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The Influence of Family and Psychological Factors on Self-regulated Learning Behavior of Elementary School Students

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Abstract

Self-regulated learning behavior is a critical learning skill in the 21st century and should be nurtured since young. This study aimed to contribute new knowledge in behavioral science by examining the influence of family and psychological factors on self-regulated learning behavior of elementary school students. Quantitative questionnaire survey method was employed to collect the data for this study. The sample consisted of 639 elementary school students sampled from schools located in state of Penang, Malaysia. Six instruments were used to gauge the family and psychological factors. The *motivated strategies for learning questionnaire*, was used to measure students' self-regulated learning behavior. Findings showed that the combined effects of family and psychological factors explained 36% ($R^2=.36$) [$F(5,53) = 63.93, p < .05$] of the variance in self-regulated learning behavior of elementary school students. Factors with significant influences were parents' participation ($\beta=.24, p < .05$), parental support ($\beta=.10, p < .05$), authoritative parenting style ($\beta=.09, p < .05$) and intrinsic goal orientation ($\beta=.36, p < .05$). The results suggest that to promote self-regulated learning behavior among elementary school students, both family and psychological factors must be taken into consideration as these factors accounted for more than one third of the changes in students' self-regulated learning. In addition, one of the major findings from this study suggests that family factors are more pertinent than students' psychological factors in developing self-regulated learning behaviors at elementary level. Collaborations with parents, thus, is an important step when developing intervention to promote students' self-regulated learning behavior at elementary school level.

Self-regulated learning behaviors allow students to become autonomous learners who are active participants in their own learning processes (Connor, 2016). When students engage in self-regulated learning behavior they will plan for a task, monitor their own progress, self-reflect, and take actions to improve their performance. These students are cognitively, motivationally, and behaviorally involved in learning. Students need to be self-regulated learners to acquire critical skills such as problem solving and critical thinking skills that cannot be developed through passive rote-learning (e.g., Darling-Hammond et al., 2020; University of Zurich, 2016). In Malaysian context, the development of self-regulated learning skills is being emphasized in the National Education Blueprint (2013-2025) by the Ministry of Education Malaysia (2015; 2017). Under this policy, students are expected to 'learn how to learn' by engaging in self-

regulated learning behaviors and be responsible for their own learning. Schools in Malaysia have undergone transformation and the teaching and learning processes are moving towards a more student-centered approach. Students began to play more active roles in learning and apply self-regulated learning skills to acquire literacy and numeracy skills (Wahid et al., 2019).

Self-regulated learning behavior should be nurtured since young. Research has found that children learn basic self-regulation behaviors in the first five years of life (Blair, 2002). With sufficient social support and scaffolding from parents, it is possible for children around age seven to become efficient at self-regulated learning (Manukaram et al., 2013). Studies showed that children can use strategies to plan their learning time, ensure that they pay attention during the lessons, monitor their homework completion, and ask for help when

needed (e.g., Bodrova & Leong, 2007). Self-regulated learning behaviors help students to learn more efficiently and attain better academic results. Studies showed that elementary school students spent around 73% of their time with parents compared to a mere 27% with teachers (Ministry of Education Malaysia, 2012). As more time is spent at home, family factor is especially important in promoting the development of self-regulated learning behavior among elementary school children. In addition, psychological factors interact with parental factors and influence how students manage their learning activities, as proposed by the ecological model (Joyce & Hipkins 2004; Mollborn, 2017). A warm and supportive family can encourage the development of self-regulated learning behavior (Ponnusamy, 2005; Ng, 2008; Abtholuddin, 2013).

Nevertheless, there is still a lack of empirical studies that examine the combine influence of family and psychology factors in relation to students' self-regulated learning within a single study. In fact, research on factors that influence elementary school students' self-regulated learning in Malaysian context are still scare despite its emphasis in education policy. The key influencing factors and whether family or psychological variables are more important in promoting young learner's self-regulated learning behaviors are still unclear. The lack of knowledge on these influencing factors could hinder the development of effective interventions to promote self-regulated learning at elementary school level. There are needs to conduct research to fill gaps in the literature. Thus, three research objectives were formulated to guide this investigation-

1. To determine the relationships between elementary school students' family factors and their self-regulated learning behavior.
2. To determine the relationships between elementary school students' psychological factors and their self-regulated learning behavior.
3. To determine the influences of family and psychological factors on elementary school students' self-determined learning behavior.

Literature Review

This section covers literature reviews on family and psychological factors that are related to self-regulated learning behaviors of elementary school students. Based on findings from past studies and theoretical reviews, the conceptual framework of this study was developed.

Family Factors and Self-Regulated Learning Behavior

Family plays important roles in developing positive learning behavior. In fact, self-regulation is an outcome of parental socialization that takes place as parents communicate to children the appropriate behaviors (Shen et al., 2018). Children can be coached and trained to become responsible and independent learners since young (Jerry et al., 2021; Oloye & Flouri, 2021). Past studies found that parental involvement promotes the development, practice and internalization of self-regulatory capacities in early childhood (Darling-Hammond et al., 2020; Obradović et al., 2021). This is particularly evident among Asian parents, who place emphasis on children's academic success and are generally more involved with their children's learning and academic activities (Cheong et al., 2018; Ramalingam et al., 2019). Asian parents exercise parental monitoring and control, which have positive influence on the development of self-regulated learning behaviors (Liu & Chang, 2016; Heimpel et al., 2018). Parents engage directly in children's self-regulated learning behaviors by directing their on-tasks behaviors, providing instructions, reassurance, corrections, and suggestions to help them learn more effectively (Obradović et al., 2021). Studies discovered that parents also promote the development of self-regulated learning behaviors by instructing children how to learn, helping them to create regular routines and study habits, guiding them to follow teachers' direction and providing them with homework support as well positive reinforcement (e.g., Evidence for Learning, 2019; Lowes & Lin, 2015). In addition, Asian parents also promote self-reflection, self-criticism and metacognition among children as means to identify own weaknesses, improve learning and performance (Khalid, 2016; Jaramillo et al., 2017). Children from Asian culture were found to perform better on executive-functioning tasks than their Western counterparts (e.g., Sabbagh et al., 2006). Through engagement and interactions with parents, children learn the basic skills of self-regulation to regulate their behaviors, attention and emotions more effectively. Positive feedback received from parents further reinforces these positive learning behaviors.

Different parenting styles may have different influences on children's learning behavior. Unresponsive parenting style is characterized by few demands, low responsiveness, and a lack of communications. This type of parenting style has negative impact on children's learning behavior (Kiss et al., 2014). Permissive parenting style, on the

other hand, provides lots of freedom to children without clear and consistent rules. A such parenting style may result in a confusion, uncertainty and cause a decrease in a self-regulated learning behavior and children who are brought up by permissive parents are unlikely to develop into a self-regulated learners due to a lack of a parental monitoring and a self-discipline (Manukaram, 2014; Arshat & Baharudin, 2011). A strict authoritarian parenting style however may hamper children's self-efficacy and ability to self-regulate due to limited autonomy and freedom to make decision about own daily routines and learning activities. A warm and supportive authoritative parenting style is needed to foster a conducive family climate that promotes mutual respect between parent and child. Children needs to be given choices in life to help them build self-discipline and accountable in learning. The effects of authoritative parenting style on children's self-regulated learning behavior may be more positive than other types of parenting styles (e.g., Fuentes et al., 2019; Huang & Prochner, 2004). This is because children are more confident and motivated to engage in self-regulated learning if parents are loving and supportive.

In addition to parenting styles, studies showed that parental involvement can influence children's learning behavior and academic performance (e.g., Salleh et al, 2010; Ramalingam et al., 2019). Parental involvement is a concept made up of direct (e.g., parent participation) and indirect parental involvement (e.g., parental support). Parental participation refers to direct involvement of parents in children's learning and academic activities. By participating in children's learning activities directly, parents can model and scaffold the development of self-regulated learning behaviors. Research showed that children have higher self-regulation if parents provide them with instructional scaffolds to help them self-regulate and manage their learning activities (Pino-Pasternak & Whitebread, 2010). Past studies showed that helping children with homework is the most typical form of parental participation (e.g., 1.14 hours per week in fourth through sixth grades for math in the USA) that contributes to children's success and motivation in school subjects. (Silinskas & Kikas, 2019). During the homework sessions, parents would teach children strategic approach to solve problems and engage in metacognitive talks to help children reflect on own mistakes, plan for improvement and monitor own progress (Pino-Pasternak & Whitebread, 2010; Sigel, 2002). With parental guidance, children can also learn to organize information (e.g., books,

internets, newspapers) more efficiently to help them understand the learning materials. They also have more opportunities to self-regulate. As filial piety is practiced in Asian Culture, children tend to obey and respect their parents' instruction. Hence, parent participation directly shapes the learning behavior of their children (Ramalingam et al., 2019). For parents who are not involved directly with their children's learning may provide support in the form of encouragement and motivation. Children are encouraged to monitor own learning progress, identify the issues and seek help if needed. Research found parental involvement is crucial for the development of children's self-regulation among Asian families (Akindipe, 2019; Heimpel et al., 2018). To put it in a nutshell, parental involvement in terms of parental participation and support can promote children's self-regulated learning behavior. This is supported by Zakaria and Salleh (2011)'s study that parental involvement contributes 16.0% of the variance in self-regulated learning behavior.

The learning environment at home is another important family factor that could influence children's self-regulation learning (Arshat & Baharudin 2011). A conducive family environment that is achievement-oriented can help children set clear goal, complete their learning tasks on time and do revisions regularly. As children's learning environment is closely related to their socio-economic backgrounds, those from higher income level have more educated parents that could support their learning activities. They are likely to have a conducive learning environment with dedicated study area or learning space at home. A calm and organized learning environment allows children to concentrate better during self-learning activities. Parents from high income group can also afford learning resources such as computers, I-Pads, and books which can facilitate self-learning. Apart from the physical resources, family with harmonious environment also offer more positive climate for self-regulated learning (Zakaria & Salleh, 2011). Children are more motivated and engaged in learning if there is an intellectual culture at home (Lazar et al., 2009; Ashley, 2006). Learning becomes a pleasurable process as parental support is always available. The importance of family environment factor was supported by Zakaria and Salleh (2011)'s study which found that a conducive family environment can motivate children to learn on their own. Kurniawati (2011) also found that family environment can influence children's learning and it contributes 16.48% of the variance in academic achievement. The influence of family factors on

Asian children's self-regulated learning behaviors mainly focuses on parenting style. There are limited studies that examined factors other than parenting styles such as family learning environment (e.g., achievement orientation, intellectual-cultural orientations) and parental involvement (e.g., participation and support) within a study. Most past studies were carried out on Western samples (Ahmid et al., 2018; Manukaram, 2014). Hence, the psychological and combined influences of different family factors on elementary school students in Asian context are still unknown. There are needs to fill in the gaps by investigating the relationships between the variables. Based on literature reviews on family factors that influence self-regulated learning behavior, the following hypotheses were formulated:

- H1_a: There is a significant relationship between unresponsive parenting style and elementary school students' self-regulated learning behavior.
- H1_b: There is a significant relationship between authoritative parenting style and elementary school students' self-regulated learning behavior.
- H1_c: There is a significant relationship between authoritarian parenting style and elementary school students' self-regulated learning behavior.
- H1_d: There is a significant relationship between permissive parenting style and elementary school students' self-regulated learning behavior.
- H1_e: There is a significant relationship between family achievement orientation and elementary school students' self-regulated learning behavior.
- H1_f: There is a significant relationship between intellectual-cultural orientation and elementary school students' self-regulated learning behavior.
- H1_g: There is a significant relationship between parents' participation and elementary school students' self-regulated learning behavior.
- H1_h: There is a significant relationship between parent's support and elementary school students' self-regulated learning behavior.

Psychological Factors and Self-regulated Learning Behavior

Psychological factors, particularly motivational beliefs are crucial in driving children's persistency in applying self-regulated learning behavior strategies

and academic excellence (Othman et al., 2020). Seo and Taherbhai (2009) have attempted to investigate the relationships between motivational beliefs (e.g., self-efficacy & goal orientations) and cognitive strategy among elementary school students. Findings showed that students used of self-regulation strategies was significantly and positively related to self-efficacy and goal orientations (Akindipe, 2019; Abdul Hamid et al., 2020). Past studies also discovered that goal orientations can influence students' self-regulated learning behaviors (Asbulah et al., 2018). This is because when students set out to achieve a goal, they will become more strategic in learning to ensure that their goal is achieved (Pintrich, 1999; Wigfield & Eccles 2000; Law, 2009). Students with intrinsic goal orientations aim to acquire new knowledge and skills in the learning processes (Zhoc et al., 2019) while students with extrinsic goal orientation aims to achieve better grades and outshine others (Pintrich, 1999). Both types of goals can motivate students to use strategies in learning.

In addition, children's belief about the nature of intelligence is another psychological factor that could influence self-regulated learning behavior (Law, 2009). Children with entity beliefs perceive intelligence as a fixed attribute that remains constant over a person's lifetime. They believed that efforts to use strategies will not make much difference learning and performance because the individual will not become smarter (Furnham, 2014). In contrast, those with incremental beliefs think that intelligence can be increased. The use of strategies can help them become more efficient in learning and improve their performance, making them smarter. Children's beliefs about intelligence, therefore, can influence how they learn and the extent of strategies use (Dweck, 2000; Molden & Dweck, 2006). As children grow older, they are more incline towards incremental beliefs of intelligence. Parents and teachers have higher expectation and will motivate children to put in more efforts in learning as they grow. Besides, children's cognitive maturation could also influence how they perceived intelligence; older children tend to subscribe to entity beliefs of intelligence. This explains why older children use more learning strategies than younger children to enhance their performance. There are currently limited studies that examined the relationships between elementary school students' psychological variables and their self-regulated learning behavior. Research should be carried out to fill in the knowledge gaps. Based on literature reviews on

psychological factors that influence self-regulated learning behaviors, the following hypotheses were formulated:

- H2a: There is a significant relationship between self-efficacy and elementary school students' self-regulated learning behavior.
- H2b: There is a significant relationship between intrinsic goal orientation and elementary school students' self-regulated learning behavior.
- H2c: There is a significant relationship between extrinsic goal orientation and elementary school students' self-regulated learning behavior.
- H2d: There is a significant relationship between effort beliefs and elementary school students' self-regulated learning behavior.
- H2e: There is a significant relationship between entity beliefs and elementary school students' self-regulated learning behavior.

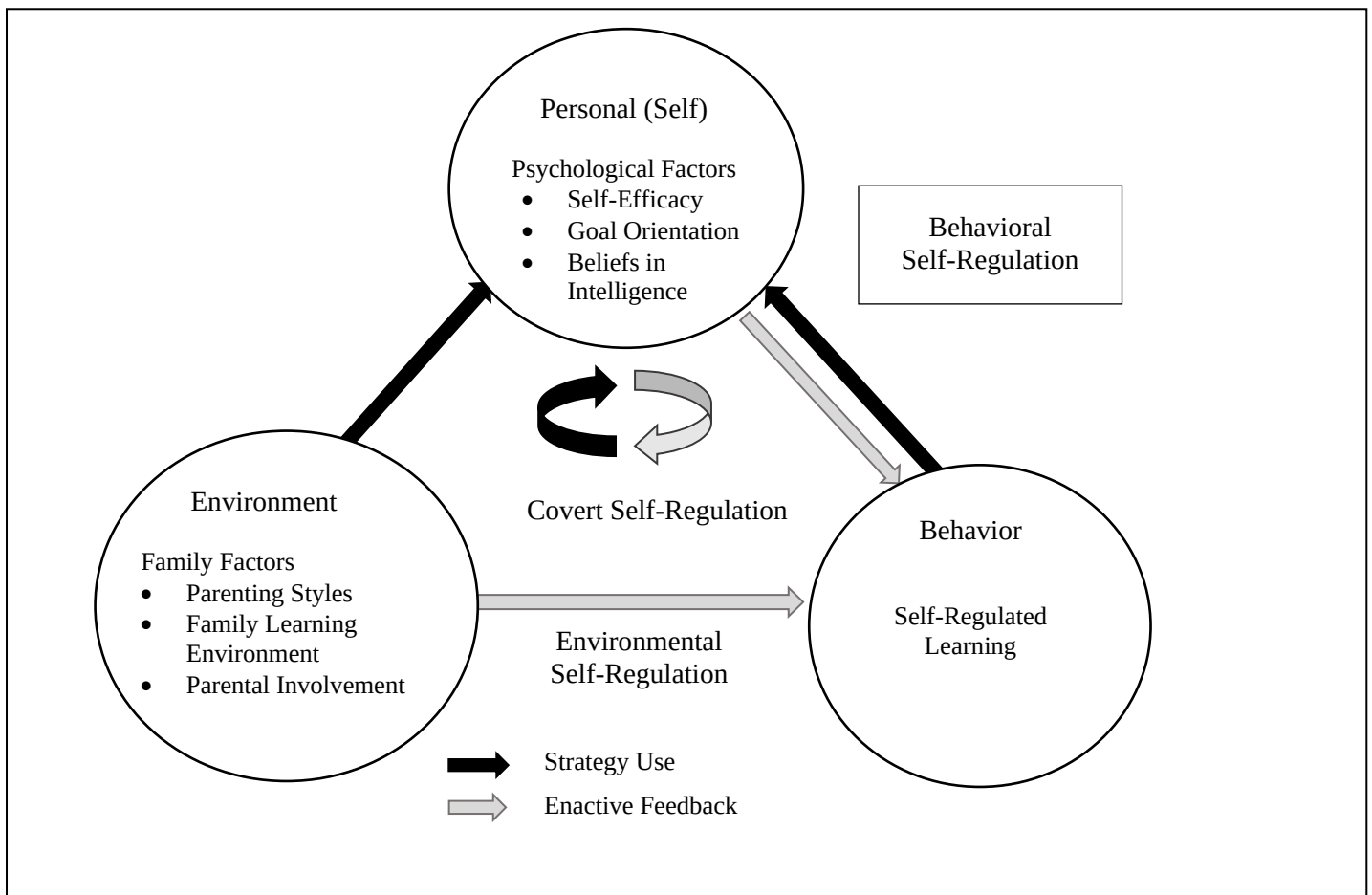
Literature reviews suggest that both family and psychological factors may influence children's self-regulated learning behavior, however, there is still a lack of studies that examined the contributions of these factors in a single study (Byers et al., 2006, Seo & Taherbhai, 2009; Mohamad Adnan & Yusoff; 2009, Ahmid et al., 2018). This study aims to contribute new knowledge in behavioral science by examining the influence of family and psychological factors on self-regulated learning behavior of elementary school students.

Conceptual Framework

The triadic model of self-regulation suggests that children's self-regulated learning behavior can be influenced by both environmental and self/personal factors (Zimmerman, 2000; Clark & Zimmerman, 2014) (Figure 1). The model emphasizes the importance of behavioral regulation. Self-regulation loop begins when students actively use strategies to self-regulate and self-monitor their own learning behavior.

Figure 1

Triadic Model of Self-regulation (Adapted from Clark & Zimmerman, 2014)



Method

Participants

A quantitative questionnaire survey method was employed to collect the data for this study. The samples were 639 elementary school students. The students were sampled from ten national type elementary schools in Penang, a northern state in Peninsular Malaysia. National-type elementary schools are fully funded and operated by the Malaysian government. These schools use national curriculum, and the medium of instruction is Malay language. Penang was chosen as the location of the study because it is one of the largest cities in the country with 106 elementary schools and 46, 574 students (Penang State Education Department, 2021). For a population of $N > 5,000$, a minimum of 400 samples was recommended by Krejcie and Morgan (1970). The sample for this study was far more than the recommended sample size. Elementary school students in this study were randomly chosen using cluster sampling technique from the government elementary schools. The inclusion criteria for sampling were (a) male/females elementary school students, (b) Year 4 and 5 (10-11 years old) and (c) studying at government schools. The samples were selected from upper primary (Year 4 and 5) because students in this age groups were capable of using self-regulated learning strategies in learning. In addition, these students have higher language proficiency compared to younger students. This procedure helped to minimize language issues and enhanced the validity of the data collection processes (Manukaram, 2014). In addition, students who were identified by school administrators as having special needs or learning difficulties were excluded from the study as they may face difficulties in responding to the questionnaire and have limited self-regulated learning behaviors.

Instruments

A total of six instruments were used to collect the data on family factors (parenting styles, family learning environment, parental involvement) and psychological factors (self-efficacy, goal orientations, beliefs about intelligence). Family factors were measured by the *parental authority questionnaire* ($\alpha=.84$), *family environment scale* ($\alpha=.87$) and *perceptions of parents' scale* ($\alpha=.85$) while the psychological factors were gauged by the *children's self-efficacy scale* (Ng, 2008) ($\alpha=.71$), *goal orientation scale* (Ng, 2008) ($\alpha=.71$) and *beliefs of intelligence scale* (Stipek & Gralinski, 1996)

($\alpha=.70$). The *motivated strategies for learning questionnaire* (Pintrich et. al., 1991) ($\alpha=.77$) was used to measure students' self-regulated learning behavior. These instruments have been adapted for the use of the local elementary school context and translated into Malay language. Malay language is the national language of Malaysia and the medium of instruction. Participants have no issues in responding to the questionnaire. Pilot test was carried out to establish the validity and reliability of the instruments. The content validity of the instruments was established through expert validation while its construct validity was test with factor analysis. Results of factors analysis show that parental involvement is a multidimensional construct. It was measured by two subscales, namely *parents' participation subscale* ($\alpha=.79$) and *parental support subscale* ($\alpha=0.65$), which was found to be valid and reliable. The results showed that all the instruments were valid and reliable. The Cronbach's alpha values of the instruments ranged from $\alpha=.70$ to .87.

Ethical considerations were taken into consideration when collecting data from students. Before the study began, ethical clearance and formal approval to carry out the study and to collect data from elementary school students were obtained from the relevant gatekeepers, including the Education Planning and Research Division (EPRD) (KP/BPPDP/ 603/5), the Ministry of Education Malaysia, the Penang State Education Department (JPNPP100-9/4/Jld.3), and the School of Educational Studies, Universiti Sains Malaysia (Ref: PPD001308), schools and parents. The students were informed of their rights before answering the survey. They were given proper instructions and understood that they could withdraw from the study at point of the research. This is to ensure that the participants felt comfortable to share their genuine responses. The identity of all the participants was kept anonymous and confidential.

Results

In terms of data analysis, correlational analysis was first carried out to determine the relationships between the various variables with self-regulated learning behaviors. Only variables that were significantly related to elementary students' self-regulated learning behavior were entered into the regression analysis. Stepwise regression analysis (*forward solution*) was run to analyze the influence of family and psychological factors on self-regulated

learning behavior. According to Chua (2009), this analysis technique could overcome the potential multicollinearity issues between family factors and psychological factors. Results of the analysis could shed lights on the influences of family and psychological factors and determine the combined effects of the variables on students' self-regulated learning behavior.

The Person correlational analyses were carried out to determine the relationships between family factors (parenting style, family learning environment, parental involvement) and psychological factors (self-efficacy, goal orientation, beliefs about intelligence) with self-regulated learning behavior of elementary school students. The results of the analyses are showed in Table 1. The results showed that parents' participation ($r=.48$, $p<.01$), family achievement orientation ($r=.38$, $p<.01$) and parenteral support ($r=.31$, $p<.01$) have significant and positive relationships with self-regulated learning behavior. The strength of associations between the variables was moderate. Authoritative parenting style ($r=.26$, $p<.01$) and authoritarian parenting style ($r=.21$, $p<.01$) have also recorded positive associations with self-regulated learning behavior, but the strength of associations between the variables were considered weak. Hypotheses H1_b, H1_c, H1_e, H1_g and H1_h were supported. The relationships between unsupportive parenting style ($r=-.01$, $p>.05$), permissive parenting styles ($r=.02$, $p>.05$) and intellectual-cultural orientation ($r=-.02$, $p>.05$) with self-regulated learning behavior were not statistically significant at an alpha value of .05. Hence, hypotheses H1_a, H1_d and H1_f were not supported

For psychological factor, intrinsic goal orientation ($r=.52$, $p<.01$) has yielded a large strength positive association while self-efficacy ($r=.39$, $p<.01$) has recorded a moderate strength relationship with self-regulated learning behavior. The analysis results also revealed that effort beliefs of intelligence ($r=.27$, $p<.01$) and extrinsic goal orientation ($r=.08$, $p<.05$) have week associations with self-regulated learning behavior. Nevertheless, the relationships were statistically significant. Hypothesis H2_a to H2_d were supported. The relationship between entity belief about intelligence and self-regulated learning behavior was insignificant ($r=.01$, $p>.05$). As such, hypotheses H2_e was not supported. In short, the Pearson correlational analysis revealed that elementary school students' self-regulated learning behavior

was related to selected family and psychological factors.

Table 1
Correlational Analyses between Family and Psychological Factors with Self-regulated Learning Behavior

Factors	Correlation Coefficient (r)
Family Factors	
1. Parenting Styles	
Unresponsive parenting style	-.01
Authoritative parenting style	.26**
Authoritarian parenting style	.21**
Permissive parenting style	.02
2. Family Learning Environment	
Family achievement orientation	.38**
Intellectual-cultural orientation	-.02
3. Parental Involvement	
Parents' participation	.48**
Parental support	.31**
Psychological Factors	
1. Self-efficacy	.29**
2. Goal Orientation	
Intrinsic goal orientation	.52**
Extrinsic goal orientation	.08*
3. Beliefs about Intelligence	
Effort beliefs	.27**
Entity beliefs	.01

Note. ** $p<.01$; * $p<.05$

Regression Analysis

The *stepwise regression* analysis was carried out on family and psychological factors that have significant relationships with primary school students' self-regulated learning behaviors. This analysis was carried out to determine the influences of these factors. Factors that have insignificant and weak associations with self-regulated learning behaviors (unsupportive parenting style, permissive parenting styles, and intellectual-cultural orientation, extrinsic goal orientation & entity belief about intelligence) were also excluded from the analysis as these factors were negligible. According to Akoglu (2018), correlation coefficients lesser than 0.10 suggests that the associations between the variables are too weak and negligible in terms of statistical analysis. In addition, factors with insignificant beta values (family achievement orientation, self-efficacy and efforts beliefs) after initial stepwise regression analysis were also removed from the analysis according to stepwise procedure (Chua, 2009).

Based on the results of the preliminary analyses and support from past studies (e.g., Ramalingam et al., 2019; Stipek & Gralinski, 1996), four factors namely intrinsic goal orientation, parents' participation, parents' support and authoritative parenting style were hypothesized as having influences on elementary school students' self-regulated learning behaviors. Four hypotheses related to family and psychological factors that influence self-regulated learning behaviors were formulated:

H3a: There is a significant influence of intrinsic goal orientation on elementary school students' self-regulated learning behavior.

H3b: There is a significant influence of parents' participation on elementary school students' self-regulated learning behavior.

H3c: There is a significant influence of parents' support on elementary school students' self-regulated learning behavior.

H3d: There is a significant influence of authoritative parenting style on elementary school students' self-regulated learning behavior.

In addition, variables with insignificant beta values in stepwise regression analysis were also removed from the analysis according to stepwise procedure (Chua, 2009). Table 2 shows the results of stepwise regression analysis, only four factors were retained in the analysis namely intrinsic goal orientation, parents' participation, parents support, and authoritative parenting style.

Intrinsic goal orientation explained 27% ($R^2=.26$) of the variance in students' self-regulated learning behavior. On the second step, parents' participation was added to the model, the variance explained by the model increased by 7% to 33% ($R^2=.33$). However, when parental support was included into the model, the percentage of variance explained only increased by 2% to 35% ($R^2=.35$). The model improves further when the effort beliefs were added to the model. The four-factor model (intrinsic goal orientation, parents' participation, parents support, and authoritative parenting style) significantly influenced elementary school students' self-regulated learning behavior [$F(5,538)=63.93$, $p<.05$]. The percentage of variance explained by the model was 36% ($R^2=.36$). The R^2 value $>.35$, which

is considered high and meaningful in the field of social science (Cohen, 1992).

Table 2
Results of Stepwise Regression Analysis of Family and Psychological Factors

Model	R	R ²	ΔR^2	df	F	p
1	.51	.27	.26	1 542 543	200. 04	.00
2	.57	.33	.33	2 541 543	136. 35	.00
3	.60	.36	.35	4 539 543	77.1 4	.00
4	.61	.37	.36	5 538 543	63.9 3	.00

Note. Model 1. (constant): intrinsic goal orientation. Model 2. (constant): intrinsic goal orientation, parents' participation. Model 3. (constant): intrinsic goal orientation, parents' participation, parent support. Model 4. (constant): intrinsic goal orientation, parents' participation, parents support, authoritative parenting style. Dependent variable: self-regulated learning behavior. Factors that were not significant in initial analysis: family achievement orientation, self-efficacy, efforts beliefs.

Table 3 shows the beta coefficients (β) of family and psychological factors that influence elementary school students' self-regulated learning behaviors. The coefficient values represent the mean change of the self-regulated learning behavior given a one-unit shift in each of the factor. A larger coefficient or beta value signifies a greater change in the mean of self-regulated learning behaviors, which suggests that the variable is more important. As shown in Table 3, among the psychological factors, intrinsic goal orientation was the only factor that has significant influence students' self-regulated learning behavior ($\beta=.36$, $p<.05$), implying that hypothesis H3a was supported. In terms of family factors, three factors namely parents' participation, parental support and authoritative parenting style have significant influences on elementary school students' self-regulated learning behaviors. Hence, hypothesis H3b, H3c and H3d were supported. Among these factors, parents' participation had the strongest influence ($\beta=.24$, $p<.05$).

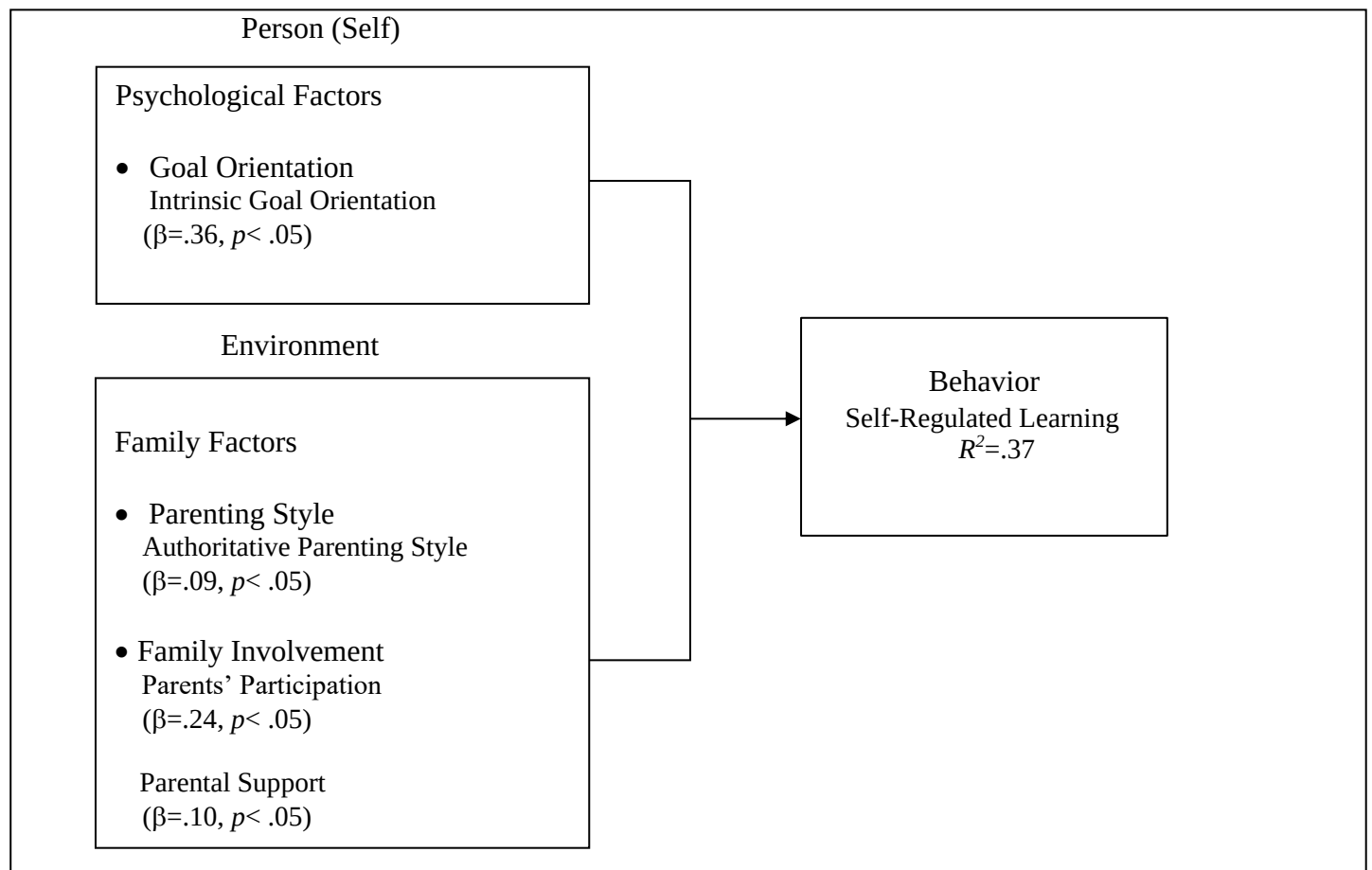
Table 3
Beta Coefficients of Family and Psychological Factors

Model	B	Std. Error	Beta	t
Constant	1.90	.13		13.74
Intrinsic Goal Orientation	.44	.03	.51	14.14*
Constant	1.61	.13		11.65
Intrinsic Goal Orientation	.30	.03	.35	8.39*
Parents Participation	.22	.03	.30	7.30*
Constant	1.24	.15		7.91
Intrinsic Goal Orientation	.32	.03	.37	9.00*
Parents Participation	.19	.03	.27	6.19*
Parental Support	.05	.02	.10	2.79*
Constant	1.12	.16		6.92
Intrinsic Goal Orientation	.31	.03	.36	8.74*
Parents' Participation	.18	.03	.24	5.56*
Parental Support	.05	.02	.10	2.87*
Authoritative Parenting Style	.06	.02	.09	2.72*

Note. $p < .05$; Independent variable: Self-regulated learning behavior

The results on family and psychological factors that influence elementary schools self-regulated learning behavior is summarized in Figure 2.

Figure 2
Factors Influencing Elementary School Students' Self-regulated Learning Behavior



Conclusion and Discussion

This study aimed to determine the influences of family and psychological factors on self-regulated learning behavior of elementary school students. Correlational analysis found that both family and psychological factors were associated with self-regulated learning behavior. However, the results of stepwise regression analysis showed that not all family and psychological factors have significant influences on elementary school students' self-regulated learning behaviors. Only three variables under the family factors namely parents' participation, parental support and authoritative parenting style yielded significant influences. As for psychological factors, only intrinsic goal orientation has significant influence on self-regulated learning behavior. The combined influence of family and psychological factors explained 36% of the variance in elementary school students' self-regulated learning behaviors. Family influence on self-regulated learning behaviors was substantial as three out of four significant variables were family factors.

The findings suggest that both family and psychological factors are crucial factors that influence self-regulated learning behaviors. These factors explain more than one third of the variance in self-regulated learning behaviors among Malaysian elementary school students. Family factor particularly parental involvement and authoritative parenting style are important factors that foster students' self-regulated learning behavior. Family factor is pivotal in developing self-regulated learning behavior because children spend more time at home than in schools and their learning behavior is closely related to the parenting styles that they are exposed to and the extent of participation and support that they received from parents. High degree of parental involvement from warm and supportive parents can improve students' learning behavior, which leads to improve homework completion, concentration, and academic achievement (Yahaya et al., 2020; Daniel & Berthelsen, 2016). In Asian culture, children are expected to do well academically, and parents may be more involved with their learning activities (Huang & Prochner, 2004; Leung & Lee, 2013; Salleh et al., 2010; Sung, 2019). They may provide instructions and explanations on study schedule, homework completion and revisions to help their children perform better (Obradović et al., 2021; Pino-Pasternak & Whitebread, 2010). Parents may also teach children cognitive and problem-solving strategies during homework time at home (Pino-

Pasternak & Whitebread, 2010; Sigel, 2002). In terms of psychological factors, this study found that students' intrinsic goal orientation has significant influence on their self-regulated learning behavior. As found by past study, intrinsic goal orientation is the driving force for self-regulated learning (Mirhashemi & Goodarzi, 2014). When students are interested in learning, they are likely to become self-regulated learners (Clark & Zimmerman, 2014). In short, both family and psychological factors play significant roles in promoting self-regulated learning behaviors at elementary school level, with family factors being more dominant (Latipah et al., 2021).

Two major implications could be drawn from these findings; (1) to promote self-regulated learning behavior among Asian elementary school students, students' family and psychological factors must be considered, and (2) more emphasis should be given to family factors. As found by a recent study, teachers faced constraints in promoting students' self-regulated learning behavior through classroom practices because other factor that influence students' learning behavior were not taken into account (Dermizaki & Kallia, 2021). In other words, the teaching of self-regulated learning skills in schools alone is not enough to drive self-regulated learning behaviors. Elementary school students' self-regulated learning behaviors is influenced by their parents' involvement and parenting style (Darling-Hammond et al., 2020; Obradović et al., 2021; Shen et al., 2018). For this reason, teachers should work together with parents to enhance and reinforce the desired learning behaviors (Cardona et al., 2009). For instance, teacher can teach students time management skills and how to plan and monitor their homework completion. To ensure that students apply self-regulated learning skills that they have learned, parental supervision, guidance and reinforcement are needed (e.g., Evidence for Learning, 2019; Lowes & Lin, 2015). In terms of educational practices, the findings suggest that teachers need to place more emphasis on students' intrinsic goal orientation. Interesting learning materials, projects and homework need to be designed to increase their intrinsic motivation learn and play more active roles in learning (Ngwira et al., 2018).

Conclusion

Self-regulated learning is being valued in education as learning becomes more dynamic and student-centered in nature. Students need to learn

how to take charge of their own learning behavior since elementary school level. This study contributes new knowledge to the field of behavioral science. It shed lights on key factors that influence self-regulated learning behaviors among Asian students. The findings provide empirical supports for the roles of family and psychological factors in developing elementary school students' self-regulated learning behaviors. It was found that family factors contribute tremendously towards the development of self-regulated learning behavior. Unfortunately, there is still a lack of collaboration between school and parents to promote positive learning behaviors at the elementary school level (Maslebes, 2013). Collaboration between teachers and parents are recommended to enhance students' self-regulated learning behavior and to overcome behavioral problems (Bear, 2010; Yahaya et al., 2020). Schools can hold workshops and discussions with parents to address issues related to learning behaviors and to create awareness about the importance of parental involvement and parenting styles. The findings also offer important information to the Ministry of Education Malaysia, school administrators, teachers, counselors, parents and relevant stakeholders. Based on the results of this study, interventions can be developed to improve students' self-regulated learning skills. Training programs, courses and workshops can also be carried out by the Teacher Training Unit to enhance teachers' knowledge about self-regulated learning and its influencing factors. It is acknowledged that the findings of this study may not be generalizable to secondary school students or preschool students, which is beyond the scope of this study. Therefore, it is recommended that future studies include preschool and secondary school students to determine whether the influence of family factors remain the same across different age groups. In addition, longitudinal and qualitative studies can also be carried out to examine the influence of family factors in-depth. As the influence of family and psychological factors on elementary school students' self-regulated learning behaviors have been established in this study, the scope of future research may be extended to include teacher and school factors to achieve a more comprehensive investigation.

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