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"I'll do it later": Type of motivation, self-efficacy and homework procrastination

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Abstract The aim of this study is to explore the role of motivation in the relations between self-efficacy and procrastination. One hundred seventy-one-fifth-grade students completed questionnaires that assessed the type of motivation the students have for homework, the level to which they procrastinate on doing homework, and their self-efficacy regarding homework. The results indicated that autonomous motivation both mediates and moderates the relations between self-efficacy and procrastination. These results highlight the importance of students' type of motivation for homework, suggesting procrastination cannot be reduced simply by addressing students' self-efficacy; but, they must be supported to adopt a more autonomous type of motivation.

Keywords Procrastination · Self-efficacy · Homework · Motivation · Self-determination theory

Introduction

For a range of reasons, which are still not sufficiently understood, many students procrastinate with regard to academic activities (Steel 2007). Procrastination involves delaying the performance of a task until the person experiences distress about not having performed the activity earlier (Solomon and Rothblum 1988); it is especially common in the academic domain.

Procrastination has been found to result in lower achievement (Tice and Baumeister 1997; Wesley 1994), higher levels of stress, and higher levels of anxiety (Ferrari et al. 2005; Sirois 2004). Most of the research on procrastination has focused on undergraduate and graduate students, with only a few studies being conducted on adolescents or young students (Klassen and Kuzucu 2009; Klassen et al. 2009). It is reasonable to assume that this maladaptive academic behavior does not appear during the transition to high school or college, but instead develops along with other learning behaviors and strategies within the interaction of students' characteristics and the educational environment over the years (e.g., Ames and Archer 1988). Therefore, it is somewhat surprising almost no research exists on this phenomenon in students younger than college age.

Although previous studies have explored the consequences of academic procrastination, there has been scarcely any analysis of its causes. Some research has attempted to investigate the causes for academic procrastination in college students by assessing its relations with various personality traits (Johnson and Bloom 1995; Lay et al. 1998; Lubbers et al. 2010). Other personal characteristics, such as self-regulation, self-efficacy, and self-esteem, have received the most attention as variables investigated in relation to or as causes of academic procrastination (Steel 2007). Recent research has focused on self-efficacy [defined as a person's sense of competence and confidence in executing behaviors that would achieve a desired outcome (Bandura 1977)] as a key variable associated with academic procrastination (Klassen et al. 2008, 2009).

Numerous studies have tested the role of motivation between self-perceptions of ability and educational outcomes (such as grades) (Ryan and Connell 1989; Vallerand et al. 1989; Vallerand and Bissonnette 1992; Katz et al. 2011). However, although various studies have found that

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the type of motivation students adopt towards academic tasks serves as a "buffer" that protects students from negative consequences and as a source of power to overcome various difficulties (Katz et al. 2011, 2012), only a few studies have explored the effect of motivational aspects on academic procrastination or that assess the contribution of the type of motivation to the development of procrastination (Klassen and Kuzucu 2009).

The present study aims to assess the role of motivation in procrastination using the self-determination theory (SDT, Deci and Ryan 1985, 2000). According to the SDT, there is a continuum of motivational orientations for activities, ranging from extrinsic/controlled regulation to intrinsic/autonomous motivation, reflecting the locus of regulation of action. SDT research has suggested that the more autonomous the motivation—or the locus of regulation of action—the higher the quality of engagement, the emotional experience, and the overall well-being of the person (Deci and Ryan 2000). As autonomous motivation is considered a source of power to overcome negative consequences, it is interesting to explore how autonomous motivation can help prevent or reduce homework procrastination.

Accordingly, the purpose of this study is to explore the role of motivation in the relations between self-efficacy and procrastination in elementary school students. More specifically, we aim to understand whether and how students' type of motivation interferes with the well-established yet inadequately understood relations between self-efficacy and procrastination on academic tasks. This investigation may help to expand the knowledge regarding the roots of this maladaptive academic behavior and contribute to decreasing it.

In order to investigate the role of the type of motivation in the relations between students' self-efficacy and procrastination, we start by assessing whether the type of motivation mediates these relations. Mediating relationships occur when a third variable plays an important role in governing the relationship between the other two variables. Accordingly, we assessed whether the relations between self-efficacy and procrastination are lowered when the type of motivation is entered into the equation. Secondly, we assessed whether the type of motivation moderates these relations; in other words, whether there was any interaction between self-efficacy and motivation in its relation to procrastination.

Academic procrastination: Its causes and consequences

Academic procrastination has been defined as the voluntary yet irrational delay of an intended course of academic action (Schraw et al. 2007; Steel 2007). Most of the research on academic procrastination has been done on college and university students. According to these studies, 70–95 % of undergraduate students procrastinate on their academic tasks (Ellis and Knaus 1977; Steel 2007). For undergraduate students, procrastination is associated with negative consequences such as tests and social anxiety, the use of inefficient learning strategies, fear of failure, and even pathological conditions of depression and anxiety (Dewitte and Schouwenburg 2002; Ferrari and Scher 2000; Ferrari et al. 2005; Fritzsche et al. 2003; Howell et al. 2006; Lay and Schouwenburg 1993; Lee 2005; Midgley and Urdan 2001; Schraw et al. 2007; Tice and Baumeister 1997; Wolters 2003). Research on academic procrastination in adolescence found that, as with undergraduate and graduate students, procrastination is associated with low self-esteem (Owens and Newbegin 1997) and a lack of self-regulation behaviors (Milgram and Toubiana 1999).

A motivational perspective on academic procrastination

The type of motivation that students adopt towards learning has been found to predict emotions and behaviors related to the students' academic experience, such as emotions during academic activities, sense of competence, concentration, grades, and persistence (Ryan and Connell 1989; Vallerand et al. 1989; Vallerand and Bissonnette 1992; Katz et al. 2011). Despite this, the relations between the type of motivation and the maladaptive academic behavior of procrastination have not been sufficiently studied (Howell and Buro 2009; Scher and Osterman 2002; Senécal et al. 1995).

Most of the studies that were conducted to assess motivational aspects of procrastination have analyzed the role of goal orientation on this phenomenon, suggesting that procrastinators tend to have lower achievement drives. Moreover, these studies suggest that students with high achievement motivation set more difficult goals for themselves and often enjoy performance for its own sake, which leads them to procrastinate less on their academic tasks (Costa et al. 1991; Spence and Helmreich 1983). Accordingly, while mastery-avoidance goals positively predict procrastination, mastery-approach and performance-approach goals negatively predict procrastination (Howell and Buro 2009; Howell and Watson 2007; Scher and Osterman 2002). Other studies have not directly assessed the relation between procrastination and motivation, but have instead considered related constructs such as self-handicapping and self-regulation (Midgley and Urdan 2001; Milgram and Toubiana 1999).

Hardly any research has assessed the role of self-determination in procrastination (Senécal et al. 2003). This is surprising since self-determined motivation has been found to be associated with cognitive, affective, and behavioral consequences (Deci and Ryan 1985, 1987, 1991; Vallerand 1997).

Moreover, other concepts that have been assessed in relation with procrastination (such as self-efficacy, self-handicapping and self-regulation), are also associated both theoretically and empirically with self-determined motivation.

SDT specifies a continuum of motivational orientations for activities, ranging from extrinsic/controlled regulation (engagement out of coercion or for achieving a reward, the desire to avoid feeling guilty, ashamed, or unworthy) to intrinsic/autonomous motivation (engagement out of interest and pleasure, or identifying with the importance of the behavior) reflecting the locus of regulation of action. Research results are quite consistent in suggesting that the more autonomous the motivation (or the locus of regulation of action), the higher the quality of engagement, the emotional experience, and the overall well-being of the person (Deci and Ryan 2000). Senécal et al. (1995) provided evidence that students who were motivated in a non-self-determined way (that is, with external regulation) were likely to procrastinate more than those who were motivated in a self-determined way (that is, with intrinsic regulation). They suggested that accomplishing tasks on time depends not only on personal characteristics such as self-efficacy or fear of failure, but also on self-determined motivational processes (Senécal et al. 1995). In 2000, Senécal and Guay suggested that autonomous-type motivation predicts procrastination toward job-seeking, and concluded that this highlighted the importance of looking to social-contextual influences for understanding procrastination (Senécal and Guay 2000).

The possible effect of autonomous motivation on the relation between self-efficacy and procrastination

Several studies have examined the beneficial role of autonomous types of motivation as a coping resource and a source of power. For example, Boggiano and colleagues (Boggiano1998; Boggiano et al. 1992) found that when teachers used controlling and stress-inducing practices, extrinsically-oriented students demonstrated lowered perceived competence, but intrinsically-oriented students did not. The former group used their internal source of motivation to overcome the negative consequences of teachers' behavior. Similarly, Katz et al. (2006) found that students' interest (a proxy for intrinsic motivation) provided students with a personal resource for coping with non-optimal and stress-inducing learning conditions.

Homework situations are considered daily stressors (Cooper 2001; Katz et al. 2012). Students report that interactions regarding homework often involve conflicts and negative emotions (O'Rourke-Ferrara 1998). Therefore, in the context of homework, students need the best coping resources they can have. Given that autonomous motivation is considered an intrinsic resource for coping, we would expect that the more intrinsic/autonomous types of motivation the student holds, the less he or she will procrastinate. As students' self-efficacy is a central variable in procrastination, it is interesting to consider how the interaction between students' motivation and self-efficacy influences procrastination. Such an investigation might help us understand whether an autonomous type of motivation could serve as a coping resource to overcome procrastination. Accordingly, we propose the following hypotheses:

H1 The relations between self-efficacy and homework procrastination will be mediated by autonomous motivation: A significant decrease in the direct path between self-efficacy and procrastination will be obtained when autonomous motivation is entered into the equation, which suggests that autonomous motivation plays an important role in governing the relationship between self-efficacy and procrastination.

H2 A main effect will be found for self-efficacy in predicting procrastination: Students with higher levels of self-efficacy will procrastinate less than students with lower levels of self-efficacy.

H3 A main effect for autonomous motivation in predicting procrastination will be found: Students with higher levels of autonomous motivation will procrastinate less than those with lower levels of autonomous motivation.

H4 Autonomous motivation will moderate the relations between self-efficacy and procrastination. We expect to find a significant interaction between self-efficacy and autonomous motivation in predicting procrastination. Because autonomous motivation is considered a coping resource, we hypothesize that students who hold low or high levels of this resource, will differ in terms of the level at which their procrastination is affected by their self-efficacy.

Method

Participants

A total of 171 fifth-grade students (88 males and 83 females; age range 9.4–10.5; mean age: 9.7) participated in this study. The students were selected from four elementary schools located in middle/high SES suburban neighborhoods in the northern part of Israel. No significant differences were obtained between the schools in any of the variables.

In Israel, homework is assigned in almost every lesson starting from first grade. In previous studies

(Katz et al. 2010, 2011), 60 % of parents of fourth-graders reported that their children spend between 30 min to an hour on homework every day. Only 11 % of parents indicated that their children spend less than 15 min a day on homework a day. Homework assignments vary from one subject to another and range from worksheets to personal projects. While homework does not receive a separate grade, its satisfactory completion comprises a significant element in the students' evaluation.

Procedure

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

Measures

All of the measures were based on existing measures.

Students' motivation for doing homework was assessed with a questionnaire developed by Katz et al. (2011) according to the approach developed by Ryan and Connell (Grolnick and Ryan 1989; Grolnick et al. 1991; Ryan and Connell 1989). Participants indicated on a five-point Likert scale, ranging from 1 (not at all) to 5 (very much), the extent to which they engage in homework for autonomous reasons (identified or intrinsic reasons that reflect an endorsement of the value of the task or enjoyment of doing it; for example, "I do homework because of the value and contribution of the homework to my learning."; "I do homework because it is fun"; 11 item, $\alpha = .91$) or controlled reasons (external or introjected forces or pressures, such as "I do my homework because I want to get a better grade"; "I do my homework because I'll feel ashamed if the teacher finds out I didn't do it"; 8 items, $\alpha = .88$). As no correlation was found between autonomous and controlled motivation, and consistent with the procedure followed by other researchers using self-report scales (e.g., Black and Deci 2000; Sheldon et al. 2004; Vansteenkiste et al. 2005), we created a global indicator of relative autonomous motivation by subtracting the score representing controlled motivation from the score representing autonomous motivation. The final score indicates the relative autonomous motivation of the participant.

Students' self-efficacy in homework was measured using a questionnaire developed by Katz et al. 2012, which assesses students' beliefs about their abilities to complete homework successfully. The items were based on and adapted from related work, including (Bandura 2006) and Eccles et al. (1993). Students reported on a five-point Likert scale ranging from 1 (not at all) to 5 (very much). The items assessed students' self-efficacy to perform homework (for example, "I can manage to solve difficult homework problems"; "In general, how hard is homework for you?" "I can solve most problems in homework if I invest the necessary effort"). The indicator of students' self-efficacy in homework was created by averaging the scores on the seven items pertaining to students self-efficacy ($\alpha = .80$). Higher scores indicated higher self-efficacy.

Students' procrastination was assessed using the Academic Procrastination Scale that Scher and Osterman (2002) adopted from Lay et al. (1998). The items assessed students' level of academic work procrastination (for example, some students do their homework as soon as they can, some students waste time before they do their work $\alpha = .90$). Consistent with other procrastination scales (Solomon and Rothblum 1988; Tuckman 1991), the response format in the present study was based on a five-point scale with endpoints labeled 5 ("very much like me") and 1 ("not at all like me"). In producing total scores, the rating scale was reversed prior to summing across the 12 items, so that higher scores indicated greater procrastination. The indicator of students' homework procrastination was created by averaging the scores on the items.

Results

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

In order to test the mediation hypothesis, we followed recommendations by Baron and Kenny's (1986) that mediation requires that the predictor variable (self-efficacy) predicts

Table 1 Correlations among and descriptive statistics for key study variables

	M (*SD*) Skewness	Aut. motivation	Self-efficacy	Homework procrast.
Autonomous motivation	.47 (1.38) −.07		.42**	−.50**
Self-efficacy	3.59 (.97) .59			.41**
Homework procrastination	2.44 (.88) .15			

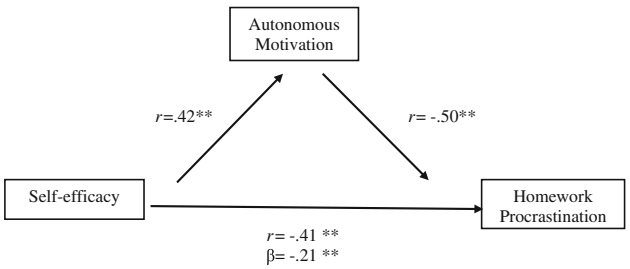
$N = 171$; ** $p < .01$

the dependent variable (procrastination), the predictor variable predicts the hypothesized intervening variable (Autonomous motivation), the intervening variable predicts the dependent variable, and the relationship between the predictor and dependent variable is attenuated when the intervening variable is controlled. As predicted, relative autonomous motivation was negatively correlated with homework procrastination and positively correlated with self-efficacy. Self-efficacy was negatively correlated with homework procrastination.

After confirming the relations between the variables, we ran regression analyses in which procrastination was the dependent variable, self-efficacy was the independent variable and the hypothesized mediator (relative autonomous motivation) was entered as an independent variable in the second step. The results are presented in Fig. 1.

The analysis indicated that when autonomous motivation was entered into the equation, the decrease in the direct path between self-efficacy and procrastination was statistically significant (Sobell test $= -3.95$, $p < .01$). This finding suggests that relative autonomous motivation is a partial mediator between self-efficacy and procrastination, and that it plays an important role in governing the relationship between these two variables.

A regression analysis was conducted on the variable of procrastination in order to assess the moderation hypothesis. The predictors were self-efficacy, relative autonomous motivation, and the interaction between those variables. As expected, the results showed a significant main effect for self-efficacy ($B = -.25$ $\beta = -.28$, $t = -3.53$, $p < .001$, $R^2 = .07$) and a significant main effect for relative autonomous motivation ($B = -.23$ $\beta = -.37$, $t = -4.76$, $p < .001$, $R^2 = .19$). The interaction between relative autonomous motivation and self-efficacy was also significant ($B = -.09$, $\beta = -.14$, $t = -1.96$, $p \leq .05$). The interaction was plotted following Aiken and West's (1991) recommendation (one standard deviation above the self-efficacy mean and one standard deviation below that mean in each condition), as shown in Fig. 2. In the condition of high relative autonomous motivation, as the self-efficacy increases, procrastination decreases significantly ($B = -.23$, $\beta = -.42$, $t = -3.49$, $p < .001$). In the condition of low relative autonomous motivation, the plot is not significant, although the relation between self-efficacy and procrastination is also negative ($B = -.12$, $\beta = -.14$, $t = -1.58$, *n.s*).



Comments: N=171; *p<.05; **p<.01; Sobell test is significant (-3.95, p<.01).

Fig. 1 Mediation model: autonomous motivation mediating between self-efficacy and homework procrastination. $N = 171$; $*p < .05$; $**p < .01$; Sobell test is significant (-3.95, $p < .01$)

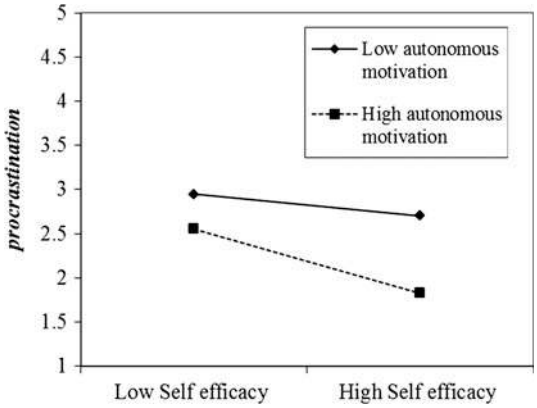


Fig. 2 Procrastination as a function of self-efficacy and autonomous motivation. The interaction was plotted following the recommendation of Aiken and West (1991). The *dots* represent the value that is one standard deviation above the mean and one standard deviation below that mean in each condition

These results suggest that autonomous motivation alters the strength of the relation between self-efficacy and procrastination. More specifically, the relation between self-efficacy and homework procrastination is maximized when students are autonomously motivated regarding their homework. Students with low autonomous motivation will procrastinate whether they have low or high self-efficacy, but students with high autonomous motivation will procrastinate more if they are low in self-efficacy than if they are high in self-efficacy.

Discussion

An increasing body of research supports the relations between self-efficacy and procrastination on academic tasks (Steel 2007). These studies suggest that low self-efficacy is a central reason for procrastination. Overall, the entire findings of this study suggest that although self-efficacy has a central role in procrastination, it is not enough by itself to explain why so many students of all ages tend to procrastinate with regard to their homework. The results of this study suggests that autonomous motivation plays a central role in the relations between self-efficacy and procrastination, and should therefore be taken into account when trying to understand and/or prevent this maladaptive behavior.

The mediating effect that autonomous motivation has on the relation between self-efficacy and procrastination suggests that a significant proportion of this relation can be explained by the level of autonomous motivation the student holds. This result explains the mechanism that underlies the observed relationship between self-efficacy and procrastination. It is students' self-efficacy that influences the type of motivation, which in turn influences the level of procrastination. Although the direct path between self-efficacy and procrastination remains negative and significant after entering autonomous motivation, the significant decrease in this path suggests that the contribution of autonomous motivation cannot be avoided. Accordingly, programs to reduce procrastination should improve students' self-efficacy and help them internalize autonomous types of motivation.

The main effect of motivation on procrastination suggests that all students can benefit (and therefore procrastinate less on their homework) from doing homework out of more autonomous type of motivation. The interaction effect suggests that the type of motivation students adopt alters the relation between self-efficacy and procrastination. Plotting this interaction revealed that the relation between self-efficacy and homework procrastination is maximized when students are autonomously motivated with regard to their homework. Students who are higher on autonomous motivation procrastinate more when they are less self-efficacious. The results for students who are low on autonomous motivation were not significant. These results suggest that for students with lower autonomous motivation, higher self-efficacy plays a less central role in reducing procrastination. Specifically, higher self-efficacy is not efficient enough to reduce procrastination if it is not accompanied by an autonomous type of motivation. The lack of such motivation "exposes" students to the negative consequences of low self-efficacy and, in a way, decreases their ability to "benefit" from high self-efficacy. This result corroborates previous SDT research suggesting that learning based on less autonomous motivations can have negative consequences (Black and Deci 2000; Katz et al. 2011).

So why do students with high autonomous motivation procrastinate more when they have low self-efficacy than when they have high self-efficacy? Based on previous SDT research (e.g., Katz et al. 2006), one should expect that holding autonomous type of motivation will "protect" students from the negative consequences of their low self-efficacy. The results of this study suggest that while autonomous motivation is necessary, it is not sufficient to promote positive behavior or prevent negative behavior. This notion has also appeared in previous SDT related studies. Williams and Niemiec (2012) suggested that in order to promote maintenance of health behavior change, it is critical to target both autonomous self- regulation and perceived competence. They based their claim on other SDT health intervention studies (Ryan et al. 2008; Williams et al. 2011). In view of those studies, one could question whether autonomous motivation is not effective enough to maintain behavioral health change. In the present study, autonomous motivation is not effective enough to prevent procrastination. Why is self-efficacy or autonomous motivation, by themselves, not sufficient to promote some behaviors and maintain them? The results of this study cannot fully answer these questions. However, one possible interpretation could lie in the fact that both maintenance of medical behavior change and homework are behaviors that originally derived from external origins, and are mostly internalized up to the "identified motivation level." It is logical to assume that most of the patients who internalized their medical behavior change, and most of the students who report autonomous motivation for homework do so not because they enjoy it but because they personally endorse or identify with the value or importance of such behavior (Assor et al. 2002). Understanding and identifying with an action, without feeling competent enough to perform it, might cause conflicting emotions, which could lead to maladaptive behaviors such as smoking, avoiding diet or sport, or, in the case of homework, procrastination. This could explain why autonomous motivation is not sufficient in some cases. One should feel able enough to execute the behavior he/she identified with in order to maintain a positive behavior or avoid a negative one. Future studies should assess this question more deeply in order to understand why self-efficacy affects procrastination in autonomously motivated students more than it affect those with low autonomous motivation. Such research could help explore the conditions in which autonomous motivation can aid overcoming the strong influence of this negative self-perception.

The above findings corroborate the emphasis in the SDT literature on the central influence that the type of motivation students adopts on their emotional, behavioral and cognitive characteristics. SDT research has shown that intrinsic and identified regulation types of motivation are positively associated with school achievement and cognitive strategies (Pintrich and DeGroot 1990; Guay and Vallerand 1997) as well as with lower levels of stress (Katz et al. 2012), while introjected and external regulation are positively associated with anxiety, school dropout rates, and academic procrastination (Ryan and Connell 1989; Senécal et al. 1995; Vallerand et al. 1997). The results of this study show how autonomous motivation might be crucial to the specific academic behavior students adopt towards homework and to the need to support students' more autonomous types of motivation in order to avoid the negative consequences of procrastination.

One of this study's unique contributions lies in its assessment of procrastination in elementary school students. The lack of research that aims to understand this maladaptive behavior in young ages is surprising as various developmental theories (such as those of Erickson and Piaget) have suggested that the roots of people's adaptive and maladaptive behaviors lies in their early childhood.

With regard to the development of self-perceptions of competence, Erikson (1993), for example, suggested that this quality develops mostly at school-age (6–11 years of age). As children develop cognitively, they begin to base their self-evaluations on external feedback and social comparisons. The stability of these self-perceptions is relatively low during early childhood and increases throughout adolescence and early adulthood (Robins and Trzesniewski 2005; Schunk and Pajares 2002; Trzesniewski et al. 2003). Therefore, in order to help students to develop more adaptive self-perceptions of ability, it is good to start supporting them at younger ages. The path by which students develop the motivation to learn, found in various studies (e.g., Anderman et al. 1999) also suggests that this quality changes over time. Unfortunately, some research has indicated that students' overall intrinsic academic motivation declines during school education, particularly in periods of transition between school systems (Anderman et al. 1999: Katz et al. 2010). The present study found these two variables, which are formed and stabilized during the first years in school, to have a strong influence on procrastination. Understanding the correlates of the procrastination phenomenon in younger ages is a helpful first step in providing insights regarding educational programs to prevent its development while (or even before) it develops.

According to the SDT, "need-supportive environments" improve students' autonomous type of motivation, as well as their perceptions of ability to overcome academic challenges (Katz et al. 2006). Therefore, in light of the SDT, it has been suggested that a learning environment that supports students' needs for autonomy, competence, and relatedness will reduce procrastination, both directly by increasing autonomous motivation, and indirectly by elevating students' self-efficacy by supporting their need for competence. This might be projected not only in students' ability to avoid procrastination, but also in their general well-being while doing homework.

The present study has certain limitations. Firstly, all data was collected using self-report questionnaires, which could have caused biased responses. Moreover, the investigation is correlational and subject to common method bias. Future studies should address this question using other methodological instruments such as interviews, observations, and/or a controlled experiment. Moreover, considering the young age of the students, it will be important to assess these questions using parents' reports and perceptions of their child. Although the size of the sample is sufficient for the purpose of this study, future research should investigate the hypothesized relations among more students of various ages, specifically during the transition between school systems, and also investigate similarities/differences between patterns of procrastination in students of different ages. Future studies should also include some variables related to the task or school/classroom environment, as well as more objective outcomes (such as homework completion or correctness). This type of investigation might explore developmental patterns of the phenomena of procrastination.

Conclusion

The findings of the current study highlight the important role that the type of motivation students adopt towards homework plays in their academic behavior while involved in homework. The study's findings suggest that an emphasis on helping students to develop a more adaptive type of motivation towards an academic task could reduce negative consequences and support positive consequences. Maladaptive behaviors that have been implemented are difficult to change (Onatsu-Arvolommi et al. 2002). Therefore, creating a learning environment that support the development of more adaptive types of motivation, and therefore less procrastination, might be a better way to overcome procrastination than trying to eliminate this behavior after the student has implemented and adopted it. This emphasis on the educational environment should begin with young students, at the ages at which they develop their academic self-efficacy, motivation, academic perceptions, and behaviors (Onatsu-Arvolommi et al. 2002).

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