The Influences of Parental Academic Involvement on Procrastination Behavior among Thai Adolescents in Bangkok Metropolitan Area

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Abstract
This study aimed to examine the influence of the perception of parents' academic involvement on academic procrastination among Thai adolescents in Bangkok metropolitan area. Particularly, this study investigated whether: (a) perceived parental academic involvement (either support or control) predicts adolescents' academic procrastination, and (b) whether self-efficacy for self-regulated learning (SE-SRL) and self-regulated learning (SRL) mediate the relation between parental academic procrastination. Participants were adolescents, aged between 15-18 years old, who have been studying in high schools and vocational schools in the Bangkok metropolitan area. Two-hundred ninety-five participants were recruited by using convenience sampling technique. Only participants, who gave consent forms, would participate in this study. All participants were asked to complete the Academic Procrastination Scale-Short Form (APS-Short Form: Yockey, 2016), Perceived Parental Academic Involvement (Janta, Jaikam, and Atipornpanich, 2018a), Self-Efficacy for Self-Regulated Learning Scale (Uscher & Pajares, 2008), and Self-Regulated Learning Scale (Wongkongdetcha, 2004). Parceling techniques were employed to provide a valid representation of target latent variables. Structural Equation Model (SEM) using lavaan was then analyzed mediation variables. We found that SE-SRL and SRL partially mediate the relation between parental academic involvement and academic procrastination. That is, when perceived parental support and parental control increases SE-SRL and SRL, and consequently, the academic procrastination decreases. However, explained by direct effect, if parental procrastination increases, academic procrastination increases. The direct effect of parental control is stronger than the indirect effect, so the total effect of parental control indicates positive effect on academic procrastination.

Keywords: Perceived Parental Academic Involvement, Self-Regulated Learning, Self-Efficacy of Self-Regulated Learning, Procrastination, Adolescents

Introduction

Academic procrastination has been defined as the ways in which individual delaying or procrastinating to finish their academic assignments such as homework, reports, or preparation for the examination (Solomon & Rothblum, 1984). Academic procrastination is one of the most common behaviors among students (Kandemir, 2014). Surprisingly, more than 50 percent of high school and college students reported that they have procrastinated (Özer, 2011). A study found that college students showed a higher level of procrastination than high school and vocational students (Janssen, 2015). However, another study found that high school students showed higher level of academic procrastination than college students (Rosàrio, Costa, Múñez, González-Piendda, Solano, & Valle, 2009). Academic procrastination in high school and vocational students further demonstrated adverse outcomes (Karami & Mahmoodi, 2018; Özer, 2011), such as academic failure, academic unhappiness, negative mood, stress, and lower level of self-esteem (Ferrari, Johnson, & McCown, 1995; Habelrih, & Hicks, 2015; Owen, Bowman, & Drill, 2008; Steel, 2007). Moreover, students who have high academic procrastination tended to have lower self-monitoring, less likely to have goals setting and less likely to pursue goals relevant to self-regulated learning (Hong, Hwang, Kuo, & Hsu, 2015; Ying & Lvb, 2012). Academic procrastination was further associated with a low level of academic self-efficacy, a low motive to approach success, lower learning strategies, and low level of academic frustration tolerance, which in turn were related to lower grade (Goroshit, 2018; Habelrih, & Hicks, 2015). Moreover, a longitudinal study found that procrastination was associated with lower work satisfaction, self-esteem, stress, and physical illness (Tice & Baumeister, 1997). Therefore, in a long run, academic procrastination predicts negative academic performance, self-regulated learning, self-esteem, and individual's well-being (Kim & Seo, 2015; Michinov, Brunot, Bohec, Juhel & Delaval, 2011).

Recent research demonstrated that parenting academic involvement may crucially be considered as one factor of academic procrastination development. Esmeisli and Monadi (2016) and Ferrari, Roster, Cram, and Pardo (2017) found that parenting styles and parental involvement were related to the development of academic procrastination. Parental academic involvement has been defined as the way in which parents try to focus on children' s academic performance and assignment. They try to teach and raise children to achieve a high level of education as well as desire to see children show excellent academic performance (Mhad-arwha, 2011). In general, parental academic involvement comprises of 4 dimensions: (a) control involvement style versus autonomy/support involvement style, (b) process focused style versus person focused style, (c) positive affect involvement style versus negative affect involvement style, and (d) positive beliefs about children's potential versus negative beliefs about children's potential (Pomerantz, Moorman, & Litwack, 2007).

Parental academic involvement (autonomy/support and control styles) as a predictor of academic procrastination

This study would specifically focus on the first dimension (control involvement style and autonomy/ support involvement style) since several studies demonstrated that both components showed different influences on academic procrastination (Erdemir, 2019). The first dimension has been clarified that parents, who show control involvement style, prefer to use pressure strategies, such as control, order, and intervene, the children' s academic performance and assignment. In contrast, parents, who show autonomy/support involvement style, prefer to grant freedom to children in deciding on how to proceed with studying and academic assignment. Further, parents tend to support children to have proactive problem-solving and intuition. Evidently, autonomy/ support involvement style relates to positive outcomes, such as learning engagement, educational effort (Feng, Xie, Gong, Gao, & Cao,

2019), academic ability and achievement (Roth, Assor, Niemiec, Ryan, & Deci, 2009; Vasquez, Patall, Fong, Corrigan, &Pine, 2016), and lower negative outcomes, such as academic procrastination (Habelrih, & Hicks, 2015; Zakeria, Esfahanib, & Razmjoee, 2013). Parental autonomy/support involvement style also improves children's positive emotion and enjoyment (Froiland, 2011). Further, parental autonomy/support involvement style assists children to master their goal and achieve what they have pursued (Godina & Cortina, 2014). In contrast, control involvement style of parents significantly predicted academic procrastination and depression in children and adolescents (Padilla-Walker, Son, & Nelson, 2019; Won & Yu, 2018). Children may feel guilty, pressured, and threatened (Bureau & Mageau, 2014; Grolnick & Pomerantz, 2009). Therefore, being controlled by the parents, students may be not able to manage and feel less efficacious to handle their tasks effectively (Won & Yu, 2018). In summary, parental autonomy/support involvement style will increase positive outcome in academic performance, while parental control involvement style leads to maladjustment, poor academic performance, and procrastination.

Moreover, it is likely that parenting involvement relates to self-efficacy for self-regulated learning and self-regulated learning (Schunk & Pajares, 2002). This relation may play an important role in reducing academic procrastination. Thus, parents' styles of involvement may critically portray the development of academic procrastination in adolescents. The insights gained from studying this relationship may help children to enhance their regulation methods and to develop appropriate beliefs about how to manage tasks and challenges.

Although there have been studies in many countries, very few studies have been conducted to investigate parental academic involvement and academic procrastination in Thailand (Somkitikanon, 2017). Further, there has not been a study on academic procrastination among Thai adolescents age between 15-18 years old. Hence, this study aims to conduct a study on academic procrastination among Thai adolescents. The present study would specifically focus on the first dimension of parent involvement (control involvement style and autonomy/ support involvement style) because several studies demonstrated that both components showed different influences on academic procrastination (Erdemir, 2019). In addition, it examines whether self-efficacy for self-regulated learning and self-regulated learning would mediate the relation between parental academic involvement and academic procrastination in Thai students.

The Relation between Parental Involvement and Self-Efficacy for Self-Regulated Learning

Recent study demonstrated that parental academic involvement would increase self-efficacy for self-regulated learning in academic performance. In general, self-efficacy refers to one's belief and perception about one's capabilities to manage and organize the actions necessary to perform skills for specific tasks (Bandura, 1989). In addition, self-efficacy for self-regulated learning refers to the individual's beliefs in his or her ability or capacity to do academic tasks successfully (Bandura, 1977). Individuals with high self-efficacy for self-regulated learning tend to believe that they can manage their thoughts and goals in study. They tend to effectively manage their working schedule, prioritize their works, avoid distraction, set their goals, and manage their environment to facilitate their works (Usher, 2012). Importantly, self-efficacy for self-regulated learning may assist students to understand their current knowledge, abilities, and level of effort they need to produce to achieve success (Cheung, 2004).

A study found that parental academic involvement related to an increase of sense of the academic self-efficacy. Particularly, parental involvement, such as parental academic aspiration, parent's participation in school function, and parental advice, increase higher sense of academic self-efficacy (Fan & Williams, 2010). Parental academic aspiration,

parent's participation in school function, and parental advice may provide constructive feedback to children and adolescents on how they perceive locus of causality and choice information. Then, children and adolescents might experience source of self-efficacy (Bandura, 1997; Usher & Pajares, 2008). Moreover, perceived parental autonomy/support and control styles related to self-efficacy for self-regulated learning. Interestingly, perceived parental autonomy/support style encourage students to show independent decision-making, understand their feeling, and explore logical rationale for decisions. These additionally encourage students' self-efficacy for self-regulated learning. In contrast, perceived parental control style may make them feel guilty, and this would enhance low-level of self-efficacy for self-regulated learning. It is likely that parental control style might obstruct children and adolescents to promote their self-efficacy belief in initiating their activities and accomplishing their success (Won & Yu, 2018). In sum, parental autonomy/support style encourages independence and experience mastery in children and adolescents. In addition, children and adolescents enhance their belief in their efficacy. Consequently, children and adolescents perceive their capabilities to manage and organize their academic performance successfully. In contrast, parental control style may prevent children and adolescents in mastering their experiences. It may then obstruct the enhancement of self-efficacy for self-regulated learning (Schunk & Zimmerman, 2012).

The Relation between Parental Academic Involvement and Self-Regulated Learning

Self-regulated learning refers to active and strategic learning processes that help students to achieve their academic goal. Self-regulated learning is metacognitive, motivational, and behavioral self-management strategies, which allow individual to achieve his/her goals (Zimmerman & Martinez-Pons, 1986). Therefore, self-regulated learning processes specifically involve goal-directed activities, which acquire an individual initiating goals, organizing and transforming information, seeking information, and using memory aids (Zimmerman, 1989). Particularly, self-regulated learning helps students to plan and control their thoughts, motivation, behavior, and learning environment to meet their success (Zimmerman, 2000). Zimmerman, & Martinez-Pons, (1988) believe that self-regulated learning in students has derived from 3 characters; 1) self-control learning strategies, 2) response for learning achievement satisfaction, and 3) learning inspiration. In particular, students who show a high level of self-regulated learning will choose to use self-control learning strategies to manage things. Then, they are likely to gain satisfied consequences and more learning skills from finishing each task. Notably, self-regulated learning is the metacognitive strategies that are negatively associated with academic procrastination (Corkin, Yu, & Lindt, 2011; Walter, 2003). Students who have a low level of self-regulated learning showed a high degree of academic procrastination (Asri, Setyosari, Hitpeuw, & Chusniyah, 2017). Moreover, parental academic involvement and self-regulated learning negatively predicted academic procrastination (Vahedi, Mostafafi, & Mortazanajad, 2009).

Further, recent study demonstrates that parental academic involvement relates to self-regulated learning (Martinez & Pons, 2002; Pomerantz, Moorman, & Litwack, 2007). As mentioned above, parental academic involvement consists of two distinct dimensions, autonomy/support and control. It is likely that these two dimensions associate with different outcomes in self-regulated learning. Autonomy/support in parental academic involvement has been provides feedback and support, such as encouragement, guidance or facilitation, and reinforcement or rewards, in the development of children's and adolescents' self-regulated learning (Schunk & Zimmerman, 1997; Zimmerman, 2000). Autonomy/support in parental academic involvement also encourages children's and adolescents' independent decision-making, work engagement, effort, and academic achievement (Vazquez, Patall, Fong,

Corrigan, & Pine, 2015). Moreover, parents' self-regulation modeling involves self-regulated learning development (Ericsson & Charnes, 1995) . Thus, modeling, facilitation, encouragement, and reward might boost intrinsic motivation, goal setting, self-evaluation, behavioral regulation, and strategic usage for academic performance (Martinez-Pons, 2002: Ryan & Deci, 2000). These behaviors are the essential behaviors that mean to engage in self-regulated learning (Pintrich & Zusho, 2007).

On the other hands, control in parental academic involvement has been rationalized as controlling, pressuring, threatening, and fostering performance goals (Bureau & Mageau, 2014) . A study demonstrated that control in parental academic involvement related to maladjustment and poor academic performance (Soenens & Vansteenkiste, 2010). However, one study found that perceived parental autonomy/ support and control in academic involvement related to students' report of engagement in self-regulated learning (Vansteenkiste et al., 2005). It is interesting either autonomy/support or control in parental academic involvement would show higher influence on students' self-regulated learning.

Self-Efficacy for Self-Regulated Learning and Self-Regulated Learning as Crucial Mediators for the Academic Procrastination

There have been some studies focused on the influences of self-efficacy for self-regulated learning on academic procrastination (Klassen, Krachuk, & Rajani, 2008). For example, Guo and colleagues (2017) found that self-efficacy for self-regulated learning was associated with parental academic involvement and academic achievement. Therefore, self-efficacy for self-regulated learning may play an important role in reducing academic procrastination (Won & Yu, 2019) . Moreover, self-efficacy for self-regulated learning significantly mediated the relation between self-esteem and academic procrastination and fear of failure. That is, to reduce academic procrastination and fear of failure, individuals should elevate self-efficacy for self-regulated learning (Zhang, Dong, Fang, Chai, Mei, & Fan, 2018).

Research demonstrated that self-efficacy for self-regulated learning is closely linked with self-regulation on academic management (Park & Sperling, 2012), which assists children and adolescents to organize their time schedule for study, use effective learning strategies, and resist distraction (Klassen, Ang, Wan Har, Krawchuk, Huan, Wong, & Laysee, 2009; Klassen, Winsler, & Huie, 2008). Indeed, social cognitive theorists propose that self-efficacy for self-regulated learning is an essential key, which affects self-regulated learning (Bandura, 1986; Zimmerman & Martinez-Pons, 1986). Self-efficacy for self-regulated learning helps students understand their capabilities and evaluate their performance against a standard (Bandura & Schunk, 1981). Further, self-efficacy for self-regulated learning is associated with students' knowledge or abilities and level of the effort they need to achieve their goals (Cheung, 2004) . This means self-efficacy for self-regulated learning may enhance self-regulated learning, which in turn reduces academic procrastination (Wäschle, Allgaier, Lachner, Fink, & Nückles, 2014). Because parental involvement predicts self-efficacy for self-regulated learning and self-regulated learning as described above, self-efficacy for self-regulated learning and self-regulated learning might be the essential mediators of the relationship between parental academic involvement and academic procrastination.

In conclusion, academic procrastination tends to elevate adverse outcomes, such as stress, negative mood, academic failure, academic unhappiness, and lower level of self-esteem (e.g., Ferrari, Johnson, & McCown, 1995; Habelrih, & Hicks, 2015) . Interestingly, a study demonstrated that several Thai children and adolescents in the Bangkok metropolitan area are lack of disciplinary and responsibilities. They also show a high level of academic procrastination, which additionally affect their academic performance (Suriyakulpanich, Seechandra, and Patiphano, 2006). Importantly, academic procrastination may increase lower work satisfaction, self-esteem, stress, and physical illness in people in a long-run (Tice &

Baumeister, 1997), which may consequently decrease work quality and quality of life, and quality of Thai population. Variables that may affect the reduction of procrastination are parental academic involvement, self-efficacy for self-regulated learning and self-regulated learning. Parental academic involvement may reduce academic procrastination by enhancing self-efficacy for self-regulated learning and self-regulated learning (Won & Yu, 2018).

Aims of the present study

This study aimed to investigate the relationships among parental academic involvement (either autonomy/support or control), self-efficacy for self-regulated learning, self-regulated learning, and academic procrastination in Thai students. Specifically, this study aimed to investigate whether self-efficacy for self-regulated learning and self-regulated learning would mediate the relation between parental academic involvement and academic procrastination in Thai students.

The study particularly hypothesized that (a) higher parental support increases self-efficacy for self-regulated learning, increases self-regulated learning, and reduces academic procrastination, (b) higher parental control reduces self-efficacy for regulated learning, reduces self-regulated learning, and increases academic procrastination, and (c) self-efficacy for self-regulated learning and self-regulated learning would mediate the relation between parental academic involvement and academic procrastination as shown in Figure 1.

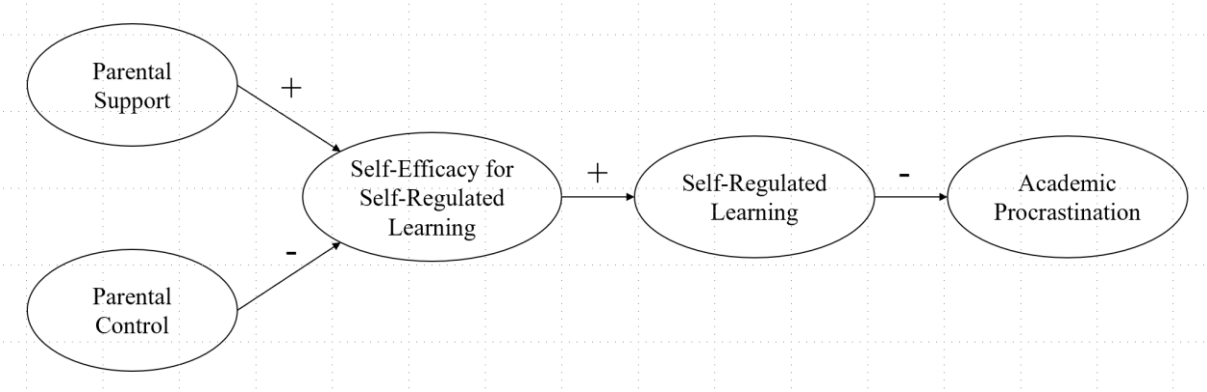

Figure 1. The hypothesized model of this study.

Research Methodology

Participants: The population of this study are Thai adolescents, ages between 15-18 years old, who live in Bangkok metropolitan area. We used convenience sampling to recruit participants. The recruitment was advertised through social networks (e.g., Facebook, Twitter, and Instagram). Participants, who responded to authors via social networks, were provided consent forms. Only participants, who returned the consent forms to authors, were recruited to participate in this study. There were two-hundred ninety-five participants (133 = Males, 45.1%, 162 = Females, 54.9%), aged between 15-18 years old (M = 17.42, SD = 5.98). The number of high school and vocational school students are 179 (60.67%) and 116 (39.33%), respectively.

Procedures: The study was approved by the ethics committees (COA No. 051/2561). After the participants gave consent forms, they were asked to inform their demographic information, such as age, sex, and school types. Also, they were asked to complete all four following instruments.

Research Instruments:

The Academic Procrastination Scale-Short Form (APS-Short Form: Yockey, 2016). This questionnaire is used to measure academic procrastination behaviors. A five-item questionnaire is composed of five-point Likert scale (1 = Dissimilar to me to 5 = Similar to

me). This questionnaire was translated into Thai language which provided good reliability in this study (α =.89). Higher scores report a high level of academic procrastination (e.g., "I will do my homework/assignment at the last minute." or "I always postpone important agenda.").

Perceived Parental Academic Involvement (Janta, Jaikam, and Atipornpanich, 2018a). A nineteen-item questionnaire was developed by using all items from Helicopter Parenting and Autonomy Supportive Behaviors (Schiffrin, Liss, McLean, Geary, Erchull, & Tasher, 2014) and three items of parental control from Perceived Parental Homework Involvement Scale (Núñez, Suárez, Rosário, Vallejo, Valle, & Epstien, 2015). The questionnaire using five-point Likert scale (1 = Dissimilar to me to 5 = Similar to me) was used to measure perceived parental support (e.g., "My parents allow me to make my own decision and take responsibility for making decision.") and perceived parental control behaviors on adolescents' study (e.g., "If I have problems with my friends, my parents would intervene in this situation."). This questionnaire was translated into Thai language. Both perceived parental support and perceived parental control had good reliability in this study (α = .80 and.82, respectively).

Self-Efficacy for Self-Regulated Learning Scale (Uscher & Pajares, 2008). The seven-item questionnaire with six-point Likert scale (1 = Not well to 6 = Very well) assessed beliefs about individual's ability to regulate oneself to do school assignments, such as "I believe I can finish my homework/ assignment on time." or "I believe I can motivate myself to do homework or assignment". This scale was translated into Thai Language with good reliability in this study (α =.78).

Self-Regulated Learning Scale (Wongkongdetcha, 2004) . The original scale was developed in Thai language with 31 items, e.g., "I avoid things that can distract me from studying". The original scale had 9 components (see Wongkongdetcha, 2004). The scale reliability is good in this study (α=.82).

Data Analyses: Academic procrastination was defined as the dependent variable. Two subscales of perceived parental involvement perceived parental support and perceived parental control, were employed as an independent variable. Further, Self-efficacy for self-regulated learning and self-regulated learning were assigned as two mediators of the relationship between parental academic involvement and academic procrastination. The analysis framework is shown in Figure 1. We used structural equation modeling (SEM) to investigate such relationships by the following steps. First, we used parceling techniques to reduce the number variables in the model (Little, Rhemtulla, Gibson, & Schoemann, 2013). Parceling helps us reduce the number of indicators in model while providing valid representation of target latent variables. We focus on the effects between latent variables rather than the composition of a latent variable so parceling is appropriate. Then, the model fit of overall measurement model is evaluated. We used practical fit indices (i.e., RMSEA, CFI, and TLI) for model fit evaluation following guidelines from West, Taylor, and Wu (2012). Finally, the percentile bootstrap technique is used to evaluate the direct, indirect, and total effects of perceived parental involvement on academic procrastination. All data analyses are executed in R (R Core Team, 2018) with lavaan package version 0.6-3 (Rosseel, 2012) used for SEM and psych package (Revelle, 2012) version 1.8.12 used of exploratory factor analysis.

Research Results

Item Parceling

We used parceling technique on parental involvement scales and self-regulated learning scales. We used items from academic procrastination and self-efficacy on self-regulated learning in SEM directly by treating them as ordered categorical variables. Our strategy for

parceling technique is to use facet-representative parceling if possible. Facet-representative parceling is to use parcels to represent domains or subscales. The latent variable from parcels will represent common variance among all items in a scale. However, if the scales do not have clear domains or subscales, we will use domain-representative parceling. That is, we ran factor analysis with one factor and get the factor loadings of each item. Each item is assigned to each parcel such that the averaged factor loadings of each item are equivalent across parcels.

Parent Academic Involvement: As described earlier, we use both parental support and parental control in the analysis. Thus, rather than making parcels for parental academic involvement, the parcels for each subscale are needed. However, the items in each subscale do not have domains or common groups. Therefore, we used domain-representative parceling to each subscale. Perceived parental support and perceived parental control have three parcels each.

Self-Regulated Learning: We found that the nine domains did not fit well with our data in this study based on confirmatory factor analysis (CFA), χ^2 (313) = 932.34, p <.001, CFI =.839, TLI =.805, RMSEA =.084, SRMR =.072. Therefore, we did not use nine domains as parcels in this study. Rather, we ran exploratory factor analysis to find possible domains of this scale and used the resulting domains as parcels. Note that this technique is also called radial parceling proposed by Cattell and Burdsal (1975). We found that four factors with Quartimin rotation, χ^2 (295) = 591.85, p <.001, TLI =.921, RMSEA =.052, SRMR =.04, provided the best solution in terms of the interpretation of factor meaning. The number of factors is also supported by the results from parallel analysis (Horn, 1965). Thus, the summated scores based on the four-factor solution are used as parcels in this study; 1) Goal setting and planning, 2) Rehearsing and memorizing, 3) Organizing information, and 4) Controlling environment.

In conclusion, the numbers of items/ parcels used in SEM are as follows: 3 parcels for perceived parental support, 3 parcels for perceived parental control, 7 items for self-efficacy on self-regulated learning, 4 parcels for self-regulated learning, and 5 items for academic procrastination.

Measurement Model

The measurement model using items/parcels described above provided good fit, χ^2 (199) = 564.35, p <.001, CFI =.970, TLI =.965, RMSEA =.080, SRMR =.089. The latent factor correlations are provided in Table 1. The standardized factor loadings of each item/parcel are provided in Figure 1. All standardized factor loadings are above.5 meaning that all indictors/parcels represent the latent variables well. Results showed that perceived parental support in academic involvement positively related to perceived parental control in academic involvement, self-efficacy for self-regulated learning, and self-regulated learning. Perceived parental support in academic involvement showed a negative association with academic procrastination. Perceived parental control in academic involvement positively related to self-efficacy for self-regulated learning and self-regulated learning. Interestingly, perceived parental control in academic involvement positively related to academic procrastination. Further, self-efficacy for self-regulated learning and self-regulated learning showed a high association. However, Tabachnick and Fidell (2013) allow correlation coefficient between two variables more than.90 as a multicollinearity. Both self-efficacy for self-regulated learning and self-regulated learning negatively correlated to academic procrastination.

Table 1 Latent Correlational matrix between Perceived Parental Academic Involvement, Self-Efficacy for Self-Regulated Learning, Self-Regulated Learning, and Academic Procrastination (N = 286).

	1	**2**	**3**	**4**	**5**
1. Perceived Parental Support					
2. Perceived Parental Control	.184**				
3. Self-Efficacy for Self-Regulated Learning	.464**	.231**			
4. Self-Regulated Learning	.520**	.388**	.825**		
5. Academic Procrastination	-.089**	.391**	-.142**	-.163**	

Note: *p <.05, **p <.01

Mediation Analysis

After the measurement model had been analyzed, the directional effects were analyzed as shown in Figure 2. Because the latent variable relationships are saturated, the model fit remains the same as the measurement model. Next, the direct, indirect, and total effects of independent variables on dependent variables are analyzed and the results are shown in Table 2. Perceived parental support has significant indirect effect but not significant direct effect. That is, self-efficacy for self-regulated learning and self-regulated learning fully mediate the effect from perceived parental support on academic procrastination. Higher perceived parental support leads to higher self-efficacy, then leads to higher self-regulated learning, and finally leads to lower academic procrastination, which support our hypothesis.

On the other hand, perceived parental control has both significant direct and indirect effects; however, the effects are in different directions. In the indirect effect, higher perceived parental control leads to higher self-efficacy, then leads to higher self-regulated learning, and finally leads to lower academic procrastination. However, in the direct effect, higher perceived parental control leads to higher academic procrastination. The direct effect is stronger than the indirect effect such that the total effect is significantly positive, which partially support our hypothesis.

We also used percentile bootstrap to compare total, indirect, and direct effects between both independent variables. Perceived parental control has significantly stronger direct and total effects than perceived parental support. However, the strength of indirect effects is not significantly different between two independent variables. That is, the effects mediated by self-efficacy for self-regulated learning and self-regulated learning are equivalent on both styles of parent involvement. Parental control has additional effects on academic procrastination, which cannot be explained by both mediators.

Table 2 Direct, Indirect, and Total Effects of Perceived Parental Support and Perceived Parental Control on Academic Procrastination by Using Self-Efficacy for Self-Regulated Learning and Self-Regulated Learning as Meditators.

	b	**CI**	**B**
(A) Perceived Parental Support-> Academic Procrastination			
Total Effect	-0.134*	(-0.238,-0.022)	-.166
Direct Effect	0.002	(-0.128, 0.162)	.002
Indirect Effect	-0.135*	(-0.231,-0.056)	-.168
(B) Perceived Parental Control-> Academic Procrastination			
Total Effect	0.253*	(0.162, 0.34)	.422
Direct Effect	0.329*	(0.228, 0.425)	.548
Indirect Effect	-0.076*	(-0.138,-0.031)	-.127

Table 2 (Con.)

	b	CI	B
Comparison of Two Sets of Effects (A-B)			
Total Effect	-0.387*	(-0.529,-0.244)	-.588
Direct Effect	-0.328*	(-0.485,-0.169)	-.546
Indirect Effect	-0.059	(-0.154, 0.023)	-.042

Note: *p <.05.

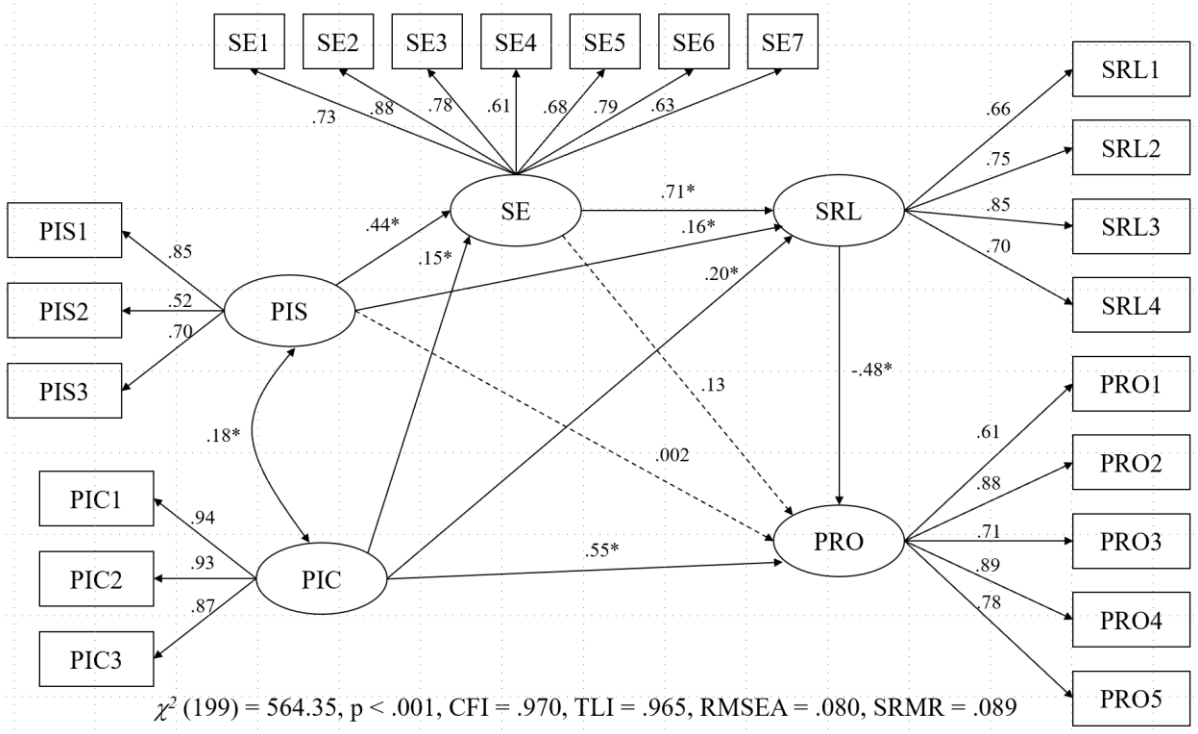

Figure 2. Model of mediation analysis for relations among perceived parental academic involvement, self-efficacy for self-regulated learning, self-regulated learning, and academic procrastination in Thai adolescents. * p <.05. Dashed lines represent non-significant regression coefficients. All coefficients are standardized but the significance tests are based on unstandardized coefficients. PIS = Perceived parental support. PIC = Perceived parental control. SE-SRL = Self-efficacy for self-regulated learning. SRL = Self-regulated learning. PRO = Academic Procrastination.

Discussion

The present study aimed to investigate relationships among perceived parental academic involvement (autonomy/support and control), self-efficacy for self-regulated learning, self-regulated learning, and academic procrastination. It further aimed to examine whether self-efficacy for self-regulated learning and self-regulated learning mediate the relation between perceived parental academic involvement and academic procrastination.

Indirect Effects of Parent Academic Involvement on Academic Procrastination

Results from the present study revealed that both parental academic involvement styles (autonomy/support and control) demonstrated indirect effects on academic procrastination through self-efficacy for self-regulated learning and self-regulated learning. Interestingly, parental support in academic involvement only showed indirect effect on the reduction of academic procrastination through self-efficacy for self-regulated learning and self-regulated learning. In contrast, parental control in academic involvement demonstrated both direct and

indirect effects on academic procrastination, but in different ways (the direct effect would be discussed later). Recent study argued that perceived parental academic involvement might encourage adolescents to understand their feelings, gain rationale for educational decision, and have freedom in making a decision. These, in turn, can elevate adolescents' self-efficacy for self-regulated learning (Won & Yu, 2018). Additionally, adolescents tend to believe that they can manage their academic schedule, prioritize their tasks needed to be finished, resist all distraction, set their academic performance goals, and organize the environment to facilitate their works (Usher, 2012). Self-efficacy for self-regulated learning then affect students' self-regulated learning strategies, such as understanding their current knowledge, abilities, and level of effort they need to produce to achieve success (Cheung, 2004). Consequently, adolescents, who show a high level of self-regulated learning, can reduce their academic procrastination and fear of failure in tasks, and can achieve better academic performance (Guo et al., 2017). In summary, perceived parental academic involvement may influence how adolescents believe about their capacity in regulating their study and academic performance (self-efficacy for self-regulated learning). In addition, the beliefs enhance self-regulated learning strategies that can reduce academic procrastination.

Parental Academic Involvement and the Enhancement of Self-Efficacy for Self-Regulated Learning and Self-Regulated Learning

This study provided empirical results that parental academic involvement directly boosts self-efficacy for self-regulated learning and self-regulated learning. That is, parental academic involvement might increase a higher sense of academic self-efficacy (Fan & Williams, 2010). Notably, parental autonomy/support in academic involvement demonstrated larger effect on self-efficacy for self-regulated learning than parental control in academic involvement. This result consisted of previous studies that parental autonomy/support in academic involvement encourage students to show independent decision-making, understand their feeling, and explore logical rationale for decisions (Won & Yu, 2018). Parental academic involvement and parental advice may provide valuable feedback to adolescents and assist them to perceive locus of causality and choice information. Adolescents then experience source of self-efficacy (Bandura, 1997; Usher & Pajares, 2008). Additionally, self-efficacy for self-regulated learning enhances self-regulated learning strategies.

Specifically, autonomy/support in parental academic involvement encourages adolescents' self-regulated learning (Schunk & Zimmerman, 1997; Zimmerman, 2000). In particular, autonomy/support in parental academic involvement enhances adolescents' independent decision-making, work engagement, effort, and academic achievement (Vazquez et al., 2015). Finally, parental autonomy/support in academic involvement promotes intrinsic motivation, goal setting, self-evaluation, behavioral organization, self-consequating, and strategy usage for academic performance (Martinez-Pons, 2002: Ryan & Deci, 2000). These behaviors are the essential behaviors that mean to engage in self-regulated learning (Pintrich & Zusho, 2007)

However, the present study demonstrated that parental control in academic involvement also influences on an increase of self-regulated learning. This result consisted with Vansteenkiste and colleagues' study (2005) that perceived both parental autonomy/support and control in academic involvement associated with students' engagement in self-regulated learning. It is likely that parental control may be adaptive in Thai society as well as Chinese society (Hasebe, Nucci, & Nucci, 2004). Parental control in academic involvement may also satisfy overall need for autonomy in Thai adolescents as same as parental autonomy/support (Vansteenkiste et al., 2005). Notably, the direct effect of parental control in academic involvement on the increase of academic procrastination is larger than the increase of self-regulated learning. Hence, parental control in academic involvement still shows the higher

effect on adolescents' maladjustment and poor academic performance (Soenens & Vansteenkiste, 2010).

Self-Efficacy for Self-Regulated Learning and Self-Regulated Learning as Crucial Mediators

The finding consisted with previous studies that self-efficacy for self-regulated learning and self-regulated learning are the essential mediators of the relationship between perceived parental academic involvement and academic procrastination (Wolter & Hussain, 2015; Won & Yu, 2018; Zhang et al., 2018). The present study demonstrated that self-efficacy for self-regulated learning itself showed no significant direct effect on academic procrastination. Self-efficacy for self-regulated learning indirectly influenced the academic procrastination through self-regulated learning. This result is relevant to previous conceptual framework that self-efficacy for self-regulated learning affects self-regulated learning processes (Bandura, 1986; Zimmerman & Martinez-Pons, 1986). Self-efficacy for self-regulated learning is the beliefs in one's ability or capacity to do academic tasks successfully (Bandura, 1977). Hence, high level of self-efficacy for self-regulated learning facilitates one can manage his/her thoughts and goals in study. The results are in keeping with the previous research in that self-efficacy for self-regulated learning was related to self-regulated strategies, such as organizing study schedule, acquiring effective learning strategies, and managing academic performance (Klassen et al., 2009; Klassen, Winsler, & Huie, 2008). Besides, self-regulated learning in adolescents improves adolescents' cognitive strategies, such as evaluating their academic performance, seeking social assistance to finish their tasks, planning and monitoring their time schedule, and trying to resist the distraction (Wolter & Hussain, 2015; Won & Yu, 2018). Consequently, academic procrastination in adolescents would be decreased (Corkin, Yu, & Lindt, 2011; Vahedi, Mostafafi, & Mortazanajad, 2009; Walter, 2003). Hence, self-efficacy for self-regulated learning and self-regulated learning serve as the crucial mediators of the relationship between perceived parental academic involvement and academic procrastination. Notably, recent studies argued that autonomy support academic involvement style encouraged self-efficacy for self-regulated learning and self-regulated learning, which was in turn related to a reduction of academic procrastination (Cheung, Pomerantz, Wang, & Qu, 2016; Steel, 2007).

Direct Effect of the Parental Control in Academic Involvement on Academic Procrastination

Interestingly, the present study found that perceived parental control in academic involvement was positively correlated with academic procrastination. It is likely that perceived parental control in academic involvement was also associated with higher academic procrastination in Thai adolescents. The results elucidated that parental control in academic involvement is likely to prove more power in parental involvement in adolescents' academic procrastination. Being controlled by parents involved being pressured and threatened. These may lead to maladjustment, inability to manage their works, and low self-efficacy to handle the tasks. Participants may feel guilty and annoyed when their parents ask and worry about their academic assignments. They may try to eliminate their negative feelings by postponing their work and becoming indecisive about starting their work (Mih, 2013, Won & Yu, 2018). Parental control in academic involvement was further related to parental criticism, which may increase insecurity and trigger feelings of helplessness and frustration in adolescents. In addition, these feelings may lead to academic procrastination and low academic performance (Filippello, Harrington, Costa, Buzzai, & Sorrenti, 2018). However, the results of this present study must be further explored what mechanisms indeed mediate the association between parental control in academic involvement and academic procrastination.

Research Implications

There are several implications in the present study. In a high point of view, Thai adolescents are the essential human resources of this country in the future. High quality of human resources means the success of the country. Hence, the public policy should concern positive characteristics (self-efficacy for self-regulated learning and self-regulated learning) in developing the quality of Thai population. The public policy should aim to encourage disciplinary, responsibilities, and study or work engagement of Thai adolescents by promoting self-efficacy for self-regulated learning and self-regulated learning. Moreover, public policy should acknowledge Thai parents on how to involve with adolescents' academic performance.

Education institutes should encourage effective teaching style. Research suggests that autonomy/support style of teacher academic involvement and teaching (constructive feedback and self-efficacy motivation) increase psychological satisfaction, while reducing academic procrastination. In contrast, controlling style of teacher academic involvement and teaching (pressure and frustration) decrease psychological satisfaction and increase academic procrastination (Codina, Valenzuela, Pestana, & Gonzalez-Conde, 2018). Thus, education institutes should encourage autonomy/support teaching style.

Further, parental academic involvement plays a vital role in developing academic procrastination. Too much psychological control, such as elevating adolescents' guilt, frustration, and insecurity, may lead to adolescents' maladjustment. This may consequently lead adolescents to procrastinate over their academic assignments. Secondly, parents should use autonomous support involvement style to encourage adolescents' self-efficacy for self-regulated learning and self-regulated learning. Thirdly, self-efficacy for self-regulated learning is significantly associated with self-regulated learning. Thus, boosting self-efficacy for self-regulated learning can enhance a higher level of self-regulated learning. In addition, self-regulated learning may, in turn, strengthen self-efficacy for self-regulated learning. Finally, both of them may crucially influence the reduction of adolescents' academic procrastination.

Finally, adolescents themselves should carefully aware of the adverse effects of academic procrastination. Although research demonstrates that active procrastination (positive side of procrastination) enhances positive outcomes, such as creativity and problem-solving strategies (Somkitikanon, 2017), procrastination itself still influences on lower personal well-being, poor academic performance (e.g., Habelrih, & Hicks, 2015; Owen, Bowman, & Drill, 2008), and lower self-monitoring (Hong, Hwang, Kuo, & Hsu, 2015; Ying & Lvb, 2012).

Limitations

There were limitations in this present study to be considered. First, the results demonstrated that parental control in academic involvement not only predicted self-efficacy for self-regulated learning and self-regulated learning in reducing academic procrastination, but it was also related to the increase of academic procrastination. However, it is difficult to identify what mechanism underlying parental control in involvement style is associated with higher academic procrastination. Second, most of participants resided in the Bangkok metropolitan area. Hence, we cannot generalize these results to other adolescents, who live in other regions of Thailand. This may lead to an overestimation of the influences of the parental academic involvement, self-efficacy for self-regulated learning, and self-regulated learning on academic procrastination among Thai adolescents. Third, the present study focused on middle to late adolescence participants. Results from the present study could not be generalized to other age groups. Fourth, there may have been other variables (e.g., tasks difficulties, self-esteem, or time management styles) that may be related to academic procrastination. Fifth, procrastination can be divided as active and passive (or avoidant)

procrastination. These two perspectives in adolescents may derive from different styles of parental involvement. However, there have not been enough studies that focused on the effects of active and passive (or avoidant) procrastination in Thai children and adolescents.

Future Directions

Future study should clarify the mechanisms of parental control in academic involvement that influence on the increase of academic procrastination in Thai adolescents. Further, future study should be conducted in different age groups and regions of Thailand. The study should also focus on different styles of procrastination (active procrastination versus avoidant procrastination) . This will provide specific insights for psychologists and parents to understand the effects of procrastination on adolescents' well-being and academic performance.

In conclusion, the present study demonstrated the important roles of parental academic involvement on academic procrastination in Thai adolescents. Parental academic involvement, both, control and support styles, may influence adolescents' efficacy and their ability to regulate their procrastination behaviors. High level of parent's control may be related to the increase in academic procrastination in adolescents.

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