



Research Article

Effects of Perceived Parents' and Teachers' Autonomy Support on Students' Self-Efficacy for Self-Regulated Learning

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Received: 5 September 2024; **Revised:** 27 December 2024; **Accepted:** 24 January 2025

Abstract: Previous studies indicated that students with high self-efficacy were not only more motivated but also employed more effective self-regulated learning strategies. Perceived autonomy support can improve students' academic self-efficacy. The present study aimed to examine the influence of perceived parents' and teachers' autonomy support on self-efficacy for self-regulated learning. 737 students from grades 4 to 9 in China were investigated by using a parental autonomy support scale, a teacher autonomy support scale and a self-efficacy for self-regulated learning scale. Data analysis was conducted using correlation analysis and multilevel structural equation modelling (SEM). Results showed that 1) Perceived parents' and teachers' autonomy support had a significant positive prediction on self-efficacy for self-regulated learning; 2) The contribution from perceived teachers' autonomy support on self-efficacy for self-regulated learning is greater than that of parents. These findings enhance and broaden the understanding of factors influencing students' self-efficacy for self-regulated learning, offering theoretical backing and valuable insights for developing effective educational policies aimed at improving students' self-regulated learning.

Keywords: perceived parents' autonomy support, perceived teachers' autonomy support, self-efficacy for self-regulated learning

1. Introduction

Self-regulated learning (SRL) is when students want to achieve their own learning goals, improve the efficiency of learning, adjust one's own cognition, attitude and action independently, regard learning itself as the object of consciousness, and continue to show the process of active and conscious plan, monitor, control and reflection (Kim et al., 2022; Pintrich, 2000; Zimmerman, 1989; Zimmerman, 2000). This process involves enhancing learning efficiency by continuously adjusting and managing their own cognition, attitudes, and actions. Self-efficacy for SRL refers to a student's perception of their ability to successfully engage in various aspects of SRL across academic domains (Zimmerman et al., 1992). Numerous studies showed a strong link between self-efficacy, motivation, and performance (Pajares, 1996). Previous research has shown that students with higher self-efficacy are more inclined to engage in self-regulation, likely due to the connection between self-efficacy and the use of cognitive strategies (Annalakshmi, 2019; Kim et al., 2020; Kim et al., 2022). Some studies found that parental involvement and teachers' support positively predicted students' academic self-efficacy (Panaoura, 2021; Yang et al., 2023; Yang et al., 2024). According to the self-

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DOI: <https://doi.org/10.37256/ser.6120255655>

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determination theory, the satisfaction of the basic psychological need for autonomy is more conducive to improving students' self-efficacy and learning activities (Wang et al., 2017; Zhang et al., 2020; Bai & Gu, 2022). Children who perceived a higher level of autonomy support from mothers and teachers had a greater efficacy for self-regulation learning among elementary school students from Seoul, Korea (Lee & Shin, 2021).

The purpose of this study is to examine the impact of parents' and teachers' autonomy support on self-efficacy for SRL of junior middle school and primary school students in the context of Chinese culture. Additionally, it aims to analyze and compare the relative influence of perceived parental autonomy support in contrast to that of teachers, shedding light on which source of support plays a more significant role in fostering students' self-efficacy for SRL.

2. Theoretical basis and hypothesis

2.1 Self-efficacy for SRL

Self-efficacy for SRL refers to the belief that an individual is capable of self-regulation learning and completing learning tasks, which runs through all stages of planning, monitoring, controlling and reflecting on self-regulated learning (Bandura, 1977; Kim et al., 2022; Zimmerman et al., 1992). Self-efficacy is a crucial component of self-regulated learning, and this research concentrates on exploring self-efficacy. Some research showed that self-efficacy affected students' application of strategy of self-regulated learning. Self-efficacy had a corresponding impact on the planning, behavior performance and self-reflection stage of self-regulated learning (Schunk & Ertmer, 2000). Students who believed they could complete the task used more cognitive and metacognitive strategies and worked harder and more consistently regardless of their previous achievements (Bai & Wang, 2023; Pajares, 1996). As proposed by task value theory, self-efficacy belief could effectively predict students' motivation to learn (Kim et al., 2022; Wigfield & Eccles, 2000). Students with high self-efficacy tend to use more effective self-regulated learning strategies. They are able to monitor their study time more effectively, and they are more persistent when faced with learning difficulties, or when solving comprehension problems (Bouffard-Bouchard et al., 1991). In the context of Chinese culture, the relationship between autonomy support and self-efficacy was investigated, but more studies were conducted on the influence of a certain kind of parents' autonomy support or teachers' autonomy support on students' self-efficacy (Liu et al., 2020; Yang et al., 2023; Yang et al., 2024). However, there is a difference between self-efficacy and self-efficacy for SRL. Therefore, this study is necessary to examine the impact of parents' and teachers' autonomy support on self-efficacy for SRL of junior middle school and primary school students in the context of Chinese culture.

2.2 Parents' and teachers' autonomy support and self-efficacy for SRL

Autonomy support is commonly compared with psychological control, which consists of intrusive parenting methods that coerce children into behaving, feeling, or thinking in particular ways (Soenens & Vansteenkiste, 2010; Van der Kaap-Deeder, 2023). When offering autonomy support, parents or teachers acknowledge children's perspectives and needs while allowing them independent choices whenever feasible. This approach not only strengthens children's sense of choice and will but also boosts their feelings of connection and competence (Grolnick et al., 2000). As a result, children who receive more autonomy support tend to show greater academic motivation and effort compared to their peers (Feng et al., 2019). Some studies found that parental involvement and teachers' support positively predicted students' academic self-efficacy (Panaoura, 2021; Yang et al., 2023; Yang et al., 2024). Accordingly, the study hypothesized H1: *Perceived parents' autonomy support can significantly affect Self-Efficacy for SRL*. Longitudinal studies found that teachers' autonomy indirectly predicted students' math engagement (Lazarides & Rubach, 2017). Therefore, this study hypothesized H2: *Perceived teachers' autonomy support can significantly affect Self-Efficacy for SRL*.

3. Materials and methods

3.1 Participants and procedure

In this study, students from grades 4 to 9 in junior middle schools and primary schools in Henan and Gansu

provinces of China were selected by convenient sampling method. Then they were surveyed through questionnaires. A total of 737 valid questionnaires were collected, the effective questionnaire rate was 95.71%. Among them, there were 365 boys (49.53%), 372 girls; 90 students (12.21%) in the fourth grade, 77 students (10.45%) in the fifth grade, 277 students (37.58%) in the sixth grade, 135 students (18.32%) in the seventh grade, 90 students (12.21%) in the eighth grade, and 68 students (9.23%) in the ninth grade, with an average age of 12.54 ± 1.48 years old. Participants were surveyed outside of class. Prior to the survey, the consent of the students and their parents was obtained. Participants were informed about the purpose of this study and assured that both the data collection and analysis would remain confidential.

3.2 Parental and teacher autonomy support

The parental autonomy support was the momentary parental autonomy support scale (MPASS) revised by Van der Kaap-Deeder et al. (2023). In this study, the instructions of the original scale was slightly revised, from the original instructions: “Think about that last moment with your parent when you answer the following questions” to: “Think about that moment with your parent when you answer the following questions”, to make the measurement content more normal. The scale consists of four items (e.g., “My parent take into account how I thought about things”). The word “parent” in the items of the momentary parental autonomy support scale was replaced with “teacher” as the items of momentary teacher autonomy support scale, and the teacher autonomy support scale also consists of four items (e.g., “My teacher take into account how I thought about things”). The items are rated on a 5-points scale from 1 = Strongly disagree to 5 = Strongly agree. Higher scores indicate higher parental or teacher autonomy support. In this study, Cronbach’s alpha value of parental and teacher autonomy support scales was 0.85 and 0.85, respectively.

3.3 Self-efficacy for self-regulated learning

The self-efficacy for self-regulated learning scale was a subscale of the children’s self-efficacy scale (CSES) developed by Bandura et al. (2006). This study utilized nine of the ten items with good factor loading (e.g., “Arrange a place to study without distractions”). The items are rated on a 5-points scale from 1 = Strongly disagree to 5 = Strongly agree. Higher scores indicate higher self-efficacy. In this study, Cronbach’s alpha value of self-efficacy for self-regulated learning scale is 0.89.

3.4 Data analysis

The data analyses were conducted the two-step procedure by structural equation model using Amos 24.0 to analyze the mediation effects (Anderson & Gerbing, 1988). Firstly, this study used the measurement model to test whether each latent variable could be well-represented by its indicators. Next, it was determined whether the results from the measurement model were satisfactory; the structural model could be tested using maximum likelihood (ML) estimation in the AMOS 24.0 program. According to Hu and Bentler (1999), the model fit well when $\chi^2/df < 5$, CFI > 0.90 , TLI > 0.90 , and RMSEA ≤ 0.08 (Ouyang et al., 2015; Marsh et al., 2004; Cid et al., 2018). Bias-corrected 95% CI for each direct path was reported based on 5,000 bootstrap samples, which provided the most accurate confidence interval estimation and had the highest statistical efficacy (MacKinnon et al., 2004).

4. Results

4.1 Descriptive statistics and correlations

To examine the relationship among all the study variables, the Bivariate Pearson correlation coefficient was estimated. Table 1 presents the descriptive results of each variable and the correlation coefficients among the study variables. The results showed that perceived parents’ autonomy support was positively correlated with perceived teachers’ autonomy support ($r = 0.57$) and self-efficacy for SRL ($r = 0.53$). Perceived teachers’ autonomy support was positively correlated with self-efficacy for SRL ($r = 0.58$), consistent with prior research findings.

Table 1. Descriptive statistics and correlations for major variables

Variables	Correlations		
	1	2	3
1. Parents' autonomy support	1		
2. Teachers' autonomy support	0.57**	1	
3. Self-efficacy for SRL	0.53**	0.58**	1
Mean	3.99	4.01	3.96
SD	0.79	0.76	0.67

Note: $N = 737$, ** $p < 0.01$

4.2 Measurement model

The measurement model included three latent factors: perceived parents' autonomy support, perceived teachers' autonomy support, and self-efficacy for self-regulated learning, along with 17 observed variables. The analysis revealed that the factor loadings for all observed variables corresponding to the latent factors were statistically significant ($p < 0.01$), confirming that the latent variables were effectively represented by their respective indicators. Moreover, the overall model demonstrated a strong fit, suggesting that the relationships between the latent factors and their observed indicators were robust and appropriate for further analysis. The indicators were as follows: $\chi^2/df = 4.915$, RMSEA = 0.073, CFI = 0.932, TLI = 0.920, and IFI = 0.932.

4.3 Structural model

Structural equation modelling (SEM) analysis was performed to evaluate the proposed structural model and examine the hypothesized relationships. The results indicated that the structural model provided a satisfactory fit to the data. The fit indices for the structural model were as follows: $\chi^2/df = 4.915$, RMSEA = 0.073, CFI = 0.932, TLI = 0.920, and IFI = 0.932.

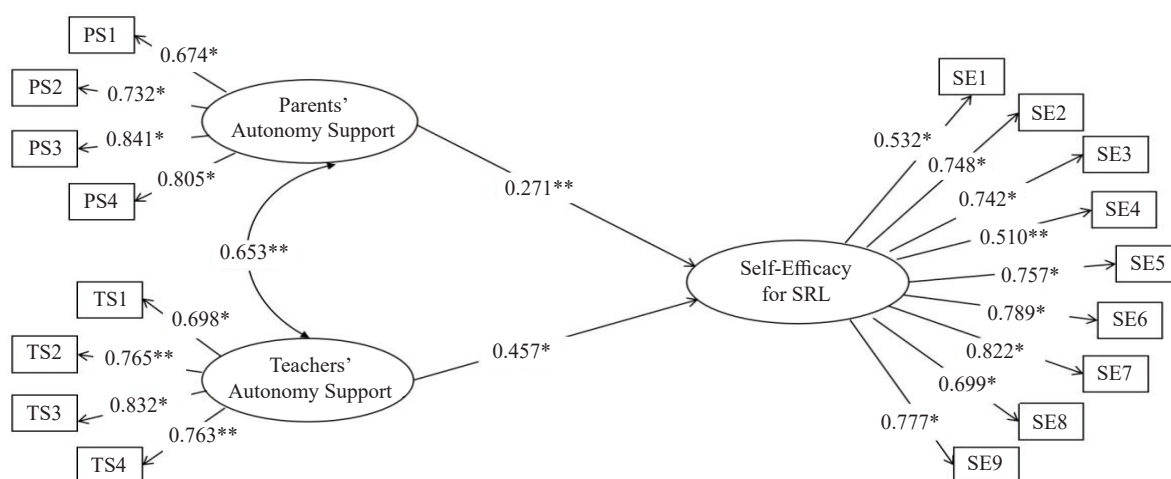


Figure 1. The structural model. Note factor loadings are standardized. PS1-PS4 are four items of parents' autonomy support; TS1-TS4 are four items of teachers' autonomy support; SE1-SE9 are nine items of self-efficacy for SRL

To account for both the direct effects and the relative contributions of perceived parents' and teachers' autonomy support on students' self-efficacy for SRL, a multilevel SEM approach was employed. As illustrated in Figure 1, the standardized path coefficient from perceived parents' autonomy support to students' self-efficacy for SRL was found to be 0.271 (SE = 0.070, $p < 0.01$, 95% CI [0.124, 0.417]) and the standardized path coefficient of perceived teachers' autonomy support to students' self-efficacy for SRL was 0.457 (SE = 0.066, $p < 0.05$, 95% CI [0.287, 0.570]). The direct impact of perceived parents' autonomy support on students' self-efficacy for SRL was significant, confirming hypothesis H1. Likewise, the direct effect of perceived teachers' autonomy support on students' self-efficacy for SRL was significant as well, supporting hypothesis H2.

Based on the data analysis, it was concluded that perceived teachers' autonomy support exerted the greatest influence on students' self-efficacy for self-regulated learning (SRL), surpassing the effect of perceived parents' autonomy support. Although both sources of autonomy support positively contributed to students' self-efficacy, the impact of perceived teacher autonomy support was found to be more pronounced ($0.271 < 0.457$).

5. Discussion

5.1 Direct effects

This study investigated the influence of parents' and teachers' autonomy support on self-efficacy for SRL in Chinese primary and junior middle schools. The study revealed that self-efficacy for SRL was positively influenced by the autonomy support provided by both parents and teachers. When teachers and parents respect students and give students the opportunity to fully express their opinions and feelings, students will feel that they are capable of self-planning and monitoring their learning activities (Grolnick et al., 2000; Joussemet et al., 2008; Koestner et al., 2010; Mageau et al., 2015). In other words, teachers and parents give students full autonomy in learning or activities, which will more easily enhance their self-efficacy for self-regulated learning and stimulate their learning motivation (Feng et al., 2019; Wang et al., 2017).

On the one hand, among the two types of autonomy support provided by parents and teachers, the autonomy support from teachers was the stronger predictor of self-efficacy for SRL, consistent with previous studies (Lazarides & Rubach, 2017; Yang et al., 2023; Yang et al., 2024). This may be because teachers are more directly involved in the day-to-day academic activities of students, their autonomy support tends to have a more immediate and direct effect on students' self-efficacy for SRL (Feng et al., 2019; Wang et al., 2017). When teachers give them the freedom to express their opinions in the classroom, students feel a heightened sense of control over their learning processes. This autonomy leads to improved self-regulation, as students are more likely to set goals, monitor their progress, and reflect on their learning strategies (Bai & Gu, 2022; Mageau et al., 2015). Teachers who encourage a supportive, autonomy-fostering environment help students perceive themselves as capable of independently planning, organizing, and assessing their academic work (Mattanah et al., 2001; Marbell & Grolnick, 2013).

On the other hand, perceived parental autonomy support also plays a crucial role, its impact on children's self-efficacy for SRL may be weaker compared to teachers (Lazarides & Rubach, 2017; Marbell & Grolnick, 2013). Parents often influence students' attitudes toward learning and provide the autonomy support needed to develop a strong sense of self-efficacy (Mattanah et al., 2001). When students are granted autonomy in the learning or activity process by parents, such as the opportunity to express their opinions and feelings autonomously and with full consideration, they develop a stronger belief in their ability to successfully complete the learning or activity task (Panaoura, 2021). This increased autonomy not only enhances their self-efficacy but also contributes to greater motivation and engagement with academic tasks (Bai & Gu, 2022; Lee & Shin, 2021). The findings suggest that fostering an environment of autonomy within schools and home, is key to supporting the development of students' self-efficacy for SRL and overall academic achievement.

5.2 Implications for practice and limitations

This study is helpful to reveal the relationship between parents' and teachers' autonomy support and students' self-efficacy for SRL, and has certain implications for the intervention of students' self-efficacy for SRL. This reveals us

that parents and teachers should attach importance to providing certain autonomy support for junior middle school and primary school students in education and teaching (such as giving students the opportunity to express their own opinions and feelings, and respecting and fully considering students' views), which will help improve their self-efficacy for SRL and promote the development of students' self-regulated learning.

However, there are also some limitations in this study. This study adopted a cross-sectional design and couldn't infer causality between variables. Therefore, multiple methods such as longitudinal and experimental studies should be adopted in the future to verify the causality between variables. In addition, the student-report method adopted in this study to measure parents' and teachers' autonomy support was not very comprehensive and objective. In the future, parent-report and teacher-report should be combined to measure the level of parents' and teachers' autonomy support.

6. Conclusions

Starting with the practice of basic education in China, this study explored the influence of perceived parents' and teachers' autonomy support on self-efficacy for SRL of primary and junior middle school students. Through the analysis of the collected data, the following conclusions were drawn: perceived parents' and teachers' autonomy support had a significant positive prediction on self-efficacy for SRL; The contribution from teachers' autonomy support on self-efficacy for SRL was greater than that of parents. Teachers and parents should pay attention to improving students' academic self-efficacy for SRL so as to improve students' academic performance.

Acknowledgements

This research was supported by the 2024 Henan Province Social Science Planning Project (Youth Project) entitled "Research on the mechanism and intervention of self-regulated learning in promoting children's Chinese reading comprehension" (2024CJY070), 2022 Henan Undergraduate University Research Teaching Reform Research and Practice Project entitled "Research on teacher development of university research teaching in developed countries" (2022JGLX064), and 2024 Henan Province Education and Science Planning General Project entitled "Research on assessment and improvement strategies of students' autonomous learning capacity at primary and junior middle schools under the background of double reduction" (2024YB0164).

Conflict of interest

The authors declare no competing financial interest.

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Appendix A

Parental autonomy support scale

Instructions: Think about that moment with your parent when you answer the following questions.

	Strongly disagree			Strongly agree	
1. My parent take into account how I thought about things.	1	2	3	4	5
2. I could totally be who I really am.	1	2	3	4	5
3. I am given the possibility to give my opinion.	1	2	3	4	5
4. I could express my feelings with my parent.	1	2	3	4	5

Teacher autonomy support scale

Instructions: Think about that moment with your teachers when you answer the following questions.

	Strongly disagree			Strongly agree	
1. My teachers take into account how I thought about things.	1	2	3	4	5
2. I could totally be who I really am.	1	2	3	4	5
3. I am given the possibility to give my opinion.	1	2	3	4	5
4. I could express my feelings with my teachers.	1	2	3	4	5

Self-efficacy for self-regulated learning scale

	Strongly disagree			Strongly agree	
1. Finish my homework assignments by deadlines.	1	2	3	4	5
2. Get myself to study when there are other interesting things to do.	1	2	3	4	5
3. Always concentrate on school subjects during class.	1	2	3	4	5
4. Take good notes during class instruction.	1	2	3	4	5
5. Use the library to get information for class assignments.	1	2	3	4	5
6. Plan my schoolwork for the day.	1	2	3	4	5
7. Organize my schoolwork.	1	2	3	4	5
8. Remember well information presented in class and textbooks.	1	2	3	4	5
9. Arrange a place to study without distractions.	1	2	3	4	5
10. Get myself to do school work.	1	2	3	4	5