomy, competence and relatedness are met, is highly determined by parental interactions with their children (Ryan and Deci 2000b). Researchers studying parental influence on children have related a set of parental behaviors and beliefs to the development of motivation, locus of control and sense of efficacy. The investigated variables have included family emotional warmth and supportiveness, values and goals, discipline tactics, parental locus of control and sense of efficacy, parental communicative and teaching style and general interaction with the children (Eccles et al., 1998; Wigfield et al., 2006, 2015).

Grolnick et al. (2002) stressed the interplay of three components of general parenting in promoting self-determination in children and adolescents: adequate structure, involvement and interest in child's activities and support for autonomous behaviors. Parents who provide their children with challenge and stimulating learning opportunities, right amount of support and appropriate levels of structure seem more likely to produce highly competent and intrinsically motivated children. In contrast, overly controlling parents, who put excessive pressure on their children for success in school and activities, will most likely undermine the children's intrinsic interest and excitement in learning or in the activity by conditioning negative associations (Eccles et al., 1998; Gottfried et al., 1998; Grolnick, 2002; Wigfield et al., 2015). Effects of parental practices may vary by race/ethnicity, gender, social economic status, and nationality. However, there is a consensus about their influence in the indicators of children's motivation (Aunola et al., 2013; Kim, 2014; Lazarides et al., 2015; Wigfield et al., 2015).

Structure

Structure is conceptualized as the degree to which the environment is organized to promote competence. Family environments that provide consistent guidelines, positive feedback, and opportunities for growth facilitate children's competence and understanding of how to achieve success and have a sense of perceived control, which is crucial to motivation. Setting clear rules and expectations, connecting actions with consequences, providing rationales and structuring a child's social environment in a way that it promotes opportunities and exposes the child to several experiences and value systems is beneficial to the development of intrinsic motivation (Grolnick et al., 2014; Jacobs et al., 2002; Wigfield et al., 2015).

Parental structure has been linked to children's higher self-efficacy, academic engagement and success, self-worth, and fewer externalizing problems (Farkas & Grolnick, 2010; Grolnick & Ryan 1989; Froiland, 2011; Grolnick et al., 2014). Children with greater access to exploratory and activity-related materials demonstrate more positive attitudes and higher achievement in academics, reading, sports, and music (Simpkins et al., 2015; Wigfield et al., 2015). In line with the assumptions of SDT, Grolnick et al. (2014) postulated that, when parents provide structure, children feel more in control of both positive and negative outcomes of their actions and can better deal with successes and failures.

Involvement

Caring and supportive family environments with parents, who are involved in their children's lives, are attentive to their needs, dedicate time and offer warmth and emotional support, satisfy the need for relatedness. Active parental involvement has been correlated with increases of children's academic success and perceived

competence across gender and ethnic groups (Brown & Iyengar, 2008; Cheung & Pomerantz, 2012; Paulson, 1994) and is related to children's positive motivational and emotional functioning (Grolnick et al., 2021). Students of involved parents show higher perceived academic competence, prioritize their academic goals higher and take personal responsibility for their learning when their parents value and support their effort towards academic success. They adopt a mastery goal orientation to learning, which reflects intrinsic motivation and are more likely to seek challenging tasks, persevere through academic challenges and experience satisfaction in their schoolwork (Fan & Williams, 2010; Gonzalez-DeHass et al., 2005; Speirs-Neumeister & Finch, 2006). Parental involvement in their children's education can be also viewed as a proactive strategy for teaching problem-solving skills for dealing with school-related issues, thus positively affecting resilience (Grolnick & Slowiaczek, 1994; Pomerantz et al., 2007).

Autonomy Support versus Control

Within the Self-Determination Theory, parental autonomy support is conceptualized as providing reasoning and explanations, being an empathic parent to a children's perspective and providing choices and opportunities for self-initiation to assist the child explore and enact upon personal values and interests (Grolnick, 2002, 2009; Joussemet et al., 2012; Soenens & Vansteenkiste, 2005). Autonomy should not be confused with permissiveness or lack of involvement. Autonomy support pertains to the developmentally appropriate level of parental provision of structure and involvement, that leads to the right balance between structure, control and challenge (Eccles et al. 1998; Joussemet et al., 2008).

Autonomy fostering parenting styles are characterized by the extent of the use of attitudes that encourage independent problem-solving, facilitate choice, and self-initiation (Grolnick et al. 1997). Autonomy-supportive parents allow children to explore, to engage actively in solving their problems, to express their points of view and foster feelings of self-control. They provide rationale and reasoning, recognize child's feelings and perspective, offer choices, encourage initiatives, include children in decision-making and minimize control (Joussemet et al., 2008; Lokes et al., 2011; Patall et al., 2008). Autonomy supportive parents promote student motivational orientation towards setting of mastery goals and skill acquisition resulting in better performance levels (Gonida & Cortina, 2014).

Supporting students' autonomy seems to be particularly important for low-achieving children. Research findings illuminate increases in perceived competence and feelings of being socially supported in low achieving students, whose mothers consistently stressed the importance of effort and autonomous learning strategies during their involvement with their children's homework (Ng et al., 2004; Pomerantz et al., 2005). Parental reinforcement of children's autonomy has been positively related to children's self-regulation, perceived competence and academic achievement (Ginsburg & Bronstein 1993; Grolnick & Ryan, 1989; Grolnick et al., 1991; Jungert et al., 2015; Piquart, 2016; Soenens & Vansteenkiste 2005; Turner et al., 2009; Vansteenkiste et al. 2005).

Controlling parenting is associated with extreme parental value of obedience and compliance, which thwarts children's intrinsic motivation and represses self-determined regulation (Grolnick et al. 1997; Joussemet et al. 2008). Within SDT, controlling environments range from overinvolved to highly critical parents (Garn et

al., 2010). Controlling parents that impose strict behavior control, appreciate surveillance and intrusiveness and use rewards consistently to encourage appropriate behavior, weaken intrinsic and promote extrinsic motivation led by reward and adult dependency (Grolnick, 2002; 2009; Harter, 1981a; Ryan & Deci, 2000a). Children of controlling parents focus on performance goals trying to prove their ability or avoid negative judgments of their achievement. Avoidance of challenging tasks, intrinsic motivation decline, and viewing errors as an indicator of failure may be the outcome of the adoption of performance goals (Ames & Archer, 1988; Dweck & Leggett, 1988; Gonzalez-DeHass et al., 2005). Children's psychological control by high controlling parents has been associated with internalizing problems and low achievement (Farkas & Grolnick, 2010; Pinquart, 2016).

Parental Practices and Their Impact on Intrinsic Motivation

Deci & Ryan (1980) illuminated the role of parental factors that facilitate or undermine intrinsic motivation. Parental motivational practices that encourage pleasure of learning, curiosity and persistence, positively correlated to children's academic intrinsic motivation and achievement (Gottfried et al., 1994; Turner et al., 2009). Parental reinforcement of children's interest in exploring, mastery and orientation toward challenge predicted higher levels of intrinsic motivational status and served as a buffer against motivational decline in later years (Gottfried et al., 2009). Fostering choice, providing opportunities for self-direction and acknowledgement of feelings were also found to enhance intrinsic motivation (Patall et al., 2008; Ryan & Deci, 2000a; Ryan & Deci, 2000b). According to the findings of a meta-analysis of 23 studies, rationale provision improved intrinsic motivation,

school performance, task value, engagement and perceived autonomy (Steingut et al., 2017).

Homework Surveillance

Homework surveillance encompasses a wide range of actions, from constructing learning-friendly household structures to patterns of interaction aimed at improving the child's comprehension of homework and learning processes in general. Research findings show that parents become involved in their children's homework because they think that they should and that homework surveillance is expected by their children and their teachers. Students' attitudes toward homework, views of self-competence, and self-regulatory skills appear to be influenced by parents' homework involvement (Hoover-Dempsey et al., 2001).

Becoming involved in children's homework may be helpful to building feelings of competence and confidence. When parents use mastery-oriented practices, they may provide children with psychological resources that aid them in feeling competent (Pomerantz et al., 2006). On the other side, parental effort to ensure their child's high performance, especially if they hold a negative opinion about the child's academic efficacy, pushes parents to adopt a more controlling and intrusive style of homework surveillance. This highly interfering behavior sends a message of low trust to their child regarding their ability and efficacy to complete homework and deal effectively with the academic challenges (Cooper et al., 2000; Gonida & Cortina, 2014; Patall et al., 2008). Threats and deadlines regarding homework completion, imposed goals and competition pressure will also affect intrinsic motivation negatively because these practices conduce toward an external perceived locus of causality (Grolnick et al. 1997; Ryan & Deci, 2000a).

Reaction to Grades

Harter (1978) found that sixth graders chose easier anagrams to solve when they were given a letter grade for their performance compared to children who were told that the anagrams task was a game. These findings illuminated the impact of grades on children's natural tendency for challenging tasks, a significant indicator for intrinsic motivation. Parental use of rewards or punishment as a respond to grades seems to correlate with low grades and decreased school effort and involvement for the child (Deci et al., 2001; Froiland, 2011; Gottfried et al., 2009; Pittman et al., 1982; Ryan & Deci, 2000c), whereas parental positive attitude and encouragement tends to enhance academic achievement and effort (Ginsburg & Bronstein, 1993; Gottfried et al., 1994, Gottfried et al., 2009; Gonzalez-DeHass et al., 2005).

Praising students for good performance is likely to promote feelings of competence and intrinsic motivation compared to merely congratulating or rewarding them (Corpus et al., 2006; Froiland et al., 2012; Gottfried, 1983; Grolnick & Ryan, 1989; Deci et al., 1991, 1999; Ryan & Deci, 2000c; Vallerand, 1983). Positive task-focused performance feedback, that entails parental feedback on children's meeting expectations, has been positively related to higher intrinsic motivation. Constructive feedback enhances one's belief that he or she can attain success and facilitates perceptions of competence and control as opposed to feelings of helplessness (Deci et al., 1999; Farkas & Grolnick, 2010). Negative feedback diminishes intrinsic motivation by decreasing perceived competence (Deci & Ryan, 2000).

Parental Use of Rewards

Tangibles and rewards have been associated with lower intrinsic motivation because they tend to promote external perceptions of reasons for task engagement

(Gottfried et al., 1994). Different rewards have different effects on intrinsic motivation depending on the meaning of the reward to the child. Findings from a meta-analysis of 128 experimental studies affirmed that intrinsic motivation was significantly diminished by tangible rewards, expected rewards, engagement-contingent rewards, completion-contingent rewards, and performance-contingent rewards (Deci et al., 1999, 2001). In an experimental study conducted by Pittman et al. (1982), rewarded children demonstrated a high preference for simple versions of the activities of the experiment compared to children who did not receive rewards. Although the interest in the activity was not totally vanished, the contingent reward led to a shift toward the simpler version, whereas the non-contingent reward condition produced a shift to more complex activities.

Expected tangible rewards made contingent on task performance will provide little information about competence and emphasize the child's connection of the task completion with the reward rather than satisfying own interest or self-determination of goals and, and therefore, reliably undermine intrinsic motivation (Gottfried, 1983; Ryan & Deci, 2000b; Ryan & Deci, 2000c). Rewards were found to negatively influence intrinsic motivation of gifted students as well (Garn et al., 2010, 2012).

According to CET, rewards that are not expected and, therefore, are not associated with a task, will not affect intrinsic motivation negatively because the student will not relate the task behavior as being controlled by a reward.

Noncontingent extrinsic rewards, which are given unexpectedly after task completion are more likely to produce beneficial effects on intrinsic motivation than to produce detrimental effects, because they are not experienced as the reason for doing the task. Positively informational verbal rewards satisfy the need for competence and,

therefore, they enhance intrinsic motivation (Deci et al. 1999; 2001; Lepper & Henderlong, 2000).

Purpose of the Study

The purpose of this study was to better understand the correlation between family practices and children's motivational orientation and achievement in Greek families. Surveillance of homework, reaction to grades and autonomy support versus control were investigated among Greek primary caregivers of children in elementary school, by converging quantitative data received from an anonymous online survey using a self-administered questionnaire. Because most of the existing studies addressing motivational orientation in Greek students focus on its correlation with physical education or academic achievement without taking family practices, attitudes and perceptions into consideration, the researcher believes that there is a need to study the association of these practices with children's motivation and facilitate the realization of the implications of these practices. The goal of this study was to fill this gap, provide an insight on the trend of fostering motivation in Greek families and establish a relationship between motivation, achievement and family practices. The specific questions, to which the present study sought to provide answers, were the following:

Research question 1: Is there a significant negative or positive correlation between controlling family practices regarding homework and grades and intrinsic or extrinsic motivation and academic performance?

Research question 2: Is there a significant positive or negative correlation between autonomy supportive family practices regarding homework and grades and intrinsic or extrinsic motivation and academic performance?

Building on the literature, the researcher hypothesizes that negative reaction to grades, surveillance of homework and consistent use of rewards or punishment would be negatively associated with intrinsic motivation and academic performance and positively with extrinsic motivation, while autonomy supportive family practices regarding homework and grades would be positively associated with intrinsic motivation and achievement and negatively with extrinsic motivation.

Method

Participants

Participants of this study were English speaking primary caregivers of children attending public or private elementary schools in Athens. No other inclusion criteria were applied. Only one primary caregiver per child was asked to complete an online questionnaire (See Appendix A). Data were collected from 101 participants, 60 of them being mothers and 41 of them being fathers.

The focus on children in elementary school stems from the facts that parental involvement with school related activities is more prevalent and influential on children's behavior and perceptions during elementary school years and that academic intrinsic motivation seems to become stable as the school years progress and less responsive to interventions during adolescence (Froiland & Oros, 2014; Froiland & Davison, 2016; Gillet et al., 2012; Gottfried, 2009; Lepper et al., 1997, 2005).

Instruments

The instruments that were used in the study were the Intrinsic and Extrinsic Motivation Scales (Corpus et al. 2009, Lepper et al., 2005), a questionnaire addressing parental practices and children's school grades, and a demographic survey.

Instruments are described in detail below. All instruments were administered in English.

Motivational Orientation Scale

The Scale of Intrinsic Versus Extrinsic Motivational Orientation in the Classroom, Child Scale (See Appendix B), developed and validated by Susan Harter in 1980, is a widely used scale measuring academic motivational orientation. The scale assumes that these two constructs are opposites and, therefore, contains items

with opposite statements assessing extrinsic and intrinsic poles of motivation respectively, from which the child is asked to choose one and then decide whether this version is “sort of true” or “really true” for him/her. The Preference for Challenge subscale measures the child’s preference for challenging work versus easy tasks. The Curiosity/Interest subscale measures engagement out of own interest instead of pleasing the teacher and/or getting a good grade. The Independent Mastery subscale measures the child’s desire for learning out of own satisfaction and willingness versus pleasing others and getting good grades (D’Ailly, 2003; Ginsburg & Bronstein, 1983; Harter, 1981a, 1981b; Lepper et al., 2005; Lepper & Henderlong, 2000; Ryan & Connell, 1989).

However, both theory and experimental research findings suggest that intrinsic and extrinsic motivation may often coexist and that extrinsic motivation does not always imply the total lack of intrinsic motivation, a thought expressed by the scale developer as well (Deci et al., 1991, 1999; Harter, 1981; Hayenda & Corpus, 2010; Lepper & Henderlong, 2000; Lepper et al. 1997, 2005). Based on these assumptions, Lepper and colleagues (2005) suggested, examined and validated an adaptation of Harter’s scale, which allows children to rate intrinsic and extrinsic items independently in two separate scales, one measuring intrinsic motivation by assessing preference for challenge, curiosity/interest, and desire for independent mastery and the other measuring extrinsic motivation by assessing preference for easy work, focus on pleasing the teacher and getting good grades, and dependence on the teacher.

For the development of these new scales, Harter’s original 18 items of the three subscales were decomposed into 36 items, half of which measuring intrinsic motivation and the other half measuring extrinsic motivation scale, each with its own

5-point Likert-scale. The original two item statements were transformed into two separate items and the beginning of the sentences was rephrased. For example, Harter's original statement "Some kids like difficult problems because they enjoy trying to figure them out" vs "Other kids work on problems because you're supposed to" was presented as: "I like difficult problems because I enjoy trying to figure them out" in the intrinsic motivation scale and as "I don't like to figure out difficult problems" in the extrinsic motivation scale (Lepper & Henderlong, 2000; Lepper et al. 1997, 2005).

Correlations and factor analysis for internal structure run by the developers revealed some problematic items, which were removed from the new scales, because they either correlated with multiple factors or they did not load on the factor they had been designed to represent (i.e., "I like to just learn what I have to in school", "I ask questions because I want the teacher to notice me", "When I do not understand something right away, I want the teacher to tell me the answer", "I work really hard because I like to get good grades", "I do extra projects so I can get better grades" were removed from the extrinsic scale and "I like to make my own plans for what to do next" was excluded from the intrinsic motivation scale). Factor analysis was conducted for the remaining 17 intrinsic items and 13 extrinsic items to evaluate internal structure. Items on the intrinsic scale were found internally consistent ($\alpha = .90$), and the test-retest reliability was adequate ($r = .74, p < .001$). Internal consistency for the extrinsic scale ($\alpha = .78$) and test-retest reliability ($r = .74, p < .001$) was adequate (see Appendices C, D). The validity of the new scales was verified by significant and differential correlations between intrinsic and extrinsic motivation and academic achievement and by meaningful correlations with ratings of students'

classroom motivation by student's teachers (Lepper & Henderlong, 2000; Lepper et al. 1997, 2005).

Corpus and colleagues (2009) used the reliable and valid scales from Lepper et al. (2005) to measure changes in children's motivational orientations within the year. They added three new items in the extrinsic scale to increase its reliability and to include parents as authority figures children and adolescents may wish to please. The new items were: "I answer questions because the teacher will be pleased with me," "I work hard because my parents want me to get good grades," and "I do my schoolwork because it makes my parents happy." (see Appendix E). Factor analysis demonstrated good internal consistency ($\alpha = .83$) for the modified extrinsic motivation scale (Hayenda & Corpus, 2010)

For the present study, the Intrinsic and Extrinsic Motivation Scales developed by Lepper and colleagues (2005) and modified by Corpus and colleagues (2009) was used to measure children's motivational orientation. The scales were modified by the researcher to the extent that the items could be answered by primary caregivers instead of children. Therefore, instead of beginning each sentence with the word "I", the researcher used the words "my child" (i.e., "I like hard work because it is a challenge" was modified to "My child likes hard work because it is a challenge"). Primary caregivers were asked to rate the degree of their agreement with each sentence using a 5-point Likert scale of agreement; a score of 5 indicates maximum intrinsic or extrinsic motivation and a score of 1 demonstrates maximum intrinsic or extrinsic motivation on each scale respectively. The first 6 items of the intrinsic motivation scale were computed into the subscale of preference for challenge, items 7-12 were formed the subscale of curiosity/interest and the last 5 items were

computed into the subscale of independent mastery. The extrinsic motivation scale was divided in 3 subscales. First 5 items were assessing preference for easy work, items 23-25 and 31-33 formed the subscale of willingness to please others and the 5 remaining items were computed into the subscale of dependence on the teacher (Corpus et al., 2009; Lepper et al., 2005)

Family Practices Questionnaire

Family practices were assessed in the second part of the questionnaire, which was developed for the purpose of this study based on items found in the Homework Process Inventory developed in 2000 by Cooper and colleagues (see Appendix F) and in the Parental Task Endogeny and Task-Extrinsic Motivational Practices List (Gottfried et al., 1994, see Appendix G). These items address family practices and attitudes regarding homework and school grades, including rewards, punishment, parental negativity and overinvolvement or autonomy support. Since most parents are likely to be involved in their children's homework during elementary school, homework related practices are considered a good indicator of parent-child interaction in terms of autonomy versus control. Checking grades and reacting about them is also a regular form of interaction among this population (Froiland et al., 2012). High control vs. low autonomy support is indicated by high levels of intrusiveness of parental involvement with homework and by the connection of good grades with a reward and bad grades with punishment respectively, and by the negative reaction to bad grades. Low control vs. high autonomy is displayed in low levels of involvement in homework and in the absence or low levels of negative reaction to grades and their connection with rewards or punishments.

Ten items were selected from the two lists mentioned above to be included in the survey. Items on homework surveillance included the following sentences: a. How often do you help your child with homework? b. How often do you set the rules about when and how homework is done? c. How often do you check your child's homework? d. How often do you correct mistakes of your child's homework? e. How often do you have to remind your child to do her/his homework? Primary caregivers were asked to rate these items using a 5-point Likert scale of frequency. Higher scores reflect higher homework surveillance and intrusiveness.

Items on reaction to grades included the following sentences: a. I reward my child when she/he does well at school/activity. b. I remove privileges/punish my child when she/he receives low grades. c. I show my displeasure with low grades. d. I tell my child she/he can do better as a reaction to bad grades. e. I get angry when my child brings low grades. Participants of the study were asked to rate these items using a 5-point Likert scale of frequency. Higher scores on these items reflect parental negativity and high levels of control. All items addressing homework surveillance and reaction to grades were computed for measuring the variable of autonomy support versus control, with higher scores reflecting more controlling family practices, whereas lower scores revealing more autonomy supportive practices.

Academic Achievement

Since the focus of the researcher was the child's current performance and not the intellectual ability, school grades were used as the indicator of achievement. Children's school grades in three core subjects were obtained in the survey. Participants of the survey were asked to state their child's school grades in Mathematics, Greek and English. Letter grades of the Greek school system were

transformed to a standard 4-point numerical scale (i.e., A stands for 4, B stands for 3, C stand for 2 and D stands for 1). To measure the variable of academic achievement, the scores in the three subjects were added. Higher numbers reflected better grades.

Demographics

The last part of the survey questionnaire included demographic questions about participant's relationship with the child, marital status and current educational level, and child's gender, school type and school grade. No names or other identifying information were requested.

Design

This correlational research was a cross-sectional study, for which data were collected from the participants at one point of time. Quantitative data were collected by means of an online questionnaire to obtain measurable data that might identify relationships between autonomy supportive versus controlling family practices regarding homework surveillance and reaction to grades and children's motivational orientation and achievement. The questionnaire entailed the separate indices of intrinsic and extrinsic orientation, family practices, academic achievement and basic demographic questions along with an informed consent and a debriefing statement (see Appendices H, I). Items measuring motivation and family practices had five possible responses based on a Likert scale of agreement (1 = highly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 highly disagree) or frequency (1 = always, 2 = usually, 3 = sometimes, 4 rarely, 5 = never).

Procedure

Participants were recruited from the researcher's social network. Friends, relatives, and colleagues of the researcher, who have children in the elementary

school, were the first to receive to online questionnaire. The initial convenience sample was expanded via snowball sampling technique. The researcher asked the primary caregivers of her social network to distribute the survey link to similar subjects, so that a considerably good size sample was formed. No other personal contact was established to ensure anonymity. Participation in this survey was voluntary and anonymous.

The survey link was distributed online via e-mail or SMS. The researcher posted a short message with the study aim and the link to the survey asking participants to complete the online questionnaire anonymously. Participants were informed about the purpose of the study and it was also clarified that their anonymity will be guaranteed. The message was as follows:

“Hello everyone! My name is Riana Michalaki. I am a graduate student in an applied educational psychology program and I am currently doing my thesis on children's motivational orientation. It would be great if you could help me by completing some questionnaires that will take about 10 minutes of your time. All questions are anonymous; please don't state your name or give any personal information. If you are interested just click on the link, thank you!”

Participants interested to take part in the study clicked on the link and were transferred to the online survey platform without revealing their personal information. Once participants accessed the online survey, and before they proceeded with the completion of the questionnaires, they were asked to read an Informed Consent and agreed with the terms before they continue. In the Informed Consent, the nature and the purpose of the study was stated along with some contact information of the researcher and the thesis supervisor. More importantly, it was clarified that the

participation in this study was completely voluntary and the participants could choose not to participate at any time without facing any type of consequences. At last, it was clearly stated that data will be used only for scientific purposes and that no personal information like their name, email address or IP address will be asked. Consenting participants completed the selected scales of the study.

Data Analytic Plan

Data were tested for homogeneity of variance and normality. Descriptive statistics were calculated; for continuous variables the researcher calculated means, and standard deviations, while for categorical variables absolute and relative frequencies were calculated. Next, all instruments were assessed for their psychometric properties, namely internal consistency by computing the Cronbach's α coefficient of internal consistency for the entire scale, as well as the Cronbach's α if each of the items was excluded (Tables 1- 6). The Cronbach alpha was estimated at .876 for the Intrinsic Motivation Scale, at .840 for the Extrinsic Motivation Scale, at .876 for Homework Surveillance, at .816 for Reaction to Grades and at .882 for the variable of Autonomy Support vs Control. The above-mentioned Cronbach alpha values indicate a high level of internal consistency for all scales with this specific sample.

The researcher evaluated group differences in mean scores for all variables. Caregiver t-test was employed for two-level factors, such as gender; ANOVAs were computed for independent variables with more than two levels (e.g., participants' educational level). Finally, Spearman's rank-order correlation coefficients were calculated to assess the relationship between each scale and numerical variables. To test the hypotheses, the researcher first computed a correlational matrix to test the

bivariate correlations among all scales. The alpha level required for statistical significance was set at $p < .05$. The statistical software that was used is the IBM® SPSS® v23.0.

Results

The purpose of this study was to examine the associations between parental practices and children's motivational orientation and academic achievement. Data were collected from one informant, i.e., the mother or the father for $N = 101$ children, (56 girls and 45 boys), attending elementary school in Athens. There were no missing data from the survey. The normality of all variables was assessed. The Shapiro-Wilk test indicated that scores of children's academic achievement, extrinsic motivation, homework surveillance, reaction to grades and autonomy supportive versus controlling parental practices were not normally distributed, $p < .05$. Scores on intrinsic motivation were found to be normally distributed, $p > .05$ (Table 7). The researcher considered outliers genuine and decided not to delete them. The histograms in the Figures section show the distribution of data (Figures 1-6).

Demographical Descriptive Statistics

Demographic variables were participant's relationship with the child, current education level and marital status as well as the gender of the child, the school type and school grade level. The questionnaire was completed by 60 mothers and 41 fathers. The majority (56.4% of all participants) reported a university degree as current educational level, i.e., 46.7% of mothers and 70.73% of fathers. A master's degree was reported by 27.7% of the participants, i.e., 38.3% of mothers and 12.2% of fathers. Only 3.3% of mothers and 7.3% of fathers had a doctorate and 11.7% of mothers and 9.75% of fathers had completed Highschool. Most of the participants were married, i.e., 73.3% of mothers and 61% of fathers, one mother was unmarried and 25% of mothers and 39% of fathers were divorced.

Thirty-two mothers (53.3%) and 24 fathers (58.5%) completed the questionnaire for their daughter and 28 mothers (47.7%) and 17 fathers (41.5%) for their son. Out of the 101 children, 6 girls (5.9%) and 5 boys (4.9%) attended 1st grade, 12 girls (11.9%) and 10 boys (9.9%) were in the 2nd grade, another 12 girls (11.9%) and 10 boys (9.9%) attended 3rd grade, 14 girls (13.9%) and 12 boys (11.9%) were in the 4th grade and 12 (11.9%) girls and 8 boys (7.9%) attended 5th grade. Twenty-eight girls (27.7%) and nineteen (18.8%) boys attended public schools and another 28 girls (27.7%) and 26 boys (25.8%) attended private schools. Demographical statistics and crosstabulations are presented in Tables 8 and 9 in the Tables section.

Motivational Orientation

Children's motivational orientation was measured based on the perceptions of their caregivers, who answered the survey. The Intrinsic Motivation Scale consisted of the subscales of Challenge, Curiosity and Independent Mastery, whereas the Extrinsic Motivation Scale consisted of the scales of Easy Work, Pleasing Others and Dependence on Teacher. Data on motivational orientation were examined for possible interactions between the variables of school type, school grade level and students' gender.

The possible score range for the intrinsic and extrinsic motivation scales was 17-85 and 16-80 accordingly, with higher scores indicating higher levels of motivation. Girls' scores on intrinsic motivation ranged from 34 to 72, with a mean score of 54.37 (SD = 9.23) and boys' scores ranged from 38 to 79 with a mean score of 57.93 (SD = 9.12). Extrinsic motivation scores ranged between 33 and 71 for girls (M = 54.50, SD = 8.29) and 33 and 63 for boys (M = 51.31, SD = 7.92) (Table 10).

The Chi square test for independence indicated no significant association between child gender and intrinsic motivation, $\chi^2(35, n = 101) = 28.82, p > .05$, or extrinsic motivation, $\chi^2(28, n = 101) = 26.05, p > .05$ (Table 11). An independent sample t test revealed a significant effect for gender, $p = .030$, in the intrinsic motivation subscale of preference for challenge, with boys ($M = 20.11, SD = 3.40$) attaining higher scores than girls ($M = 18.48, SD = 4.01$). No significant difference among child gender was found in the other subscales of intrinsic and extrinsic motivation, $p > .05$ (Tables 12 & 13).

The mean score for intrinsic and extrinsic motivation among students in public schools was 57.55 ($SD = 8.96$) and 53.06 ($SD = 7.07$) and among students in private schools was 54.57 ($SD = 9.46$) and 53.09 ($SD = 9.21$) respectively (Table 14). The Chi square test for independence indicated no significant association between school type and intrinsic, $\chi^2(35, n = 101) = 25.51, p > .05$, or extrinsic motivation, $\chi^2(28, n = 101) = 34.89, p > .05$ (Table 15). An independent t test analysis of the motivational subscales revealed no significant effect of the school type, $p > .05$ (Table 16).

Table 17 displays students' mean scores of intrinsic and extrinsic motivation by grade level. Students in 1st and 4th grade demonstrated the lowest levels of intrinsic motivation ($M = 54, SD = 8.82$ for 1st graders, $M = 54.46, SD = 10.87$ for 4th graders) followed by students in the 5th grade ($M = 56.45, SD = 9.28$). Second graders had a mean score of 56.54 ($SD = 8.06$) and 3rd grades had the higher score across grade level ($M = 57.68, SD = 9.12$). Students in the 1st grade had the highest scores on extrinsic motivation ($M = 57.09, SD = 6.71$), followed by 2nd graders ($M = 55.27, SD = 8.38$) and 4th graders ($M = 52.54, SD = 10.10$). Fifth graders had a mean score of 51.60 ($SD = 6.25$) and 3rd grades had the lowest score in extrinsic motivation

across grade level ($M = 50.86$, $SD = 7.34$). Children's scores in the subscales of the motivational scales are displayed in Figures 7 and 8.

The Chi square test for independence indicated no significant association between school grade and intrinsic motivation, $\chi^2(140, n = 101) = 156.02$, $p > .05$. A significant relation between school grade level and extrinsic motivation was identified, $\chi^2(112, n = 101) = 150.56$, $p = .009$ (Table 18). For each of the motivation composites, a one-way Analysis of Variance (ANOVA) was conducted with school grade level as the independent variable. No significant differences among grade levels in students' intrinsic and extrinsic motivation scales and subscales were revealed, $p > .05$ (Table 19). Because there were no significant interactions involving gender, school type and grade level data were collapsed across these variables for all subsequent analyses.

Academic Achievement

Academic achievement was measured by children's reported grades in Greek, Mathematics and English. Scores ranged from 6 to 12. Higher scores reflected better school grades. The mean score for girls was 10.11 ($SD = 1.90$) and for boys 10.69 ($SD = 1.56$). Fourth graders had the highest reported scores ($M = 11.08$) and 5th graders the lowest ($M = 9.65$). First graders score was 10.27 ($SD = 1.85$), 2nd graders scored 10.09 ($SD = 1.82$) and 3rd graders had a score of 10.50 ($SD = 1.57$) (Table 20). The demographic variables of child gender and school type demonstrated no significant association with academic achievement, $p > .05$. The Chi square test indicated a significant relation only between school grade level and academic achievement, $\chi^2(24, n = 101) = 37.23$, $p = .042$ (Table 21).

Parental Practices

The possible range of scores for parental homework surveillance and reaction to grades was between 5 and 25 and the possible range of scores for controlling versus supportive practices was between 10 and 50. Higher scores indicated higher levels of control. The mean score of all survey participants for parental homework surveillance was 17.79 (SD = 4.63), for reaction to grades 14.49 (SD = 4.83) and for autonomy versus control 32.29 (SD = 8.39). Mothers' mean scores for homework surveillance, reaction to grades and autonomy versus control were 17.35 (SD = 4.60), 14.52 (SD = 4.93) and 31.87 (SD = 8.37) respectively. Fathers' mean scores for homework surveillance was 18.43 (SD = 4.66), for reaction to grades 14.46 (SD = 4.72) and for autonomy versus control 32.90 (SD = 8.49). These results are displayed in Table 22 in the Tables section. Independent sample t tests showed no significant effect for parental gender on parental practices, $p > .05$ (Table 23). Figure 10 presents the mean scores of homework surveillance across school grade level, for which a declining trend was observed. Highest scores were reported by parents of 1st graders ($M = 20.27$) and 2nd graders ($M = 19.09$). No trend across ages was revealed for reaction to grades.

The highest rated items for homework surveillance were: "How often do you set the rules about when and how homework is done?", for which most caregivers' responses were "always" (29.7%) or "usually" (37.6%) and "How often do you check your child's homework?", where 41.6% of caregivers answered "always" and 18.8% "usually" (Table 24). The highest rated item for reaction to grades was: "I reward my child when she/he does well at school/activity.", with 40.6% of caregivers answering "always" and 22.8% "usually", whereas the lowest rated item was: "I remove

privileges/punish my child when she/he receives low grades.”, for which only 5.9% of the participants responded “always” (Table 25).

One-way ANOVA tests revealed minor differences in the mean scores of parental practices when considering the variables of marital status and parental educational level. Reported scores on controlling practices were higher among married parents and among caregivers, who have completed high school (Tables 26 & 27).

Correlational Analysis

Spearman's rho correlations between children's intrinsic and extrinsic motivation and academic achievement and parental practices were computed to examine bivariate relationships between these variables (Tables 28 & 29). Spearman's rank order correlation indicated a moderate negative association between intrinsic motivation and higher control, $r_s = -.615$, $p = .000$, negative reaction to grades, $r_s = -.495$, $p = .000$, homework surveillance, $r_s = -.543$, $p = .000$ and extrinsic motivation, $r_s = -.595$, $p = .000$. Extrinsic motivation was positively associated with high parental control, $r_s = .559$, $p = .000$, reaction to grades, $r_s = .433$, $p = .000$ and homework surveillance, $r_s = .525$, $p = .000$.

Among the items addressing homework surveillance, the most influential on intrinsic motivation were the questions “How often do you have to remind your child to do her/his homework?”, $r_s = -.540$, $p = .000$, and “How often do you correct mistakes of your child's homework?”, $r_s = -.491$, $p = .000$. The items “How often do you check your child's homework?”, $r_s = .555$, $p = .000$ and “How often do you correct mistakes of your child's homework?”, $r_s = .515$, $p = .000$ demonstrated the

highest correlations with extrinsic motivation scores. Removing privileges or punish a child due to low grades, $r_s = -.438$, $p = .000$ and getting angry as a reaction to bad grades, $r_s = -.495$, $p = .000$ demonstrated the highest negative correlation with intrinsic motivation. Rewarding a child for good performance, $r_s = -.430$, $p = .000$, and punishing or removing privileges, $r_s = -.458$, $p = .000$ were the most powerful items among parental practices regarding reaction to grades when correlated with extrinsic motivation.

Spearman's rho correlation testing revealed moderately negative correlations between children's academic achievement and high parental control, $r_s = -.615$, $p = .000$, negative reaction to grades, $r_s = -.550$, $p = .000$, homework surveillance, $r_s = -.543$, $p = .000$ and extrinsic motivation, $r_s = -.333$, $p = .001$. Intrinsic motivation was positively correlated with academic achievement, $r_s = .488$, $p = .000$. Mean levels of intrinsic and extrinsic motivation by academic achievement scores are displayed in Figure 9. Helping with homework, $r_s = -.512$, $p = .000$, correcting homework mistakes, $r_s = -.475$, $p = .000$ and checking homework, $r_s = -.483$, $p = .000$ were the most controlling parental practices for academic achievement. Getting angry as a reaction to bad grades, $r_s = -.531$, $p = .000$ and showing displeasure with grades, $r_s = -.484$, $p = .000$, demonstrated the highest correlations with academic achievement.

Children of caregivers who reported more autonomy supportive practices had higher scores in the intrinsic motivation subscales of preference for challenge, curiosity and independent mastery and lower scores in the extrinsic motivation subscales of preference for easy work and pleasing others. On the other hand, children, whose parents used more controlling practices, had lower scores in all

intrinsic motivation subscales and higher scores in the extrinsic motivation subscales of preference for easy work and pleasing others (Figures 11, 12). The highest positive correlations were found between preference for easy work and homework surveillance, $r_s = .598$, $p = .000$ and reaction to grades, $r_s = .544$, $p = .000$. The highest negative correlations were observed between homework surveillance and preference for challenge, $r_s = -.523$, $p = .000$ and independent mastery, $r_s = -.520$, $p = .000$ (Table 30).

Discussion

The purpose of this study was to gain a better understanding of familial influences on children's motivational orientation and academic achievement as measured by caregivers' perceptions and children's school grades respectively. Based on self-determination theory related research, the researcher predicted that controlling parental practices, i.e., negative verbal reaction to grades, surveillance of homework, consistent use of rewards and deprivation of privileges or punishment, would be associated with high scores of extrinsic motivation, low scores of intrinsic motivation and low school grades, whereas autonomy supportive practices, i.e., low levels of parental intrusiveness and encouragement of choice about homework completion, lack of critical judgement, total absence or low use of rewarding or punishing or deprivation of privileges as a reaction to low school grades, would correlate with high intrinsic motivation scores, better school performance, and low scores in extrinsic motivation. Overall, this study results supported the hypotheses. ANOVA and independent sample T-tests revealed no significant differences in the mean scores of parental practices, motivational orientation and academic achievement when considering the demographic variables of parental gender, marital status and educational level and child gender, school grade and school type.

Consistent with previous literature on the effects of parental practices on children's motivational orientation and school performance (Brown & Iyengar, 2008; Deci & Ryan, 1980; Froiland, 2011; Ginsburg & Bronstein, 1993; Gonzalez-DeHass et al., 2005; Gonida & Cortina, 2014; Gottfried et al., 1994, 2009; Grolnick & Ryan, 1989; Hayenda & Corpus, 2010; Lepper & Henderlong, 2000; Lepper et al. 1997, 2005; Patall et al., 2008; Turner et al., 2009; Vansteenkiste et al. 2005), this study

results indicated a positive correlation between autonomy supportive caregivers and children's intrinsic motivation and school performance and a negative correlation with children's perceived extrinsic motivation. Specifically, less intrusive parental practices regarding homework surveillance, i.e., not checking and correcting children's mistakes before homework submission, supporting children's own decision about when and how they complete schoolwork at home, and low use or absence of rewards, privilege removal, punishment and negative judgement as a reaction to grades, correlated with higher scores on the intrinsic motivation scale, lower scores on the extrinsic motivation scale and better school grades. Children of autonomy supportive caregivers scored higher in their perceived preference for challenge, curiosity or interest driven attitudes and independence mastery and lower in all extrinsic motivation subscales.

The current study findings about the relation between autonomy supportive parental practices and children's intrinsic motivation development and school performance suggest that when caregivers support autonomy, children are more likely to internalize the regulation of their behavior. Children of autonomy supportive home environments appear to use an internal criterion for evaluating success and engage in schoolwork due to pure enjoyment of challenge and the need to satisfy their curiosity and interest rather than driven by external causes. Results are consistent with prior research, which underpins that parental fostering of children's autonomy positively correlates with children's self-regulation, interest for activities, perceived competence, positive attributions for performance, skill development and therefore, intrinsic motivation and school grades (D'Ailly, 2003; Cooper et al., 2000; Ginsburg & Bronstein 1993; Grolnick & Raftery-Helmer, 2013, 2014; Grolnick & Ryan, 1989;

Jungert et al., 2015; Lerner & Grolnick, 2020; Pomerantz et al., 2007; Soenens & Vansteenkiste 2005; Vansteenkiste et al. 2005).

On the other hand, controlling parental practices, demonstrated in high levels of involvement with homework, i.e., correcting children's mistakes, supervising and setting the rules for homework completion, and in consistent use of rewards, punishment, removal of privilege and critical judgement as a reaction to grades, displayed a moderate negative correlation with intrinsic motivation and school performance and a positive correlation with extrinsic motivation. Scores of children of controlling parents were lower in all intrinsic motivation subscales and higher in the extrinsic motivation subscales of preference for easy work, willingness to please others and dependance on teacher, when compared with the scores of children with autonomy supportive parents. These results replicate prior research findings emphasizing that controlling parents, who appreciate surveillance, intrusiveness and consistent use of rewards to encourage appropriate behavior, weaken intrinsic motivation and strengthen extrinsic motivation (Froiland, 2011; Froiland et al. 2013; Ginsburg & Bronstein, 1983; Grolnick, 2002; 2009; Harter, 1981; Ryan & Deci, 2000).

The current study provided some information regarding age related motivational development. Whereas various studies have underpinned the systematic decrease in intrinsic motivation during late elementary school years among gifted, intermediate, and at-risk students (Corpus et al., 2009; Gillet et al., 2012; Gottfried et al. 2001, 2009; Lepper et al., 1997, 2005; Marcoulides et al., 2008), the present study revealed a different pattern of results. Parental reports regarding their child's motivational driven attitudes did not confirm a steady decline in intrinsic motivation

or a constant increase in extrinsic motivation in late childhood. According to the findings, 1st graders displayed the lowest scores on intrinsic and the highest scores on extrinsic motivation among all school grades. Second graders had high scores in both intrinsic and extrinsic motivation. Students of the 3rd grade had the highest scores on intrinsic and the lowest scores on extrinsic motivation. Fourth graders demonstrated mean scores on both motivational dimensions and students in 5th grade had high levels of intrinsic and lower levels of extrinsic motivation. Results of this current study imply that the decrease or increase of motivational dimensions is not linear.

A conclusion from the present study is that motivation is not a stable condition. It varies as a child progresses through the elementary school curriculum. Various reasons could be held responsible for these finding. Children's self-competence beliefs may explain variations in motivational orientation among children of different age. Children's capacity to understand their own performance and abilities increases the older they get, influenced by cognitive development and maturation level. Self-competence beliefs are also affected to a great extent by peer comparison, evaluative information such as school grades and exam results, increasing difficulty of school grade curriculum, and performance feedback received by teachers. (Jacobs et al., 2002; Wigfield et al., 2015, 2016). As a result of the above-mentioned factors, as children move through elementary school, their beliefs about their abilities become more accurate. Research findings underpin that children's competence beliefs decline across the elementary school years, while changing from a very optimistic to a more realistic or sometimes pessimistic viewpoint (Eccles et al., 1998; Wigfield et al., 2015). Children, who feel competent, are more likely to display an increase in intrinsic motivation as they grow, whereas students, whose parents or teachers or

themselves are not satisfied with their performance, or they think of themselves as inferior to their peers might be more dependent on extrinsic reinforcement.

Another interpretation of this unstable trend in the scores of intrinsic and extrinsic motivation, consistent with the work of Lepper and colleagues (1997, 2005), is that these two dimensions of motivation can coexist and interchange across periods rather than being thought of as the opposite ends of a single dimension. As children grow towards transition to adolescence, it is more adaptive and age appropriate to look for interesting and pleasurable activities while simultaneously not ignoring extrinsic consequences in specific environments, such as the school context, to maximize present and future outcomes and opportunities without undermining the aspects of curiosity, interest and pleasure for an activity. A decrease in intrinsic motivation can be explained by the simultaneously increase of extrinsic motivation during a certain period as a result of balancing between internal and external consistencies (Lepper et al., 1997, 2005; Lepper & Henderlong, 2000).

According to related studies, several other factors may be held responsible for within year or year-to-year changes in children's motivational orientation, which were not assessed in the present study. As children grow, they demonstrate a decrease in appreciation of academic subjects and partial or general loss of interest for particular school subjects simply because they cannot find them interesting, relevant or useful (Lepper et al., 2005). Extrinsic contingencies such as good grades or rewards may lose their significance over time, especially when children enter the transition period to adolescence, thus affecting their motivational orientation. Research has also highlighted that most children become less willing to please others over time and are less dependent on their parents' involvement with their learning. Their tendency to

minimize adult influence driven by their increasing need for autonomy may be held responsible for an increase in intrinsic motivation and a parallel decrease in extrinsic motivation (Eccles et al., 1998; Corpus et al., 2009; Wigfield et al., 2015). On the other hand, as children progress through school, parental control will mostly increase driven by their expectations about children's present and future academic success leading to higher extrinsic motivated and lower intrinsic behaviors displayed by their children (Eccles et al., 1998; Corpus et al., 2009).

Implications

Identifying the factors that influence a child's motivation and achievement is quite difficult and complex. According to SDT, personal values, attitudes, and self-perceptions interact with social and environmental factors, i.e., home and school environment, towards the satisfaction of our basic psychological needs. These interpersonal events and environmental structures, that affect our need for autonomy, competence and relatedness, can determine a child's motivational orientation by reinforcing versus thwarting our innate needs and influence academic performance (Deci et al., 1999, 2001; Deci & Ryan, 2000; Ryan & Deci, 2000a).

In the present study, homework surveillance was conceptualized as a highly intrusive and overcontrolling interaction between the caregiver and the child. Parental involvement in children's homework, manifested in establishing structures, setting rules and expectations, providing rationales, and associating actions with consequences, has been the focus of many studies in an attempt to clarify how home-based involvement contributes to student motivational development and school performance. However, although numerous studies suggest that parental involvement

with students' schoolwork has beneficial effects on a child's psychological, cognitive and social development, results have been mostly inconsistent so far.

Involvement has been associated with academic engagement and success (Farkas & Grolnick, 2010; Grolnick & Ryan 1989; Froiland, 2011; Grolnick et al., 2014), perceived competence (Brown & Iyengar, 2008; Cheung & Pomerantz, 2012; Paulson, 1994), intrinsic motivation and emotional regulation (Fan & Williams, 2010; Gonzalez-DeHass et al., 2005; Grolnick et al., 2014, 2021; Jacobs et al., 2002; Speirs-Neumeister & Finch, 2006; Wigfield et al., 2015). However, findings from other studies give prominence to a number of mediator variables, i.e., student's age and competence, type and quality of parental involvement, parental pressure for grades, child and parent's expectations, to explain detrimental effects of parental involvement to children's intrinsic motivation and achievement (Cooper et al., 2000; Fan & Williams, 2010; Froiland et al., 2012; Gonida & Cortina, 2014; Hoover-Dempsey et al., 2001; Ng et al., 2004; Patall et al., 2008).

The idea behind motivational development is that autonomy supportive parental involvement improves children's achievement by providing a variety of motivational resources that encourage school engagement. Caregivers, who are interested in their children's school life, emphasize the importance of education, and facilitate children's internalization of its value. When parents' involvement is autonomy supportive, process focused and marked by positive affect, i.e., taking children's perspectives, encouraging choice and decision making, providing rationales, reinforcing problem solving, children will feel ownership of their behaviors. Their academic engagement will be driven by personal relevance rather than extrinsic forces. On the other hand, an overcontrolling involvement, which

directs children's behaviors to a great extent, may have consequences, such as low self-efficacy, self-competence and self-regulation and poor school grades (Grolnick & Raftery-Helmer, 2013; Grolnick et al., 2014; Lerner & Grolnick, 2020; Grolnick & Slowiaczek, 1994; Pomerantz et al., 2007; Turner et al., 2009).

Having parents involved in their children's education is a vital step toward intrinsic motivation development and better school performance. However, how parents become involved is critical. Several studies give prominence to the associations of different forms of parental involvement in homework with different results emphasizing on the quality and not the quantity or the frequency of involvement as the key aspect (Hoover-Dempsey et al., 2001; Patall et al., 2008; Pomerantz et al., 2007). Understanding the quality of parents' involvement in children's academic life is essential. A focus on how parents become involved rather than only on the extent of parents' involvement is important to identify the right way and amount of structure that leads to a balanced level of involvement with children's schoolwork, which is neither overcontrolling nor neglectful, and facilitates children's development of intrinsic motivation and feelings of self-competence that lead to better academic outcomes. Early childhood interventions that focus on the significance of the quality of involvement and teach parents effective strategies of involvement but also how these strategies vary as a function of age is essential (Froiland et al, 2012).

The most common practice that participants of this survey reported as a reaction to grades was the use of rewards. Results indicated that rewarding performance was associated with high levels of children's extrinsic motivation. The use of rewards demonstrated a moderate negative correlation with academic achievement and intrinsic motivation. This pattern of results replicates prior research

that associates rewarding academic achievement with higher levels of extrinsic motivation and low intrinsic motivation and school performance (Deci et al., 1999, 2001; Garn et al., 2010, 2012; Ginsburg & Bronstein, 1983; Gottfried et al., 1994; Gottfried, 1983; Patall et al., 2008; Pittman et al., 1982; Ryan & Deci, 2000b, 2000c).

The use of performance related rewards, regardless of being material or symbolic, is a strong indicator of behavior control. In the expectance of a reward, an individual might engage in a behavior that otherwise she/he would not have demonstrated. By promoting an external perceived locus of causality for the rewarded behavior, they undermine intrinsic motivation, while increasing external factor dependance. Given the extensive literature about the association of intrinsic motivation with better performance and positive attitudes, this decline is a significant issue (Deci et al., 1999; Ryan & Deci, 2000c).

Performance contingent rewards are used in our daily life to indicate competence. However, they provide minimum feedback about competence and accentuate the connection of the task with the reward. Low achieving children, who are less likely to receive them, might feel more discouraged and disappointed by a reward system, which not only controls behavior but also sends negative-competence feedback. Findings from related research suggest that parental use of performance contingent rewards should be discouraged due to the adverse outcomes on children's intrinsic motivation (Deci et al., 1999, 2001; Garn, 2012; Gottfried et al., 2009; Ryan & Deci, 2000c).

Caregivers may have the best intentions when providing rewards. However, since most of the times parental rewarding of performance may not have the intended outcome, parents need to be educated about the possible consequences of this practice

and directed to rewarding effort, persistence and self-initiation instead of achievement, thus focusing on the process of learning instead of the outcome. Parental training programs should focus on how to foster intrinsic motivation, by facilitating engagement with interesting learning activities and optimally challenging tasks, encouraging decision making, providing choice, positive task-focused feedback and verbal praise for effort and engagement, rather than using rewards for encouraging children's learning (Corpus et al., 2006; Froiland et al., 2012; Garn et al., 2012; Gottfried, 1983; Grolnick & Ryan, 1989; Deci et al., 1991, 1999, 2001; Ryan & Deci, 2000c; Vallerand, 1983).

Limitations

Although the present study results support the research hypotheses, it is appropriate to recognize several potential limitations. A first limitation concerns the lack of multiple sources of information regarding children's motivation and achievement as well as parental practices. The data of this study were received only by caregivers, who were requested to provide information about their own practices, their children's motivational directed behaviors and their school grades using a self-administered online survey. The traditional drawbacks related to self-report measures characterize the present study, as well. Collecting data from only one respondent usually presents a problem with respondent bias, which might jeopardize the accuracy of the data. As commonly observed in survey research, participants might have responded with answers they believed were the correct or desirable, either to the researcher or to themselves, and not with what accurately reflected their children's attitudes and school performance as well as their parenting behaviors. These social desirability responses may have altered the results of this study. The inclusion of

multiple informants (e.g., children and teachers) in future research is suggested to enhance the validity of the findings.

A second limitation of the present study concerns the current research design. Findings relied on a cross-sectional study using data collected at one point in time. However, the cumulative impact of several effects throughout a school year or over years of schooling could possibly have an impact on the development of motivation and the level of school performance. Future research should include longitudinal studies involving teachers, parents and children in order to clarify the developmental pattern of motivation and the related academic achievement and assess how certain dimensions of parental involvement may influence these variables for a longer time period.

As a third limitation of this study, the researcher considers the changes in the use or the form of the selected scales that measured the study variables. The Intrinsic and Extrinsic Motivation Scales (Corpus et al., 2009; Lepper et al., 2005) have been developed and used with children and adolescents, not with parents, who were requested to respond on their behalf. Moreover, the items selected to measure parental practices did not form an already developed scale. The researcher selected them from related list (Cooper et al., 2000; Gottfried et al., 1994) and formed a new scale.

Another limitation deals with the correlational nature of the data analysis, which does not allow drawing conclusions regarding possible causal relations between different dimensions of parental practices and children's motivational orientation and academic performance. Although the analyses implied that parental practices regarding homework surveillance and reaction to grades significantly correlates with the motivational outcomes and the academic achievement, it is also

possible that other factors influence these results. Therefore, causality cannot be claimed based on correlational patterns among the variables.

One further limitation of the study is that no information about children's and family's physical and mental health, children's innate abilities and personality traits, family's socioeconomic status, environmental influences and educators' teaching style was included in the survey. Some, if not all, of these factors that were not addressed, may have played a key role in children's motivational orientation and level of school performance. These factors might also have affected the development of autonomy supportive versus controlling parental practices. Therefore, it is important that future studies consider these variables in order to provide a thorough understanding of the factors that have the strongest impact on the development of motivation for children in elementary school.

A final limitation of this research is the extent to which results can be generally applied. The current data were obtained from a random sample of English-speaking Greek caregivers living in Athens. Hence, the caregivers who participated in the present study may not represent the average Greek family. Therefore, the applicability of the results to populations with different characteristics (e.g., non-English speaking caregivers, families with different ethnic background, families living in small towns or villages) has yet to be determined. Future research is needed to replicate and extend the present findings.

Conclusion

Despite these limitations, this current study has enhanced our understanding of the relationship between certain parental practices and children's motivational orientation and academic achievement among Greek families in Athens. Results underscored a positive correlation between autonomy supportive parental practices and children's intrinsic motivation and school performance and a negative correlation with children's perceived extrinsic motivation. Demographic variables did not demonstrate a significant effect on the examined variables. This research replicated prior research findings concerning the associations of parental practices with children's motivational orientation and school performance (Brown & Iyengar, 2008; Deci & Ryan, 1980; Froiland, 2011; Ginsburg & Bronstein, 1993; Gonzalez-DeHass et al., 2005; Gonida & Cortina, 2014; Gottfried et al., 1994, 2009; Grolnick & Ryan, 1989; Hayenda & Corpus, 2010; Lepper & Henderlong, 2000; Lepper et al. 1997, 2005; Patall et al., 2008; Turner et al., 2009; Vansteenkiste et al. 2005), but not research findings that underpinned a systematic decrease in intrinsic motivation as children progress through elementary school (Corpus et al., 2009; Gillet et al., 2012; Gottfried et al. 2001, 2009; Lepper et al., 1997, 2005; Marcoulides et al., 2008).

Considering the correlational character of this research, no causal inferences were assumed. Although results imply that autonomy supportive practices are associated with intrinsic motivation and better school grades, it cannot be concluded that autonomy support played a causal role either in motivational development or in academic achievement. It is not possible to discern whether the revealed associations are due to parental practices causing motivational orientation and achievement, motivation and achievement eliciting parental practices, and/or to some other factor.

A further step would be an investigation of parental practices and children's motivation and achievement in a longitudinal study, that would allow making stronger inferences of causality between the variables over time

The researcher estimates that it would be very difficult to identify causality for motivational orientation and level of academic achievement in single factors. Both intrinsic motivation and school performance are influenced by factors that lie within and around each child. However, the identification of factors that have a negative impact on intrinsic motivation and achievement is essential in order to facilitate pleasure of learning, curiosity and persistence, and self-regulation. Future experimental studies should attempt to isolate the effect of each parental practice on motivation and achievement to explore potential explanations for differential effects and better identify, which particular practices have a positive or negative impact on motivation and achievement and under which circumstances this impact is minimized or maximized. A clear picture of the benefits of certain parental practices will provide necessary information for designing interventions aimed at promoting children's intrinsic motivation. The focus of parental psychoeducation programs should be on the process of learning instead of performance. Interventions should promote the importance of maintaining parental positive affect and train parents in age-appropriate strategies of involvement in children's schooling that facilitate intrinsic motivation.

In summary, this present study allowed some insight into the relationship between controlling vs autonomy supportive parental practices and intrinsic motivation in Greece, which might be useful for school psychologists when designing parental psychoeducational programs. Although the generality of the current results should be established by future research, the present study has provided clear support

for a positive correlation between autonomy supportive caregivers and children's intrinsic motivation and school performance and a negative correlation with children's perceived extrinsic motivation. Future research is needed to validate and generalize the results.

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Appendix A

Final Survey Questionnaire

Intrinsic Motivation Scale

1. My child likes hard work because it is a challenge.
2. My child likes to learn as much as she/he can in school.
3. My child likes to go on to new work that is at a more difficult level
4. My child likes those school subjects that make her/him think pretty hard and figure things out.
5. My child likes difficult problems because he/she enjoys trying to figure them out.
6. My child likes difficult schoolwork because she/he find it more interesting.
7. My child asks questions in class because she/he wants to learn new things.
8. My child does extra projects because she/he can learn about things that interest her/him.
9. My child reads things because she/he is interested in the subject.
10. My child does her/his schoolwork to find out about a lot of things she/he has been wanting to know.
11. My child works really hard because she/he really likes to learn new things.
12. My child works on problems to learn how to solve them.
13. My child likes to figure out how to do school assignments on her own.
14. When my child does not understand something right away, she/he likes to figure it out by herself/himself.
15. When my child makes a mistake, she/he would rather figure out the right answer by herself/himself.
16. If my child gets stuck on a problem, she/he keeps trying to figure out the problem on her/his own.
17. My child likes to do homework without help.

Final Survey Questionnaire cont.

Extrinsic Motivation scale

18. My child does not like to figure out difficult problems.
19. My child does not like difficult schoolwork because she/he has to work too hard.
20. My child likes easy work that she/he is sure she/he can do.
21. My child likes to stick to the assignments which are pretty easy to do.
22. My child likes school subjects, where it is pretty easy to just learn the answers.
23. My child reads things because the teacher wants her/him to.
24. My child does her/his schoolwork because the teacher tells her/him to.
25. My child works on problems because she/he is supposed to.
26. My child likes to have the teacher to help him/her with schoolwork.
27. When my child makes a mistake, she/he likes to ask the teacher for help.
28. If my child gets stuck on a problem, she/he asks the teacher for help.
29. My child likes the teacher to help him/her plan what to do next.
30. My child likes to ask the teacher how school assignments should be done.
31. My child answers questions because the teacher will be pleased with her/him.
32. My child works hard because parents want her/him to get good grades.
33. My child does schoolwork because it makes her/his parents happy.

Parental practices

34. How often do you help your child with homework?
35. How often do you set the rules about when and how homework is done?
36. How often do you check your child's homework?
37. How often do you correct mistakes of your child's homework?
38. How often do you have to remind your child to do her/his homework?
39. I reward my child when she/he does well at school/activity.
40. I remove privileges/punish my child when she/he receives low grades.

Final Survey Questionnaire cont.

- 41. I show my displeasure with low grades.
- 42. I tell my child she/he can do better as a reaction to bad grades.
- 43. I get angry when my child brings low grades.

Academic achievement

- 44. What is your child's grade in Greek language?
- 45. What is your child's grade in Mathematics?
- 46. What is your child's grade in English?

Demographic questions

- 47. What is your relationship with the child?
 - a. Mother b. Father c. Other
- 48. What is the gender of your child?
 - a. Girl b. Boy
- 49. What is your child's grade?
 - a. 1st grade b. 2nd grade c. 3rd grade d. 4th grade e. 5th grade f. 6th grade
- 50. What school type does your child attend?
 - a. Public school b. Private school
- 51. What is your current marital status?
 - a. Unmarried b. Married c. Divorced
- 52. What is your current level of education?
 - a. High school degree b. University degree c. Master's degree d. Doctorate

Appendix B

Original Scale of Intrinsic versus Extrinsic Motivational Orientation in the Classroom (Child Scale), Harter, 1981

Children's Motivation

Name _____ Birthday _____

Interview Date/Time _____ Interviewer _____

Sample Questions

		Really true for me	Sort of true for me				Sort of true for me	Really true for me
(a)	<input type="checkbox"/>	<input type="checkbox"/>		Some kids would rather play outdoors in their spare time	But	Other kids would rather watch T.V.	<input type="checkbox"/>	<input type="checkbox"/>
(b)	<input type="checkbox"/>	<input type="checkbox"/>		Some kids like hamburgers better than hot dogs	But	Other kids like hot dogs better than hamburgers	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>								
1	<input type="checkbox"/>	<input type="checkbox"/>		Some kids like hard work because it is a challenge	But	Other kids prefer easy work that they are sure they can do	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>		When some kids don't understand something right away they want the teacher to tell them the answer	But	Other kids would rather try and figure it out by themselves	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>		Some kids work on problems to learn how to solve them	But	Other kids work on problems because you're supposed to	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>		Some kids almost always think that what the teacher says is OK	But	Other kids sometimes think their own ideas are better	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>		Some kids know when they've made mistakes without checking with the teacher	But	Other kids need to check with the teacher to know if they've made a mistake	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>		Some kids like difficult problems because they enjoy trying to figure them out	But	Other kids don't like to figure out difficult problems	<input type="checkbox"/>	<input type="checkbox"/>

Original Scale of Intrinsic versus Extrinsic Motivational Orientation in the Classroom (Child Scale), Harter, 1981 (Cont.)

	Really true for me	Sort of true for me				Sort of true for me	Really true for me
7	<input type="checkbox"/>	<input type="checkbox"/>	Some kids do their school work because the teacher tells them to	But	Other kids do their school work to find out about a lot of things they've been wanting to know	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	<input type="checkbox"/>	When some kids make a mistake they would rather figure out the right answer by themselves	But	Other kids would rather ask the teacher how to get the right answer	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>	<input type="checkbox"/>	Some kids know whether or not they're doing well in school without grades	But	Other kids need to have grades to know how well they are doing in school	<input type="checkbox"/>	<input type="checkbox"/>
10	<input type="checkbox"/>	<input type="checkbox"/>	Some kids agree with the teacher because they think the teacher is right about most things	But	Other kids don't agree with the teacher sometimes and stick to their own opinion	<input type="checkbox"/>	<input type="checkbox"/>
11	<input type="checkbox"/>	<input type="checkbox"/>	Some kids would rather just learn what they have to in school	But	Other kids would rather learn as much as they can	<input type="checkbox"/>	<input type="checkbox"/>
12	<input type="checkbox"/>	<input type="checkbox"/>	Some kids like to learn things on their own that interest them	But	Other kids think it's better to do things that the teacher thinks they should be learning	<input type="checkbox"/>	<input type="checkbox"/>
13	<input type="checkbox"/>	<input type="checkbox"/>	Some kids read things because they are interested in the subject	But	Other kids read things because they know the teacher wants them to	<input type="checkbox"/>	<input type="checkbox"/>
14	<input type="checkbox"/>	<input type="checkbox"/>	Some kids need to get their report cards to tell them how they are doing in school	But	Other kids know for themselves how they are doing even before they get their report card	<input type="checkbox"/>	<input type="checkbox"/>
15	<input type="checkbox"/>	<input type="checkbox"/>	If some kids get stuck on a problem they ask the teacher for help	But	Other kids keep trying to figure out the problem on their own	<input type="checkbox"/>	<input type="checkbox"/>

Original Scale of Intrinsic versus Extrinsic Motivational Orientation in the Classroom (Child Scale), Harter, 1981 (Cont.)

	Really true for me	Sort of true for me				Sort of true for me	Really true for me
16	<input type="checkbox"/>	<input type="checkbox"/>	Some kids like to go on to new work that's at a more difficult level	But	Other kids would rather stick to the assignments which are pretty easy to do	<input type="checkbox"/>	<input type="checkbox"/>
17	<input type="checkbox"/>	<input type="checkbox"/>	Some kids think that what the teacher thinks of their work is the most important thing	But	For other kids what <i>they</i> think of their work is the most important thing	<input type="checkbox"/>	<input type="checkbox"/>
18	<input type="checkbox"/>	<input type="checkbox"/>	Some kids ask questions in class because they want to learn new things	But	Other kids ask questions because they want the teacher to notice them	<input type="checkbox"/>	<input type="checkbox"/>
19	<input type="checkbox"/>	<input type="checkbox"/>	Some kids aren't really sure they've done well on a test until they get their grade on the test	But	Other kids pretty much know how well they did even before they get their grade	<input type="checkbox"/>	<input type="checkbox"/>
20	<input type="checkbox"/>	<input type="checkbox"/>	Some kids like the teacher to help them plan what to do next	But	Other kids like to make their own plans for what to do next	<input type="checkbox"/>	<input type="checkbox"/>
21	<input type="checkbox"/>	<input type="checkbox"/>	Some kids think they should have a say in what work they do in school	But	Other kids think that the teacher should decide what work they should do	<input type="checkbox"/>	<input type="checkbox"/>
22	<input type="checkbox"/>	<input type="checkbox"/>	Some kids like school subjects where it is pretty easy to just learn the answers	But	Other kids like those subjects that make them think pretty hard and figure things out	<input type="checkbox"/>	<input type="checkbox"/>
23	<input type="checkbox"/>	<input type="checkbox"/>	Some kids aren't sure if their work is really good or not until the teacher tells them	But	Other kids know if its good or not before the teacher tells them	<input type="checkbox"/>	<input type="checkbox"/>
24	<input type="checkbox"/>	<input type="checkbox"/>	Some kids like to try to figure out how to do school assignments on their own	But	Other kids would rather ask the teacher how it should be done	<input type="checkbox"/>	<input type="checkbox"/>

Original Scale of Intrinsic versus Extrinsic Motivational Orientation in the Classroom (Child Scale), Harter, 1981 (Cont.)

	Really true for me	Sort of true for me				Sort of true for me	Really true for me
25	<input type="checkbox"/>	<input type="checkbox"/>	Some kids do extra projects so they can get better grades	But	Other kids do extra projects because they learn about things that interest them	<input type="checkbox"/>	<input type="checkbox"/>
26	<input type="checkbox"/>	<input type="checkbox"/>	Some kids think its best if they decide when to work on each school subject	But	Other kids think that the teacher is the best one to decide when to work on things	<input type="checkbox"/>	<input type="checkbox"/>
27	<input type="checkbox"/>	<input type="checkbox"/>	Some kids know they didn't do their best on an assignment when they turn it in	But	Other kids have to wait until the teacher grades it to know that they didn't do as well as they could have	<input type="checkbox"/>	<input type="checkbox"/>
28	<input type="checkbox"/>	<input type="checkbox"/>	Some kids don't like difficult school work because they have to work too hard	But	Other kids like difficult schoolwork because they find it more interesting	<input type="checkbox"/>	<input type="checkbox"/>
29	<input type="checkbox"/>	<input type="checkbox"/>	Some kids like to do their schoolwork without help	But	Other kids like to have the teacher help them to do their schoolwork	<input type="checkbox"/>	<input type="checkbox"/>
30	<input type="checkbox"/>	<input type="checkbox"/>	Some kids have to work really hard to get good grades	But	Other kids work hard because they really like to learn things	<input type="checkbox"/>	<input type="checkbox"/>

Appendix C

Items and Factor Loadings for the **Intrinsic Motivation Scale** (Lepper et al., 2005)

Original subscale/item description	Factor loading
Challenge	
I like hard work because it's a challenge.	.66
I like to learn as much as I can in school.	.54
I like to go on to new work that's at a more difficult level.	.67
I like those school subjects that make me think pretty hard and figure things out.	.75
I like difficult problems because I enjoy trying to figure them out.	.74
I like difficult schoolwork because I find it more interesting.	.80
Curiosity	
I ask questions in class because I want to learn new things.	.56
I do extra projects because I can learn about things that interest me.	.63
I read things because I am interested in the subject.	.41
I do my schoolwork to find out about a lot of things I've been wanting to know.	.66
I work really hard because I really like to learn new things.	.71
I work on problems to learn how to solve them.	.68
Independent Mastery	
I like to try to figure out how to do school assignments on my own.	.56
When I don't understand something right away, I like to try to figure it out by myself.	.56
When I make a mistake, I like to figure out the right answer by myself.	.62
If I get stuck on a problem, I keep trying to figure out the problem on my own.	.62
I like to do my schoolwork without help	.47

Appendix D

Items and Factor Loadings for the **Extrinsic**

Motivation Scale (Lepper et al., 2005)

Original subscale/item description	Factor 1	Factor 2	Factor 3
Easy Work			
I don't like to figure out difficult problems.	.58 (.56)		
I like to learn just what I have to in school. ^a	.34 (.41)		.49 (.54)
I don't like difficult schoolwork because I have to work too hard.	.74 (.71)		
I like easy work that I am sure I can do.	.72 (.71)		
I like to stick to the assignments which are pretty easy to do.	.74 (.73)		
I like school subjects where it's pretty easy to just learn the answers.	.74 (.73)		
Pleasing teacher			
I read things because the teacher wants me to.			.81 (.78)
I do my schoolwork because teacher tells me to.			.83 (.81)
I work on problems because I'm supposed to.			.68 (.70)
I ask questions because I want the teacher to notice me. ^a	(.33)		
Dependence on teacher			
When I don't understand something right away I want the teacher to tell me the answer. ^a	.51 (.51)		
I like to have the teacher help me with my schoolwork.		.64 (.65)	
When I make a mistake I like to ask the teacher how to get the right answer.		.66 (.65)	
If I get stuck on a problem I ask the teacher for help.		.68 (.67)	
I like the teacher to help me plan what to do next.		.55 (.56)	
I like to ask the teacher how school assignments should be done.		.67 (.66)	

Note. Loadings from the oblique rotation are presented above, with loadings from the varimax rotation following in parentheses. For clarity of presentation, only loadings of .32 or higher are included. ^a Item not used in scale construction.

Appendix E

Reliability and Descriptive Statistics of Motivation Scales (Corpus et al., 2009)

Scale	T1: Fall 2005		\bar{x}	n	T2: Spring 2006			
	M	(SD)			M	(SD)	\bar{x}	n
<i>Elementary</i>								
Motivational orientations	—		—	507	—		—	507
Intrinsic motivation	3.60	(.74)	.90		3.54	(.70)	.90	—
Extrinsic motivation	3.22	(.72)	.85		3.07	(.74)	.87	—
Easy work	2.84	(1.11)	.87		2.67	(1.09)	.88	—
Pleasing others	3.64	(.93)	.83		3.45	(.98)	.85	—
Teacher dependence	3.09	(.86)	.73		3.04	(.83)	.75	—
Perceived school context	—		—	436	—		—	436
School mastery	4.15	(.58)	.49		4.16	(.56)	.49	—
School performance	1.90	(.86)	.68		1.85	(.87)	.74	—

Appendix F

Homework Process Inventory (Cooper et al., 2000)

Autonomy support

Question: How often do you or someone else help with homework that your child should really be doing alone?

Responses: every night/more than once a week/about once a week/less than once a week/never

Question: How often do you or someone else help so your child can finish faster?

Responses: all the time/most of the time/about half the time/some of the time/never

Structure

Question: How often do you make your child set aside quiet time for doing homework?

Responses: all the time/most of the time/about half the time/some of the time/never

Question: Most of the time, is the television on or off when your child does homework?

Response: the television is always on/usually, the television is on/usually, the television is off/the television is always off

Direct involvement

Question: How often does your child's homework require you or other people (another adult or brother or sister) to be involved?

Responses: every night/more than once a week/about once a week/less than once a week/never

Question: How often do you help your child with homework because your child needs help?

Responses: all the time/most of the time/about half the time/some of the time/never

Question: When your child asks you or someone else for help, how often is it because your child doesn't understand the homework?

Responses: all the time/most of the time/about half the time/some of the time/never

Interference

Question: How often do you think that helping your child actually makes it harder to do homework?

Responses: all the time/most of the time/about half the time/some of the time/never

Appendix G

Parental Task Endogeny and Task-Extrinsic Motivational Practices list (Gottfried et al., 1994)

	Item loadings on the motivational practices'	
	Task endogeny	Task extrinsic
Encourage persistence in schoolwork	.82	.00
Encourage enjoyment of schoolwork	.80	.00
Encourage independence in schoolwork	.71	.00
Expose child to new experiences	.65	.00
Provide home activities	.64	.00
When child finds work difficult, expect more	.62	.23
When child is bored, provide new activities	.62	.00
Work with child on difficulty	.60	.00
Mastering schoolwork on one's own	.46	.00
Have child answer questions on his/her own	.42	.00
Reward with a toy	.00	.71
Tell child he/she can do better	.00	.67
Reward with money	.00	.67
Get angry, show displeasure	.00	.67
Discuss usefulness of school achievement	.00	.64
Reward with learning material	.00	.62
Remove a privilege	.00	.62
Reward with a privilege	.00	.59
Have conference with teacher	.00	.57
Provide new materials	.30	.51

Appendix H

Informed Consent Form

Associations Between Parental Practices and Children's Motivational Orientation and Academic Achievement.

Deree Graduate School, Master's Degree (MA) in Applied Educational Psychology

Purpose of the research: To investigate the relationship between family practices and children's motivational orientation and school achievement in Greek families with children in elementary school living in Athens.

What you will do in this research: If you decide to participate, you will complete one survey. Some of the questions will be about your child's academic related attitudes, others will be about your practices regarding homework surveillance and reaction to grades.

Time required: The survey will take approximately 10-15 minutes to complete.

Risks: No risks are anticipated.

Benefits: There are no direct benefits, but you may find it interesting to consider your responses to questions about your practices and your child's attitudes.

Confidentiality: Your responses will be kept anonymous. Your data, but not your identity, will be accessible only to the investigator of the present study. In order to protect your anonymity, you will not be asked to offer personal information like your name, your email address or your IP address. Data will be kept in a secured storage in the researcher's personal computer until July 2022. When research results are reported, responses will be aggregated and described in summary.

Participation and withdrawal: Your participation is completely voluntary, and you may quite at any time without penalty. You may also skip any question but continue to complete the rest of the survey.

Informed Consent Form cont.

To Contact the Researcher: If you have questions or concerns about this research at any time, please contact: Maria Marina Michalaki; Phone: 6944685556; Email: m.michalaki@acg.edu. You may also contact the faculty member supervising this work: Dr. Mari Janikian, mjanikian@acg.edu.

<p>This research study has been reviewed and approved by the Institutional Review Board of The American College of Greece.</p>
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By clicking on the button below, you agree that you have read and understood the information provided to you and you voluntarily agree to participate in this study. You also agree that you are **the primary caregiver of an elementary school aged child**. Thank you in advance for your time and effort!

Appendix I

Debriefing Statement

Associations Between Parental Practices and Children's Motivational Orientation and Academic Achievement.

Deree Graduate School, Master's Degree (MA) in Applied Educational Psychology

This study will try to explore any possible correlations between family practices and children's intrinsic motivation and academic achievement in Greek families.

Surveillance of homework, reaction to grades and autonomy support versus control will be investigated among Greek primary caregivers of children in elementary school.

How was this tested?

A self-administered anonymous questionnaire will be completed online by Greek primary caregivers of children in elementary school to facilitate data collection.

Hypothesis and main questions:

Based on existing literature, the researcher hypothesizes that homework surveillance, negative reactions to grades and consistent use of rewards would lead to low intrinsic motivation and academic achievement, while autonomy supportive practices would be positively associated with higher levels of intrinsic motivation and school performance. The specific questions, to which the present study will seek to provide answers, are the following:

Research question 1: Is there a significant negative correlation between controlling family practices regarding homework and grades and intrinsic motivation and academic performance?

Research question 2: Is there a significant positive correlation between autonomy supportive family practices regarding homework and grades and intrinsic motivation and academic performance?

Debriefing Statement cont.

Why is this important to study?

Most of the existing studies addressing motivational orientation in Greek students focus on its correlation with physical education or academic achievement without taking family practices, attitudes and perceptions into consideration.

The researcher believes that there is a need to study the association of these practices with children's motivation and facilitate the realization of the implications of these practices.

The goal of this study is to fill this gap, provide an insight on the trend of fostering motivation in Greek families and establish a relationship between motivation, achievement and family practices

Findings of this study may be useful when designing psychoeducational programs families and classroom interventions for increasing children's intrinsic motivation.

What if I want to know more?

If you are interested in learning more about the association between parental practices and children's intrinsic motivation, you may want to consult:

Gottfried, A.E., Fleming, J.S., & Gottfried, A.W. (1994). Role of Parental Motivational Practices in Children's Academic Intrinsic Motivation and Achievement. *Journal of Educational Psychology*, 86, 104-113.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78.

Simpkins, S. D., Fredricks, J. A., & Eccles, J. S. (2015). The role of parents in the ontogeny of achievement-related motivation and behavioral choices: I. Introduction. *Monographs of the Society for Research in Child Development*, 80(2), 1–22.

<https://doi.org/10.1111/mono.12157>

Debriefing Statement cont.

To contact the researcher:

If you would like to receive a report of this research when it is completed or a summary of the findings), please contact Riana Michalaki at 00306944685556 and m.michalaki@acg.edu or Prof. Mari Janikian at mjanikian@acg.edu.

Whom to contact about your rights in this research or for questions, concerns, suggestions, complaints that are not being addressed by the research team, or in case of research-related harm: Institutional Review Board at the American College of Greece. E-mail: irb@acg.edu

Please do not disclose research procedures and hypotheses to anyone who might participate in this study between now and the end of the data collection (March 2022) as this could affect the results of the study.

Thank you for your participation!

List of Tables**Table 1***Reliability Statistics*

Subscale	N	Items	Cronbach's a
Intrinsic Motivation	101	17	0.876
Extrinsic Motivation	101	16	0.840
Homework Surveillance	101	5	0.876
Reaction to Grades	101	5	0.816
Autonomy vs Control	101	10	0.882

Table 2*Intrinsic Motivation Items Reliability Statistics*

	<i>Scale Mean if Item Deleted</i>	<i>Scale Variance if Item Deleted</i>	<i>Cronbach's Alpha if Item Deleted</i>
<i>My child likes hard work because it is a challenge.</i>	52,68	76,439	,865
<i>My child likes to learn as much as she/he can in school</i>	52,53	79,951	,880
<i>My child likes to go on to new work that is at a more difficult level.</i>	52,67	75,062	,862
<i>My child likes those school subjects that make her/him think pretty hard and figure things out.</i>	52,83	75,761	,863
<i>My child likes difficult problems because he/she enjoys trying to figure them out</i>	52,80	77,140	,867
<i>My child likes difficult schoolwork because she/he find it more interesting.</i>	53,03	75,289	,863
<i>My child asks questions in class because she/he wants to learn new things.</i>	52,39	76,979	,870
<i>My child does extra projects because she/he can learn about things that interest her/him.</i>	52,51	75,612	,870
<i>My child reads things because she/he is interested in the subject.</i>	52,34	77,246	,872
<i>My child does her/his schoolwork to find out about a lot of things she/he has been wanting to know.</i>	52,50	75,752	,867
<i>My child works really hard because she/he really likes to learn new things.</i>	52,49	76,892	,866
<i>My child works on problems to learn how to solve them.</i>	52,39	79,399	,872
<i>My child likes to figure out how to do school assignments on her own.</i>	52,65	77,349	,868
<i>When my child does not understand something right away, she/he likes to figure it out by herself/himself.</i>	53,04	80,538	,876
<i>When my child makes a mistake, she/he would rather figure out the right answer by herself/himself.</i>	52,73	80,298	,874
<i>If my child gets stuck on a problem, she/he keeps trying to figure out the problem on her/his own.</i>	53,12	76,986	,867
<i>My child likes to do homework without help.</i>	52,66	78,086	,876

Table 3*Extrinsic Motivation Items Reliability Statistics*

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Cronbach's Alpha if Item Deleted
My child does not like to figure out difficult problems.	50,12	60,786	,831
My child does not like difficult schoolwork because she/he has to work too hard.	49,80	58,680	,829
My child likes easy work that she/he is sure she/he can do.	49,53	57,591	,825
My child likes to stick to the assignments which are pretty easy to do.	49,73	61,278	,830
My child likes school subjects, where it is pretty easy to just learn the answers.	49,87	60,533	,832
My child reads things because the teacher wants her/him to.	49,96	58,878	,825
My child does her/his schoolwork because the teacher tells her/him to.	49,59	60,544	,831
My child works on problems because she/he is supposed to.	49,76	63,583	,841
My child likes to have the teacher to help him/her with schoolwork.	49,66	57,226	,823
When my child makes a mistake, she/he likes to ask the teacher for help.	49,52	63,172	,840
If my child gets stuck on a problem, she/he asks the teacher for help.	49,39	62,239	,835
My child likes the teacher to help him/her plan what to do next.	49,57	57,227	,818
My child likes to ask the teacher how school assignments should be done.	49,58	61,605	,834
My child answers questions because the teacher will be pleased with her/him.	49,79	64,666	,847
My child works hard because parents want her/him to get good grades.	50,08	58,534	,826
My child does schoolwork because it makes her/his parents happy.	50,21	58,966	,829

Table 4*Homework Surveillance Items Reliability Statistics*

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
How often do you help your child with homework?	14,50	13,592	,769	,833
How often do you set the rules about when and how homework is done?	14,02	14,280	,700	,851
How often do you check your child's homework?	13,97	13,109	,793	,827
How often do you correct mistakes of your child's homework?	14,41	14,044	,701	,850
How often do you have to remind your child to do her/his homework?	14,28	15,802	,565	,880

Table 5*Reaction to Grades Items Reliability Statistics*

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
I reward my child when she/he does well at school/activity.	10,77	17,958	,300	,871
I remove privileges/punish my child when she/he receives low grades.	12,16	14,695	,713	,747
I show my displeasure with low grades.	11,63	14,734	,679	,757
I tell my child she/he can do better as a reaction to bad grades.	11,40	16,102	,607	,780
I get angry when my child brings low grades.	12,02	14,480	,795	,724

Table 6*Autonomy Support vs Control Items Reliability Statistics*

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
How often do you help your child with homework?	28,99	56,890	,703	,864
How often do you set the rules about when and how homework is done?	28,51	58,852	,601	,872
How often do you check your child's homework?	28,47	56,971	,662	,867
How often do you correct mistakes of your child's homework?	28,90	56,530	,723	,863
How often do you have to remind your child to do her/his homework?	28,77	60,798	,537	,876
I reward my child when she/he does well at school/activity.	28,56	58,888	,463	,883
I remove privileges/punish my child when she/he receives low grades.	29,95	56,348	,652	,868
I show my displeasure with low grades.	29,43	56,027	,647	,868
I tell my child she/he can do better as a reaction to bad grades.	29,19	59,834	,501	,879
I get angry when my child brings low grades.	29,81	56,954	,656	,867

Table 7*Tests of Normality*

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Academic Achievement	.239	101	.000	.83	101	.000
Intrinsic Motivation	.071	101	.200*	.991	101	.709
Extrinsic Motivation	.099	101	.017	.967	101	.012
Homework Surveillance	.158	101	.000	.931	101	.000
Reaction to Grades	.101	101	.012	.962	101	.005
Autonomy vs Control	.102	101	.012	.964	101	.007

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 8*Frequencies and Crosstabulations for Caregivers*

Marital Status				
	Frequency	Percent	Cumulative Percent	
Unmarried	1	1.0	1.0	
Married	69	68.3	69.3	
Divorced	31	30.7	100	
Total	101	100		

Parental Gender * Marital Status Crosstabulation				
	Unmarried	Married	Divorced	Cumulative Number
Mother	1	44	15	60
Father	0	25	16	41
Total	1	69	31	101

Current Educational Level				
	Frequency	Percent	Cumulative Percent	
Highschool	11	10.9	10.9	
University	57	56.4	67.3	
Master	28	27.7	95	
Doctorate	5	5.0	100	
Total	101	100		

Parental Gender * Educational Level Crosstabulation					
	Highschool	University	Master	Doctorate	Cumulative Number
Mother	7	28	23	2	60
Father	4	29	5	3	41
Total	11	57	28	5	101

Table 9*Frequencies and Crosstabulations for Children*

Child Gender			
	Frequency	Percent	Cumulative Percent
Girl	56	55.4	55.4
Boy	45	44.6	100.0
Total	101	100	

Parental Gender * Child Gender Crosstabulation			
	Girl	Boy	Cumulative Number
Mother	32	28	60
Father	24	17	41
Total	56	45	101

Child's School Grade			
	Frequency	Percent	Cumulative Percent
1st	11	10.9	10.9
2nd	22	21.8	32.7
3rd	22	21.8	54.5
4th	26	25.7	80.2
5th	20	19.8	100.0
Total	101	100.0	

School Grade * Child Gender Crosstabulation							
	1st	2nd	3rd	4th	5th	Cumulative Number	
Girl	6	12	12	14	12	56	
Boy	5	10	10	12	8	45	
Total	11	22	22	26	20	101	

School Type			
	Frequency	Percent	Cumulative Percent
Public	47	46.5	46.5
Private	54	53.5	100.0
Total	101	100.0	

School Type * Child Gender Crosstabulation			
	Public	Private	Cumulative Number
Girl	28	28	56
Boy	19	26	45
Total	47	54	101

Table 10*Descriptive Statistics of Motivational Orientation*

		N	M	SD	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Intrinsic Motivation	girl	56	54.37	9.23	1.23	51.9	56.84	34	72
	boy	45	57.93	9.12	1.35	55.19	60.67	38	79
	Total	101	55.96	9.37	0.92	54.12	57.79	34	79
Extrinsic Motivation	girl	56	54.50	8.29	1.10	52.27	56.72	33	71
	boy	45	51.31	7.91	1.18	48.93	53.69	33	63
	Total	101	53.07	8.24	0.82	51.45	54.70	33	71

Table 11*Chi Square Tests Child Gender * Motivational Orientation*

Chi-Square Tests Child Gender * Intrinsic Motivation			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	28.82 ^a	35	0.76
Likelihood Ratio	37.60	35	0.35
Linear-by-Linear Association	3.64	1	0.05
N of Valid Cases	101		
a. 72 cells (100,0%) have expected count less than 5. The minimum expected count is ,45.			

Chi-Square Tests Child Gender * Extrinsic Motivation			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	26.05 ^a	28	0.57
Likelihood Ratio	33.93	28	0.20
Linear-by-Linear Association	3.73	1	0.05
N of Valid Cases	101		
a. 56 cells (96,6%) have expected count less than 5. The minimum expected count is .45.			

Table 12*Means of Intrinsic and Extrinsic Motivation Subscales * Child Gender*

		N	M	SD	Std. Error Mean
Curiosity	Girl	56	20.58	4.07	0.54
	Boy	45	21.86	3.72	0.55
Independent Mastery	Girl	56	15.30	2.78	0.37
	Boy	45	15.95	3.16	0.47
Easy Work	Girl	56	16.83	3.23	0.43
	Boy	45	15.71	2.95	0.44
Challenge	Girl	56	18.48	4.01	0.53
	Boy	45	20.11	3.40	0.50
Pleasing Others	Girl	56	19.50	3.51	0.47
	Boy	45	18.55	3.66	0.55
Dependence on Teacher	Girl	56	18.16	3.19	0.42
	Boy	45	17.04	3.51	0.52

Table 13*Independent Samples t-Test of Intrinsic and Extrinsic Motivation Subscales * Child**Gender*

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Curiosity	EV assumed	0.94	0.33	-1.62	99	0.10	-1.27	0.78	-2.83	0.28
	EV not assumed			-1.64	97.28	0,104	-1.27	0.77	-2.82	0.26
Independent Mastery	EV assumed	1.12	0.29	-1.1	99	0.27	-0.65	0.59	-1.82	0.52
	EV not assumed			-1.08	88.29	0.28	-0.65	0.60	-1.84	0.54
Easy Work	EV assumed	0.07	0.78	1.80	99	0.07	1.13	0.62	-0.11	2.36
	EV not assumed			1.83	97.30	0.07	1.13	0.62	-0.09	2.35
Challenge	EV assumed	1.93	0.17	-2.17	99	0.03	-1.62	0.75	-3.12	-0.13
	EV not assumed			-2.20	98.68	0.03	-1.62	0.74	-3.09	-0.16
Pleasing Others	EV assumed	0.06	0.8	1.31	99	0.19	0.94	0.71	-0.47	2.36
	EV not assumed			1.31	92.62	0.19	0.94	0.71	-0.48	2.37
Dependence on Teacher	EV assumed	0.20	0.65	1.67	99	0.09	1.11	0.67	-0.21	2.44
	EV not assumed			1.65	90.05	0.10	1.11	0.67	-0.22	2.45

Table 14*Means Scores of Motivational Orientation * School Type Statistics*

	Child's School Type	N	M	SD	Std. Error Mean
Intrinsic Motivation	Public	47	57.55	8.96	1.31
	Private	54	54.57	9.46	1.29
Extrinsic Motivation	Public	47	53.06	7.07	1.03
	Private	54	53.09	9.21	1.25

Table 15*Chi Square Tests School Type * Motivational Orientation*

Chi-Square Tests School Type * Intrinsic Motivation			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	25.51 ^a	35	0.88
Likelihood Ratio	32.63	35	0.58
Linear-by-Linear Association	2.57	1	0.11
N of Valid Cases	101		

- a. 72 cells (100,0%) have expected count less than 5. The minimum expected count is .47.

Chi-Square Tests School Type * Extrinsic Motivation			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	34.88 ^a	28	0.17
Likelihood Ratio	44.54	28	0.02
Linear-by-Linear Association	0	1	0.98
N of Valid Cases	101		

- a. 56 cells (96,6%) have expected count less than 5. The minimum expected count is .47.

Table 16*Independent Samples t-Test of Motivation Subscales * School Type*

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Curiosity	EV assumed	0.01	0.92	1.55	99	0.12	1.21	0.78	-0.34	2.77
	EV not assumed			1.55	97.48	0.12	1.21	0.78	-0.34	2.77
Independent Mastery	EV assumed	0.08	0.77	1.15	99	0.25	0.68	0.59	-0.49	1.85
	EV not assumed			1.15	96.88	0.25	0.68	0.59	-0.49	1.85
Easy Work	EV assumed	3.60	0,061	0.14	99	0.89	0.09	0.63	-1.17	1.34
	EV not assumed			0.14	96.94	0.89	0.09	0.61	-1.14	1.31
Challenge	EV assumed	0.00	0.946	1.42	99	0.16	1.08	0.76	-0.42	2.59
	EV not assumed			1.42	95.73	0.16	1.08	0.76	-0.43	2.59
Pleasing Others	EV assumed	0.70	0.40	-1.21	99	0.23	-0.86	0.71	-2.82	0.55
	EV not assumed			-1.22	99	0.22	-0.86	0.71	-2.26	0.54
Dependence on Teacher	EV assumed	0.75	0.38	1.11	99	0.27	0.75	0.67	-0.58	2.08
	EV not assumed			1.12	98.60	0.26	0.75	0.67	-0.57	2.07

Table 17*Motivational Orientation * School Grade Level Statistics*

Motivational Orientation * School Grade Level									
		N	M	SD	Std. Error	95% Confidence Interval for Mean		Min.	Max.
						Lower Bound	Upper Bound		
Intrinsic Motivation	1st	11	54.00	8.82	2.65	48.07	59.92	34.00	63.00
	2nd	22	56.54	8.05	1.71	52.97	60.12	39.00	73.00
	3rd	22	57.68	9.12	1.94	53.63	61.73	38.00	71.00
	4th	26	54.46	10.87	2.13	50.07	58.85	36.00	79.00
	5th	20	56.45	9.28	2.07	52.10	60.80	38.00	72.00
	Total	101	55.96	9.30	.93	54.12	57.80	34.00	79.00
Extrinsic Motivation	1st	11	57.09	6.71	2.02	52.58	61.60	45.00	71.00
	2nd	22	55.27	8.38	1.78	51.56	58.99	34.00	66.00
	3rd	22	50.86	7.34	1.56	47.61	54.12	36.00	63.00
	4th	26	52.54	10.10	1.98	48.46	56.61	33.00	65.00
	5th	20	51.60	6.25	1.40	48.67	54.52	42.00	63.00
	Total	101	53.08	8.24	.82	51.45	54.70	33.00	71.00

Table 18*Chi Square Tests School Grade * Motivational Orientation*

Chi-Square Tests School Grade * Intrinsic Motivation			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	156.02 ^a	140	.17
Likelihood Ratio	148.56	140	.29
Linear-by-Linear Association	.008	1	.93
N of Valid Cases	101		

a. 180 cells (100,0%) have expected count less than 5. The minimum expected count is .11.

Chi-Square Tests School Grade * Extrinsic Motivation

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	150.56 ^a	112	.009
Likelihood Ratio	139.46	112	.040
Linear-by-Linear Association	3.87	1	.049
N of Valid Cases	101		

a. 145 cells (100,0%) have expected count less than 5. The minimum expected count is .11.

Table 19*ANOVA Testing for Motivational Scales and Subscales *School Grade Level*

		Sum of Squares	df	Mean Square	F	Sig.
Intrinsic Motivation	Between Groups	178.20	4	44.55	.50	.73
	Within Groups	8485.63	96	88.39		
	Total	8663.84	100			
Extrinsic Motivation	Between Groups	442.24	4	110.56	1.67	.16
	Within Groups	6351.12	96	66.15		
	Total	6793.36	100			
Curiosity	Between Groups	59.05	4	14.76	.94	.44
	Within Groups	1504.41	96	15.67		
	Total	1563.46	100			
Independent Mastery	Between Groups	31.46	4	7.86	.89	.47
	Within Groups	846.90	96	8.82		
	Total	878.36	100			
Easy Work	Between Groups	64.01	4	16.00	1.65	.17
	Within Groups	928.53	96	9.67		
	Total	992.55	100			
Challenge	Between Groups	30.63	4	7.66	.51	.73
	Within Groups	1432.00	96	14.92		
	Total	1462.63	100			
Pleasing Others	Between Groups	68.39	4	17.10	1.34	.26
	Within Groups	1220.97	96	12.72		
	Total	1289.36	100			
Dependence on Teacher	Between Groups	30.83	4	7.70	.67	.61
	Within Groups	1105.72	96	11.52		
	Total	1136.55	100			

Table 20*Descriptive Statistics of Children's Academic Achievement Scores*

Academic Achievement * Child Gender								
	N	M	SD	Std. Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
Girl	56	10.11	1.90	.25	9.59	10.61	6.00	12.00
Boy	45	10.69	1.56	.23	10.21	11.15	7.00	12.00
Total	101	10.37	1.77	.17	10.01	10.71	6.00	12.00
Academic Achievement * Grade Level								
					Lower Bound	Upper Bound		
1st	11	10.27	1.85	.56	9.03	11.51	8.00	12.00
2nd	22	10.09	1.82	.39	9.28	10.90	7.00	12.00
3rd	22	10.50	1.56	.33	9.80	11.19	7.00	12.00
4th	26	11.08	1.16	.23	10.60	11.55	8.00	12.00
5th	20	9.65	2.30	.51	8.57	10.73	6.00	12.00
Total	101	10.3663	1.77	.18	10.01	10.72	6.00	12.00
Academic Achievement * School Type								
					Lower Bound	Upper Bound		
Public	47	10.02	1.82	.27	9.48	10.56	7.00	12.00
Private	54	10.67	1.69	.23	10.20	11.13	6.00	12.00
Total	101	10.37	1.78	.17	10.01	10.72	6.00	12.00

Table 21*Chi Square Test for Children's Academic Achievement*

Chi-Square Tests Child Gender * Academic Achievement			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.25 ^a	6	.08
Likelihood Ratio	11.99	6	.06
Linear-by-Linear Association	3.14	1	.07
N of Valid Cases	101		

a. 5 cells (35.7%) have expected count less than 5. The minimum expected count is .45.

Chi-Square Tests Child Grade Level * Academic Achievement			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	37.23 ^a	24	.04
Likelihood Ratio	36.11	24	.05
Linear-by-Linear Association	.04	1	.85
N of Valid Cases	101		

a. 31 cells (88.6%) have expected count less than 5. The minimum expected count is .11.

Chi-Square Tests School Type * Academic Achievement			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.35 ^a	6	.29
Likelihood Ratio	7.83	6	.25
Linear-by-Linear Association	2.73	1	.09
N of Valid Cases	101		

a. 5 cells (35.7%) have expected count less than 5. The minimum expected count is .47.

Table 22*Descriptive Statistics of Parental Practices Scores*

	N	Min.	Max.	M	SD	V	Skewness		Kurtosis	
							Statistic	Std. Error	Statistic	Std. Error
Homework Surveillance	101	7.00	25.00	17.80	4.63	21.47	-.59	.24	-.71	.48
Reaction to Grades	101	5.00	23.00	14.50	4.83	23.30	-.08	.24	-1.04	.48
Autonomy vs Control	101	13.00	46.00	32.29	8.40	70.45	-.40	.24	-.67	.48
Valid N (listwise)	101									

		N	M	SD	Std. Error Mean
Homework Surveillance	Mother	60	17.35	4.60	.59
	Father	41	18.44	4.67	.73
Reaction to Grades	Mother	60	14.52	4.93	.63
	Father	41	14.46	4.72	.74
Autonomy vs Control	Mother	60	31.87	8.37	1.08
	Father	41	32.90	8.49	1.33

Table 23*Independent Samples Test Parental Gender * Parental Practices*

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Homework Surveillance	EV assumed	.01	.92	-.116	99	.25	-1.09	.94	-2.95	.77
	EV not assumed			-.116	85.28	.25	-1.09	.94	-2.95	.78
Reaction to Grades	EV assumed	.23	.63	.05	99	.96	.05	.98	-1.89	2.00
	EV not assumed			.05	88.54	.96	.05	.97	-1.88	1.99
Autonomy vs Control	EV assumed	.07	.79	-.60	99	.55	-1.03	1.71	-4.42	2.35
	EV not assumed			-.60	85.28	.55	-1.03	1.71	-4.44	2.36

Table 24*Frequencies of Homework Surveillance Answers*

	Frequency	Percent	Cumulative Percent
How often do you help your child with homework?			
Never	4	4.0	4.0
Rarely	26	25.7	29.7
Sometimes	25	24.8	54.5
Usually	28	27.7	82.2
Always	18	17.8	100.0
Total	101	100.0	
How often do you set the rules about when and how homework is done?			
Never	4	4.0	4.0
Rarely	12	11.9	15.8
Sometimes	17	16.8	32.7
Usually	38	37.6	70.3
Always	30	29.7	100.0
Total	101	100.0	
How often do you check your child's homework?			
Never	3	3.0	3.0
Rarely	14	13.9	16.8
Sometimes	23	22.8	39.6
Usually	19	18.8	58.4
Always	42	41.6	100.0
Total	101	100.0	
How often do you correct mistakes of your child's homework?			
Never	4	4.0	4.0
Rarely	20	19.8	23.8
Sometimes	33	32.7	56.4
Usually	21	20.8	77.2
Always	23	22.8	100.0
Total	101	100.0	
How often do you have to remind your child to do her/his homework?			
Never	3	3.0	3.0
Rarely	14	13.9	16.8
Sometimes	29	28.7	45.5
Usually	38	37.6	83.2
Always	17	16.8	100.0
Total	101	100.0	

Table 25*Frequencies of Reaction to Grades Answers*

	Frequency	Percent	Cumulative Percent
I reward my child when she/he does well at school/activity.			
Never	10	9,9	9,9
Rarely	12	11,9	21,8
Sometimes	15	14,9	36,6
Usually	23	22,8	59,4
Always	41	40,6	100
Total	101	100	
I remove privileges/punish my child when she/he receives low grades.			
Never	38	37,6	37,6
Rarely	17	16,8	54,5
Sometimes	26	25,7	80,2
Usually	14	13,9	94,1
Always	6	5,9	100
Total	101	100	
I show my displeasure with low grades.			
Never	19	18,8	18,8
Rarely	23	22,8	41,6
Sometimes	26	25,7	67,3
Usually	19	18,8	86,1
Always	14	13,9	100
Total	101	100	
I tell my child she/he can do better as a reaction to bad grades.			
Never	13	12,9	12,9
Rarely	16	15,8	28,7
Sometimes	31	30,7	59,4
Usually	30	29,7	89,1
Always	11	10,9	100
Total	101	100	
I get angry when my child brings low grades.			
Never	29	28,7	28,7
Rarely	24	23,8	52,5
Sometimes	22	21,8	74,3
Usually	23	22,8	97
Always	3	3	100
Total	101	100	

Table 26*ANOVA Test Results on Parental Practices * Marital Status*

		N	M	SD	Std. Error	95% Confidence Interval for Mean		Min.	Max.
						Lower Bound	Upper Bound		
Homework Surveillance	Unmarried	1	21.00	.	.	.	.	21.00	21.00
	Married	69	18.29	4.41	.53	17.23	19.35	7.00	25.00
	Divorced	31	16.58	4.99	.89	14.75	18.41	7.00	24.00
	Total	101	17.79	4.63	.46	16.78	18.71	7.00	25.00
Reaction to Grades	Unmarried	1	17.00	.	.	.	.	17.00	17.00
	Married	69	14.77	4.58	.55	13.67	15.87	5.00	23.00
	Divorced	31	13.81	5.40	.96	11.82	15.78	5.00	22.00
	Total	101	14.49	4.82	.48	13.54	15.45	5.00	23.00
Autonomy vs Control	Unmarried	1	38.00	.	.	.	.	38.00	38.00
	Married	69	33.06	7.86	.94	31.17	34.95	13.00	46.00
	Divorced	31	30.39	9.41	1.69	26.93	33.84	13.00	46.00
	Total	101	32.29	8.39	.83	30.63	33.94	13.00	46.00
ANOVA									
				Sum of Squares	df	Mean Square	F	Sig.	
Homework Surveillance	Between Groups			72.88	2	36.44	1.72	.18	
	Within Groups			2073.75	98	21.16			
	Total			2146.64	100				
Reaction to Grades	Between Groups			26.12	2	13.06	.56	.57	
	Within Groups			2303.12	98	23.501			
	Total			2329.25	100				
Autonomy vs Control	Between Groups			185.55	2	92.77	1.32	.27	
	Within Groups			6859.12	98	69.99			
	Total			7044.67	100				

Table 27*ANOVA Test Results on Parental Practices * Educational Level*

		N	M	SD	Std. Error	95% Confidence Interval for Mean		Min.	Max.
						Lower Bound	Upper Bound		
Homework Surveillance	High school	11	20.00	3.66	1.10	17.54	22.46	11.00	23.00
	University	57	17.57	4.72	.62	16.32	18.83	7.00	25.00
	Master	28	17.32	4.72	.89	15.49	19.15	7.00	24.00
	Doctorate	5	18.00	4.89	2.19	11.91	24.08	12.00	24.00
	Total	101	17.79	4.63	.46	16.87	18.71	7.00	25.00
Reaction to Grades	High school	11	16.54	4.43	1.33	13.56	19.52	10.00	23.00
	University	57	15.19	4.86	.64	13.90	16.48	5.00	22.00
	Master	28	12.64	4.49	.84	10.90	14.38	6.00	23.00
	Doctorate	5	12.40	4.27	1.91	7.08	17.71	5.00	16.00
	Total	101	14.49	4.82	.48	13.54	15.45	5.00	23.00
Autonomy vs Control	High school	11	36.55	6.62	1.99	32.09	40.99	21.00	45.00
	University	57	32.77	8.54	1.13	30.50	35.04	13.00	46.00
	Master	28	29.96	8.49	1.60	26.67	33.25	13.00	44.00
	Doctorate	5	30.40	6.80	3.04	21.95	38.84	21.00	38.00
	Total	101	32.28	8.39	.83	30.63	33.94	13.00	46.00
ANOVA									
				Sum of Squares	df	Mean Square	F	Sig.	
Homework Surveillance	Between Groups			62.63	3	20.88	.97	.40	
	Within Groups			2084.00	97	21.48			
	Total			2146.63	100				
Reaction to Grades	Between Groups			192.01	3	64.00	2.90	.04	
	Within Groups			2137.23	97	22.03			
	Total			2329.24	100				
Autonomy vs Control	Between Groups			381.74	3	127.25	1.85	.14	
	Within Groups			6662,927	97	68,69			
	Total			7044,673	100				

Table 28*Correlation Matrix 1*

Variables	M	SD	1	2	3	4	5
1. Academic Achievement	10.34	1.79					
2. Intrinsic Motivation	55.96	9.30	.488**				
3. Extrinsic Motivation	53.08	8.24	-.333**	-.595**			
4. Homework Surveillance	17.79	4.63	-.543**	-.554**	.525**		
5. Reaction to Grades	14.49	4.83	-.550**	-.495**	.433**	.564**	
6. Autonomy vs Control	32.28	8.39	-.615**	-.592**	.559**	.860**	.897**

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 29*Correlation Matrix 2*

	Helping child with homework	Set the rules about when and how homework is done	Check child's homework	Correct mistakes of child's homework	Remind your child to do her/his homework
Intrinsic Motivation	-,422**	-,425**	-,480**	-,491**	-,540**
Extrinsic Motivation	,429**	,392**	,555**	,515**	,326**
Academic Achievement	-,512**	-,314**	-,483**	-,475**	-,382**
	I reward my child when she/he does well at school/activity.	I remove privileges/punish my child when she/he receives low grades.	I show my displeasure with low grades.	I tell my child she/he can do better as a reaction to bad grades.	I get angry when my child brings low grades.
Intrinsic Motivation	-,371**	-,438**	-,367**	-,259**	-,495**
Extrinsic Motivation	,430**	,458**	,194	,196*	,392**
Academic Achievement	-,363**	-,391**	-,484**	-,341**	-,531**

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 30*Correlation Matrix 3*

	Homework Surveillance	Reaction to Grades
Curiosity	-,413**	-,484**
Independent Mastery	-,520**	-,320**
Easy Work	,598**	,544**
Challenge	-,523**	-,455**
Pleasing Others	,368**	,336**
Dependence on Teacher	,353**	,206*

** . Correlation is significant at the 0.01 level (2-tailed).

Lists of Figures

Figure 1

Autonomy versus Control Results Distribution

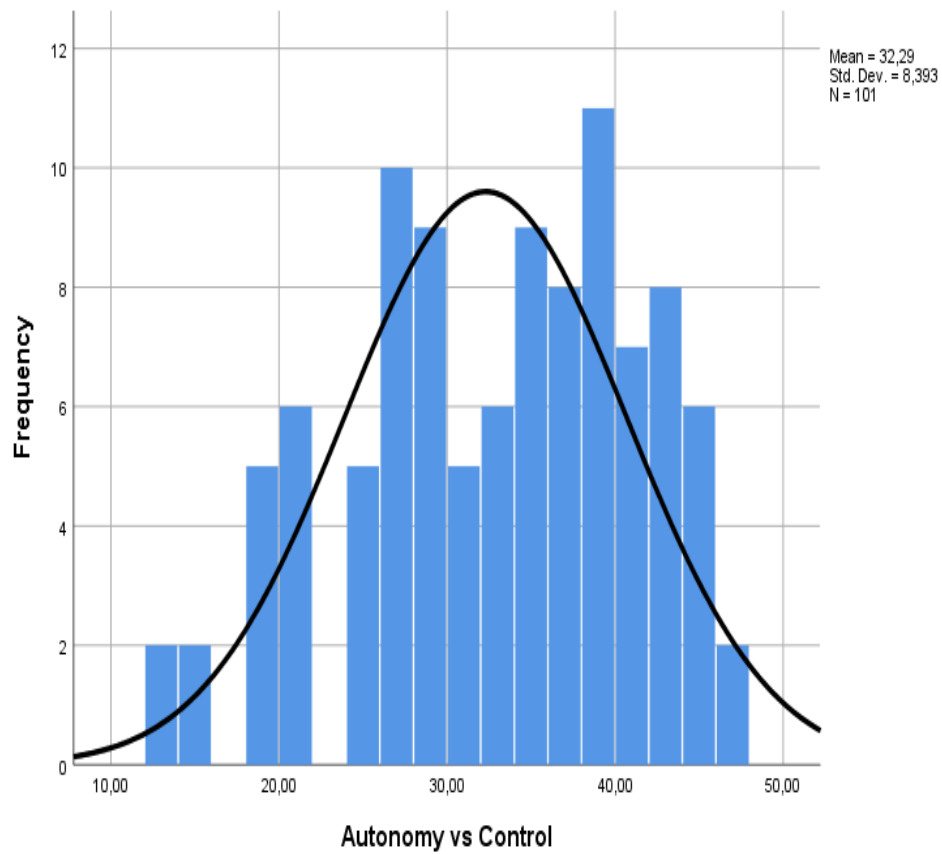


Figure 2

Homework Surveillance Results Distribution

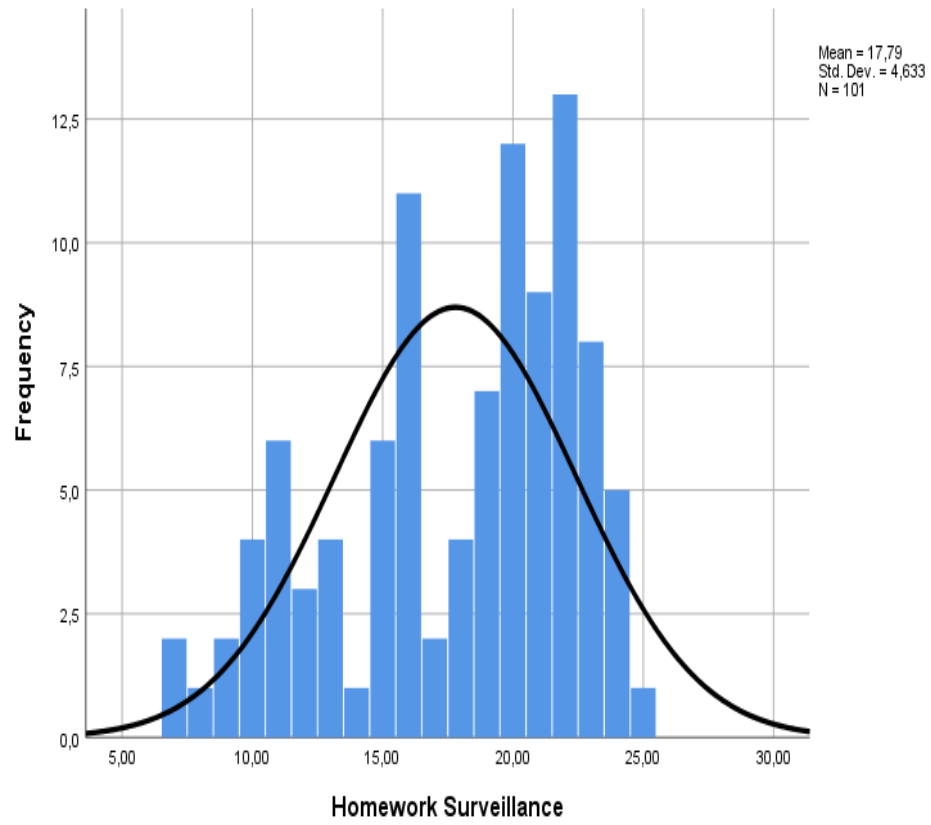


Figure 3

Reaction to Grades Results Distribution

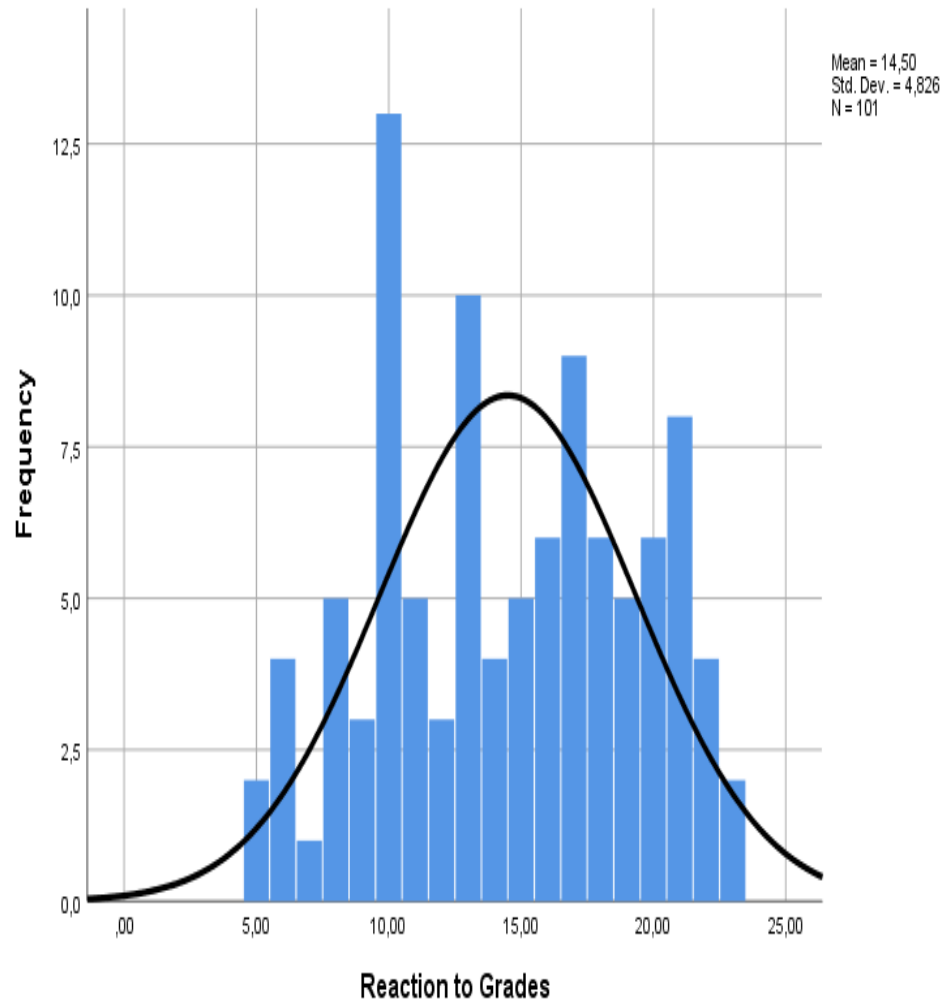


Figure 4

Intrinsic Motivation Results Distribution

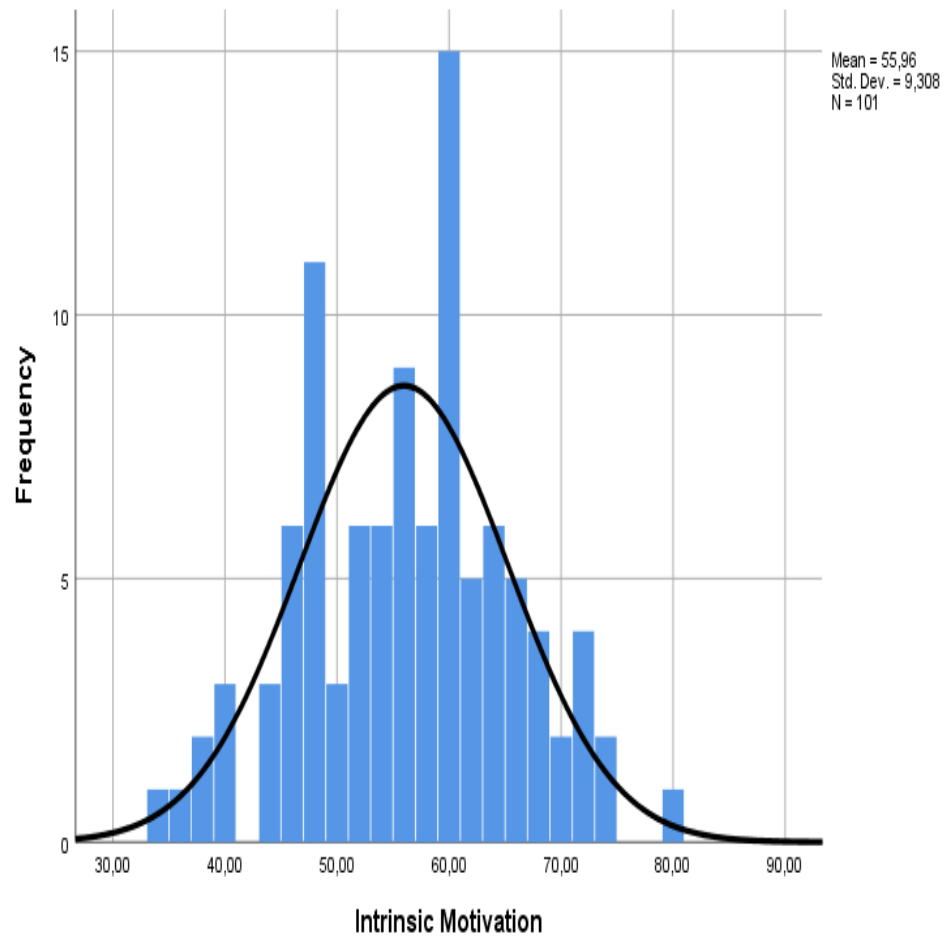


Figure 5

Extrinsic Motivation Results Distribution

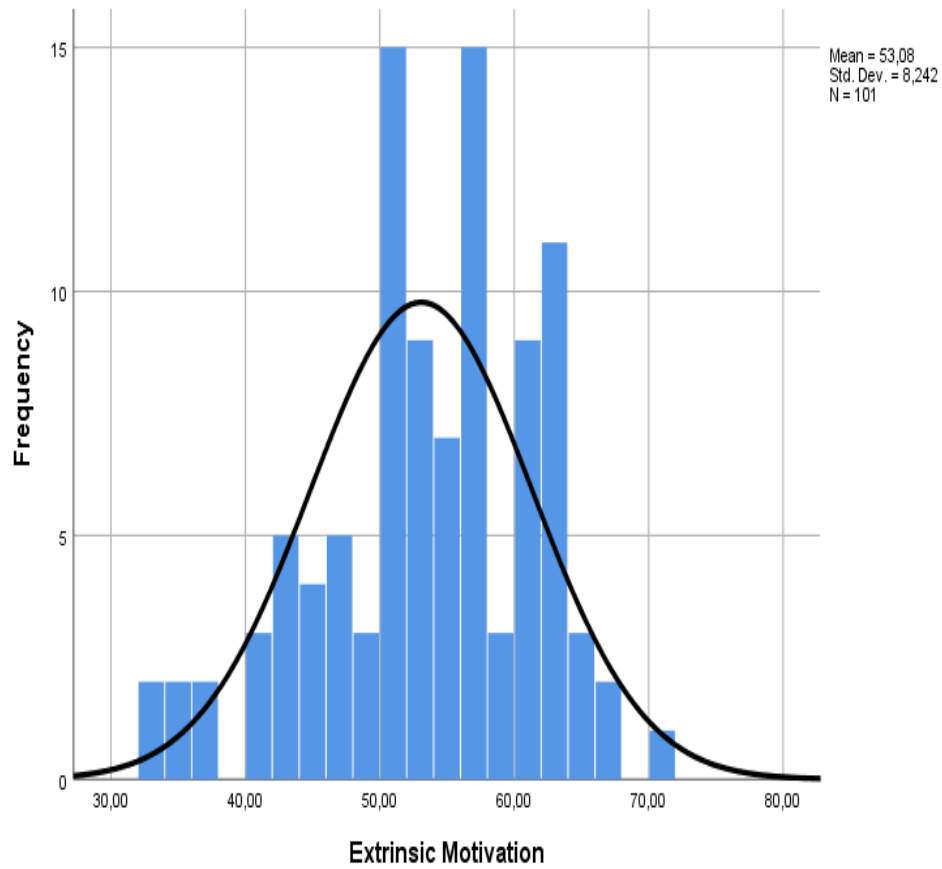


Figure 6

Academic Achievement Results Distribution

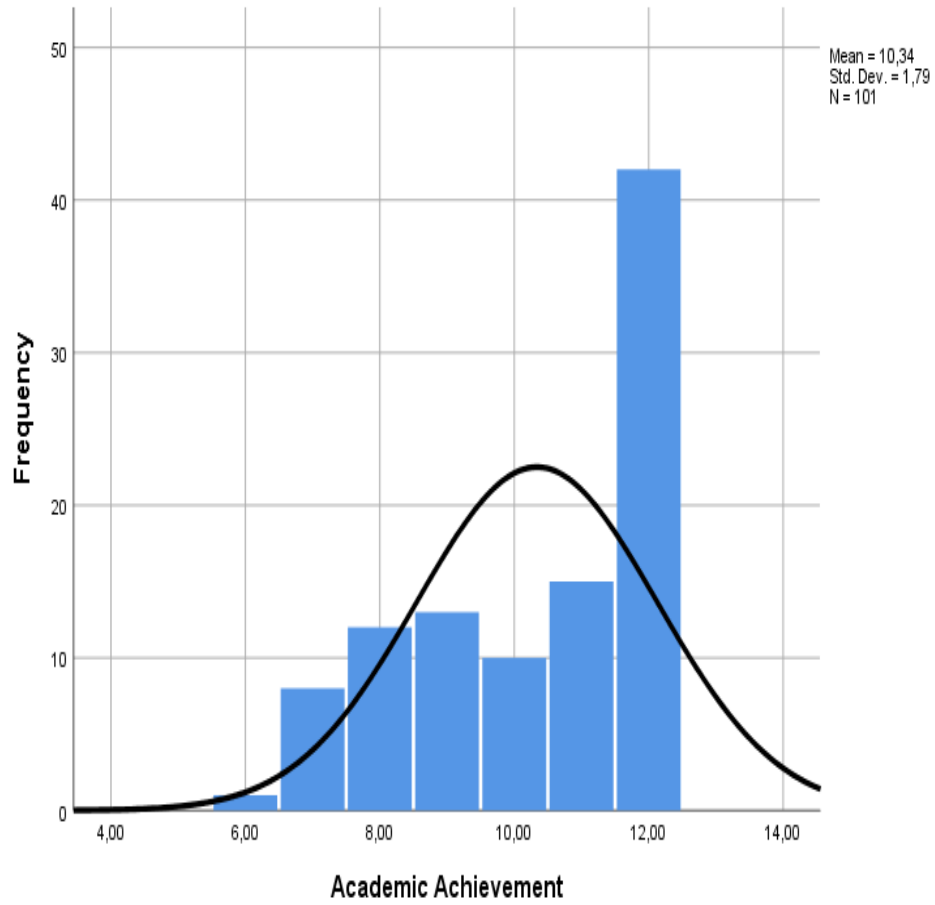


Figure 7

*Intrinsic Motivation Subscales * School Grade Level*

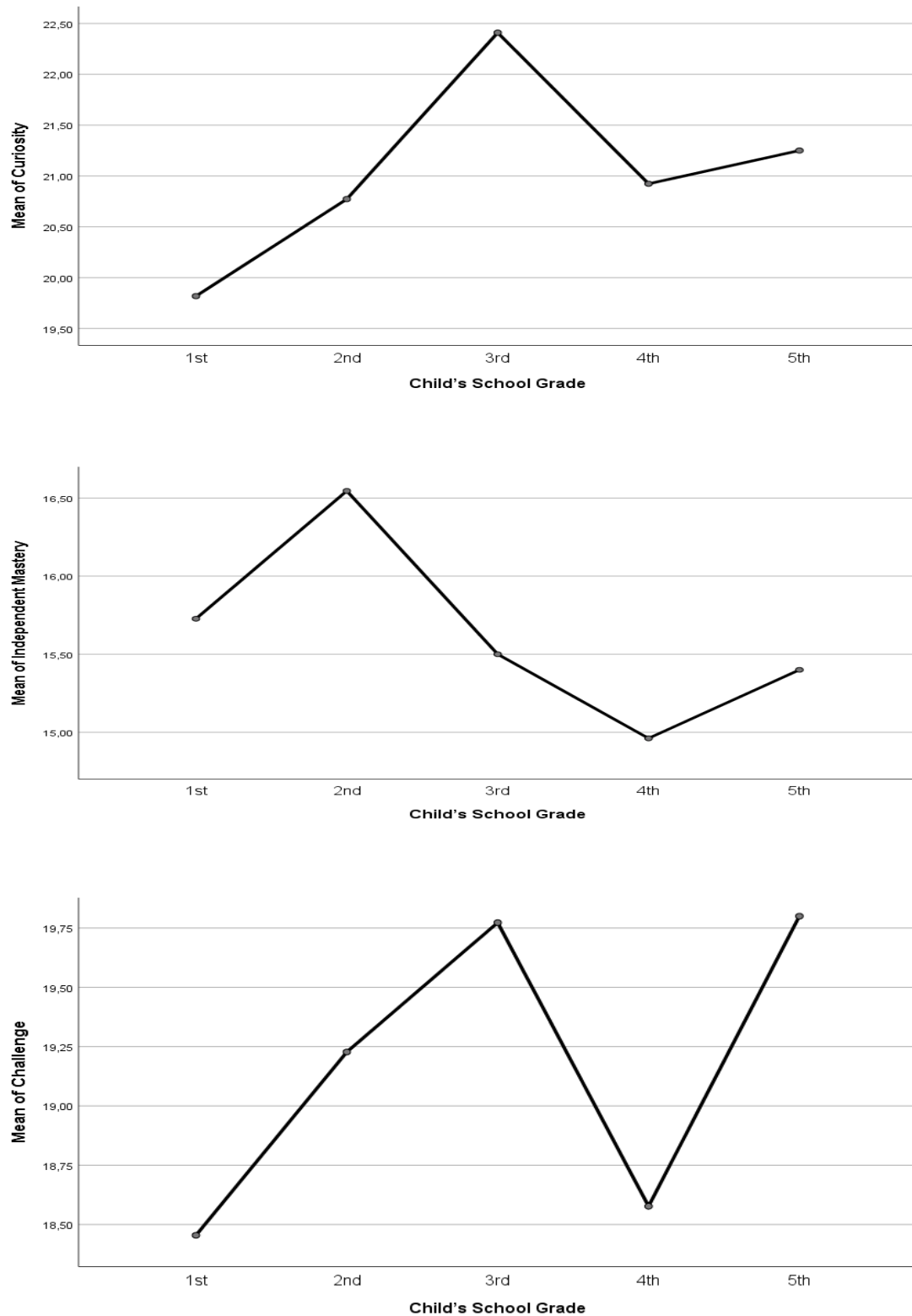


Figure 8

*Extrinsic Motivation Subscales * School Grade Level*

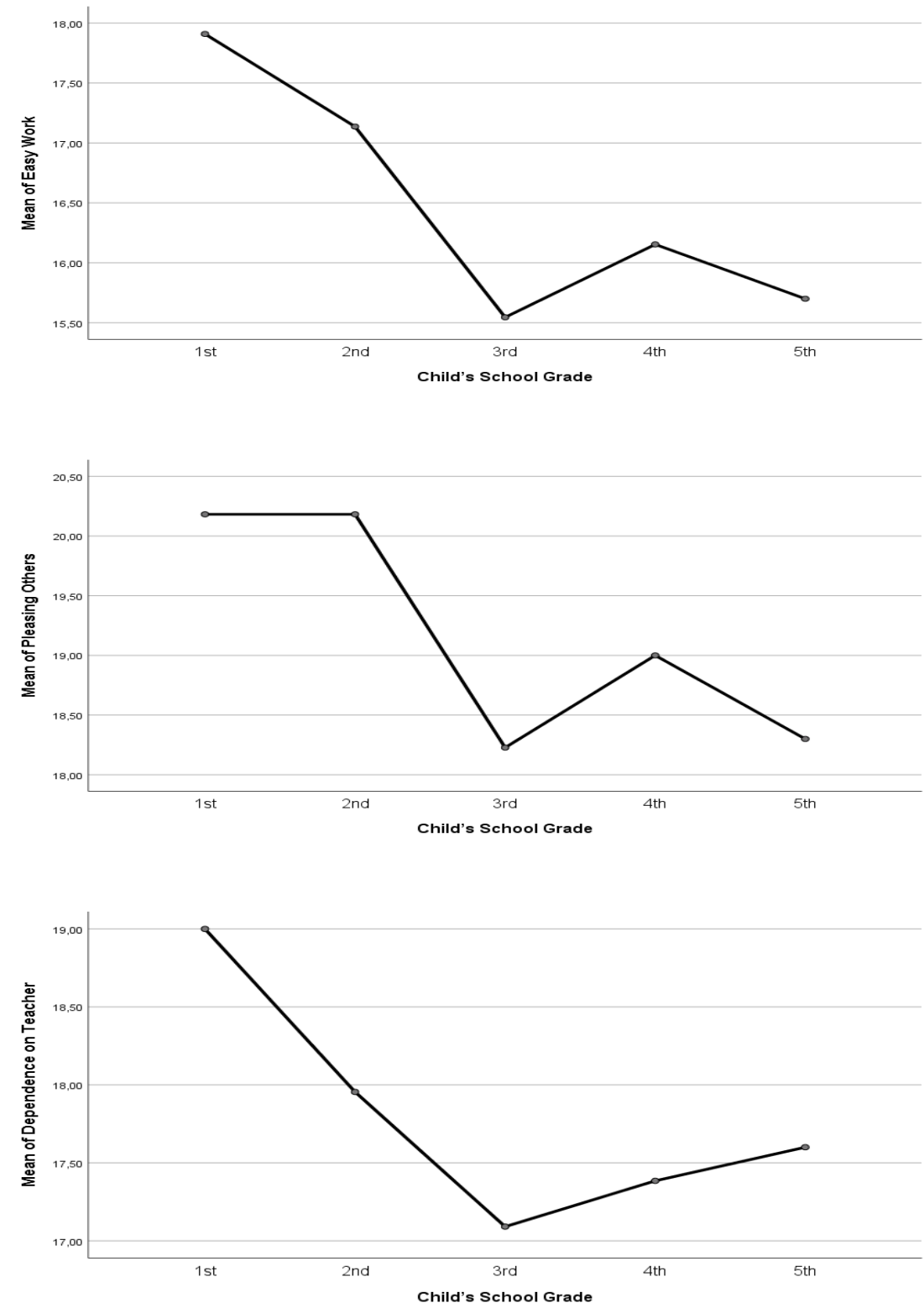


Figure 9

Mean Levels of Intrinsic and Extrinsic Motivation by Academic Achievement

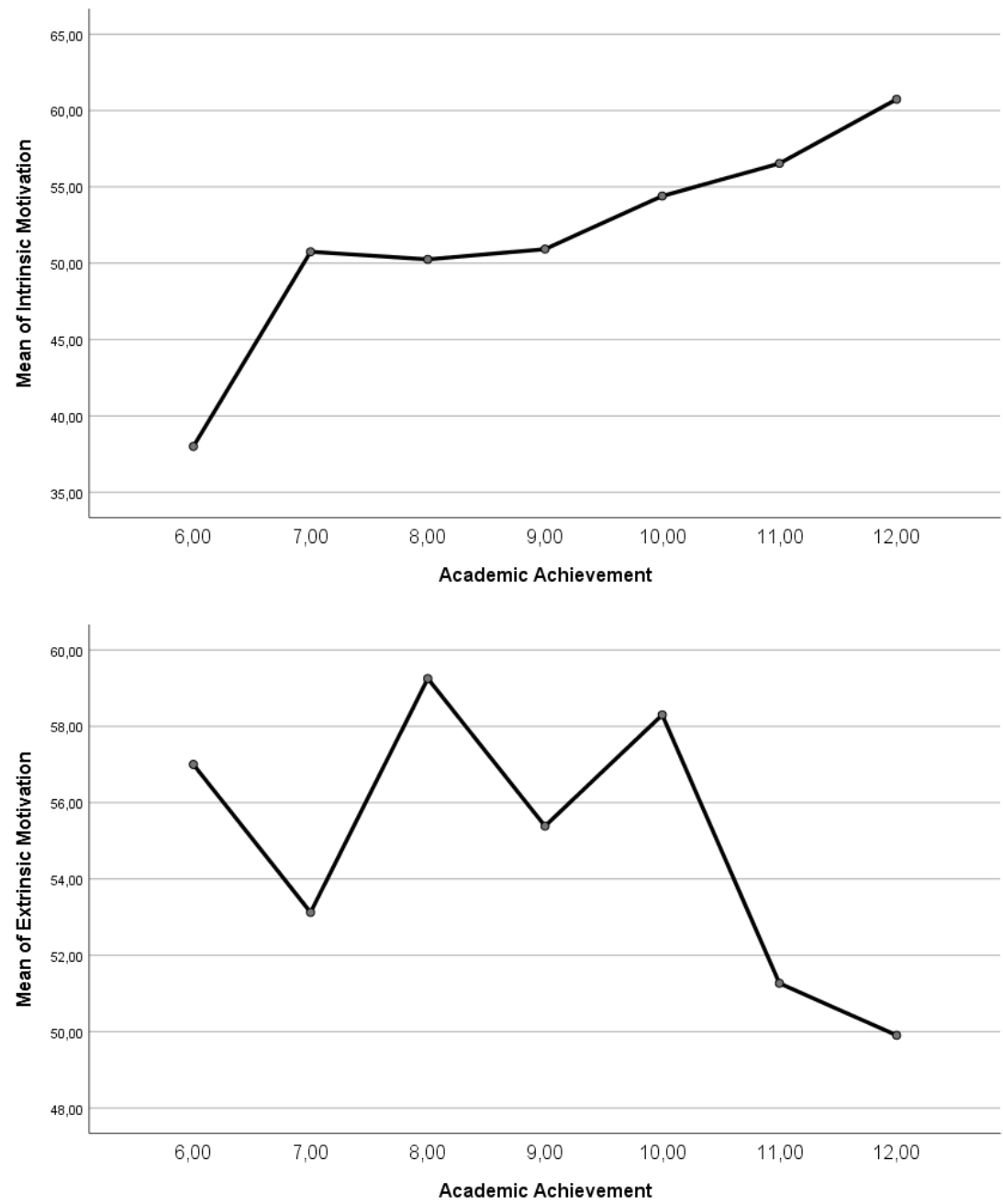


Figure 10

*Mean Levels of Parental Practices * School Grade Level*

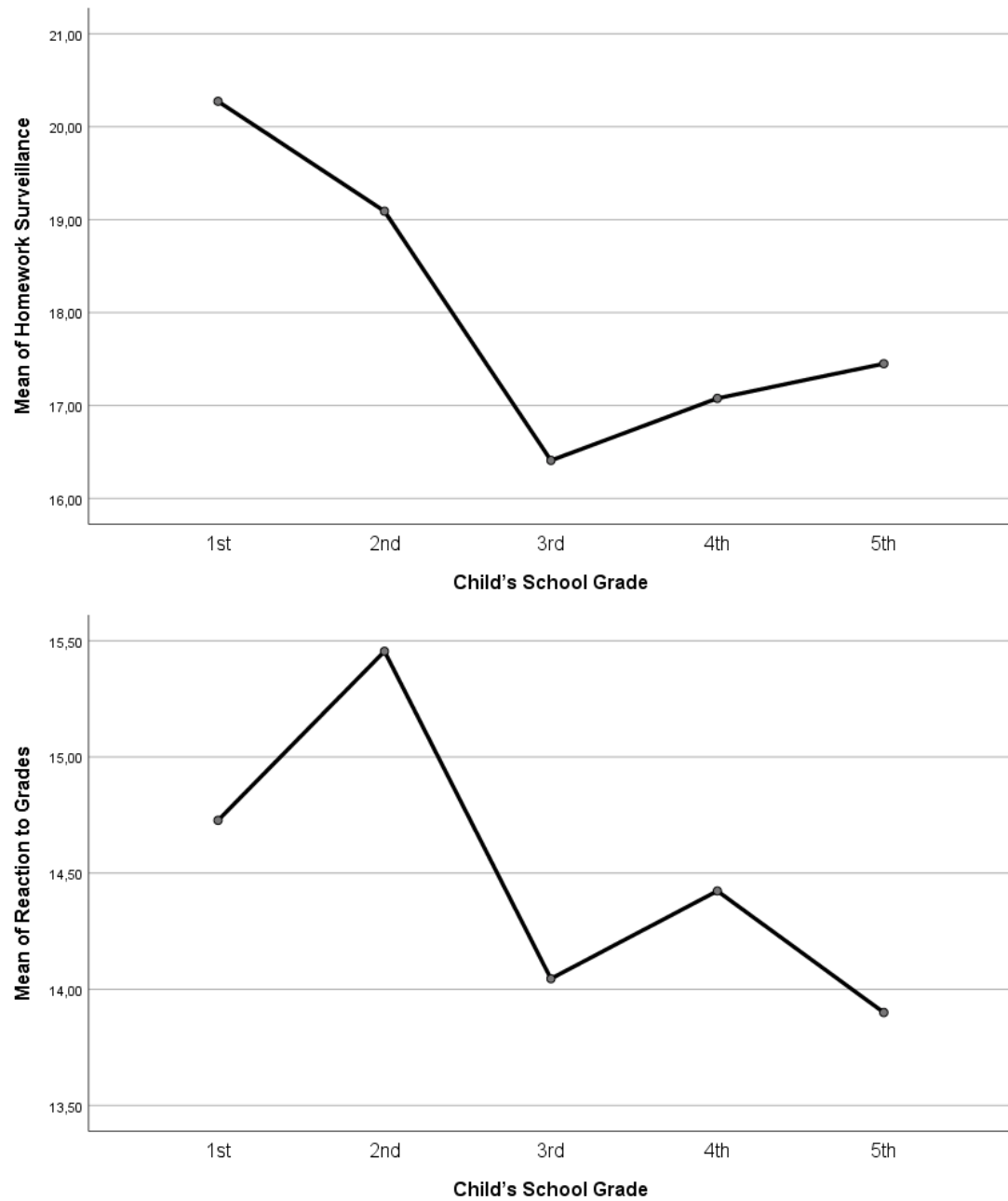


Figure 11*Mean Levels of Intrinsic Motivation Subscales * Autonomy vs Control*

Figure 12*Mean Levels of Extrinsic Motivation Subscales * Autonomy vs Control*