International Journal of Evaluation and Research in Education (IJERE)
Vol. 14, No. 1, February 2025, pp. 629~635
ISSN: 2252-8822, DOI: 10.11591/ijere.v14i1.31029

Perceive social support, academic self-efficacy, and learning engagement among high school students in China

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Article Info

Article history:

Received Apr 30, 2024
Revised Sep 26, 2024
Accepted Oct 7, 2024

Keywords:

Academic self-efficacy
Learning engagement
Perceived social support
Senior high school students
Structural equation modeling

ABSTRACT

The aim of this study was to analyze the mediating role of academic self-efficacy in the relationship between perceive social support and learning engagement among Chinese senior high school students. A quantitative research method was adopted, and 572 Chinese senior high school students from Inner Mongolia Autonomous Region in China completed three self-report questionnaires. Correlation analysis revealed that senior high school students perceive social support, academic self-efficacy, and learning engagement were significantly correlated with each other. In addition, structural equation modeling analysis showed that perceive social support exerted its indirect effect on learning engagement through the mediation of academic self-efficacy. These findings have practical implication for government policymakers, education administrators, teachers, students, and parents, informing evidence-based policies, interventions, and strategies to enhance learning engagement and academic success.

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1. INTRODUCTION

Learning engagement has received considerable scholarly attention in recent years [1]–[3]. Research consistently shows its positive effects on academic performance and education quality [4], [5]. Additionally, it is pivotal for personal growth, contributing to skills like self-identity and effective learning [6], [7]. In China, it is a key indicator of academic achievement and student development [8], [9]. Although the importance of learning engagement widely recognized, several studies have revealed that senior high school students' learning engagement is at an intermediate level, which represents increased risk of high dropout rates, depression, delinquency, substance use, high rates of student boredom and academic failure [10]–[14]. In the Chinese educational context, the issue of low learning engagement among senior high school students is prevalent and is even more pronounced than in many other countries [15].

In addition, the senior high school stage is a critical period in adolescent development, particularly in the context of China, where students are required to participate in the highly competitive college entrance examination. Faced with a heavy academic workload, senior high school students endure substantial pressures from both internal and external environments. Many students exhibit signs of low learning engagement, such as a lack of interest in studies, poor academic efficiency, declining grades, and in some cases, truancy or even dropping out [16]–[18]. Thus, this research aimed to address the contradiction between the existing problem of insufficient students' learning engagement and other variables to provide a more detailed understanding of Chinese senior high school students' learning engagement.

During the last decade, the link between perceived social support and students' learning engagement has been at the center of much attention. For example, according to Alemayehu and Chen [7], perceived social support affects individual learning engagement. When individuals perceive understanding and support from others, they are more likely to maintain a positive outlook in the face of challenges and sustain higher levels of learning engagement. Previous studies have investigated the relationship between perceived social support and learning engagement and have found that perceived social support can enhance students' learning engagement [19]. However, previous study have also identified contradictory findings regarding the specific dimensions of perceived social support and their relationship with learning engagement [20]. In conclusion, this study examined the relationship among perceived social support and senior high school students' learning engagement in the Chinese context.

Perceived social support is considered as student's perception of the general support provided by people in their social network, which are available and enacted upon [21]. These supportive interactions enhance their overall functioning and serve as a buffer against adverse outcomes. Perceive social support consist of teachers support, parents support, classmates support, close friends support, and people in school support [21]. In this study, perceive social support include two dimensions: perceive teachers support and perceive parents' support. Extensive research has been conducted by countries worldwide on the perception of social support, recognizing its significance, particularly in evaluating student learning engagement.

Firstly, a statistical significant association between the dimension of perceive social support, namely parental support and student behavioral engagement, but a significant negative association between parental support and student emotional engagement [20]. Previous studies have failed to demonstrate a connection between the dimension of perceive social support (teacher support and students' learning engagement). The observed outcomes may be attributed to the following reasons. Parental support is pivotal in many aspects of students' academic involvement, yet it is crucial to note that excessive parental support can have negative impacts. Overbearing parental pressure can negatively impact students' emotional well-being. In the Ghanaian context, the inconsistent impact of the dimension of perceive social support, namely teacher support on student engagement might be attributed to the educational system, which remains predominantly didactic and hierarchical. Another potential reason might be the variations in class sizes and teacher workloads, leading to a high student-teacher ratio that does not allow for close student-teacher relationships.

Secondly, it has been previously indicated that students perceived teacher support to be critical to them [22]. Several studies have revealed that the dimension of perceived social support, namely teacher support, has the greatest impact on students' learning engagement [10], [23], [24]. However, the study conducted by Wang and Eccles [25] reported that the dimension of perceived social support, namely teacher support, was not significantly correlated with engagement in extra-curricular activities. The reason may stem from the methodology of this survey conducted in the Washington area of the United States, which collected information about parental and teacher social support through reports from teachers and parents, and information on learning engagement through self-reports from students, rather than gathering all data exclusively through student self-reports. Thirdly, perceive teacher support held a more pronounced gement than parents' support [26]. Additionally, a fascinating interplay was noted: the social support students perceived from teachers and parents appeared intertwined with the level of mutual support they shared with their classmates. This emphasizes the interconnectedness of these dimensions and their collective influence on a students' academic journey. Finally, parental support was significantly associated with learning engagement [27]. Parents spend time reading with their children to increase the level of learning motivation. Despite these findings, there are still contradictions and gaps in the existing research, which necessitates further investigation. Thus, this study sought to answer the following hypotheses: Perceive social support is positively correlated with senior high school students learning engagement (H1).

Academic self-efficacy is defined as student's degree of confidence in successfully completing a learning task or achieving an ideal academic goal after organizing and executing a task [28]. Academic self-efficacy consists of two factors: learning ability and learning behavior [29]. Previous studies confirmed that academic self-efficacy of senior high school students was affected by the social support [30]. For example, teacher support has a significant correlation with college students' self-efficacy [31]. Similarly, there was a statistically significant correlation between teacher support, parent support and adolescent's academic self-efficacy [24]. In addition, Ma *et al.* [32] conducted that parental support is positively related to elementary school students' self-efficacy. A possible explanation for these results might be that teacher support provides an excellent scaffold to help students believe in their own abilities and increase their enthusiasm, interest, effort, and perseverance [33]. Good relationship quality between parents and children can improve students' academic self-efficacy [34]. In addition, most of these studies have predominantly concentrated on college students [31], primary school students [32]. Very little research has been done on senior high school students. Therefore, the hypothesis in this study focused on: Perceive social support is positively correlated with academic self-efficacy of senior high school students in the Chinese context (H2).

Academic self-efficacy has long been recognized as a key factor affecting learning engagement [35]. Previous research results have shown that students with high self-efficacy have high levels of learning motivation, use effective learning strategies, and participate in learning activities, and they are more likely to achieve their goals [36]. There was a statistically significant correlation between academic self-efficacy and students' learning engagement [37]. Students with a high sense of efficacy have greater confidence in taking on challenges, so they are more willing to participate in activities and put in greater effort to achieve their goals [38]. The study sought to answer the following hypotheses: The academic self-efficacy of senior high school students is positively correlated with their learning engagement (H3).

According to social cognitive theory, academic self-efficacy is an expression of student's ability and confidence in their ability to perform specific behaviors. This belief affects students' behavior and opinions [38]. Thus far, a number of studies have revealed a correlation between social support and academic self-efficacy [39]. Social support is the prerequisite for self-efficacy in learning process helps students to improve their confidence, further promoted their learning engagement [40]. Hence, the hypothesis of this study was: Academic self-efficacy mediates the relationship between perceive social support and senior high school students learning engagement (H4). The hypothesized model is displayed Figure. 1.

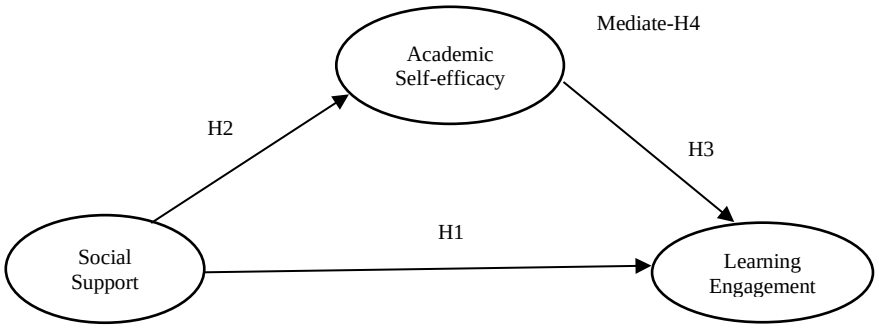

Figure 1. Hypothesized model

2. METHOD

2.1. Sample

The 572 senior high school students randomly recruited from 10 public senior high schools in Inner Mongolia Autonomous Region, China in August 2023 through a quantitative survey. Among them, 292 (51.05%) participants were female, and 280 (48.95%) participants were male. Given that public senior high school is the main type of secondary education in China, the researcher selected from 10 public senior high schools' students as participants, considering them representative the broader population of senior high school students. In this study, the simple random sampling method were used to select these participants from 10 public senior high schools located in Inner Mongolia Autonomous Region. The research involved students providing written informed consent for participation, ensuring anonymity and confidentiality for academic research purposes. Participants voluntarily completed self-report questionnaires in about 30 minutes.

2.2. Measurement instrument

To assess perceived social support among senior high school students in China, this study adopted the Chinese version of the social support scale for children and adolescents (CASSS), which was adapted by Luo *et al.* [41] from the scale developed by Malecki [21]. Research by Luo *et al.* [41] stated that Cronbach's alpha coefficient scores for the total frequency score of CASSS is 0.96, indicating a high level of reliability. Similarly, every subscale also proves good to excellent reliability: parents (0.87), teachers (0.92), the test-retest reliability for CASSS is 0.83, and for the subscale, it is: parents (0.78) and teachers (0.64). The model fits indices are as: $\chi 2/df=1.83$, CFI=0.935, TLI=0.932, RMSEA=0.034, SRMR=0.045. In this study, the scale consists of 24 items divided into two 12-item subscales (teachers and parents). The questionnaire is designed to be brief, ensuring that respondents do not feel tired during the assessment (for example: My parent(s) care about me). Participants rates themselves on a 6-point scale. Higher scores on the scale indicate a greater perception of support from the student.

To assess Chinese senior high school students academic self-efficacy, this study adopted the academic self-efficacy scale [29]. Cronbach's alpha coefficient scores of every dimension indicate good reliability: learning ability self-efficacy (0.820) and learning behavior self-efficacy (0.752) [29]. The

researcher used the full range of questions from the scale. The scale consists of 22 items (e.g., I believe that I can achieve good results in my studies). Participants rates themselves on a 5-point scale.

To assess Chinese senior high school students learning engagement, this study adopted the Utrecht Work Engagement Scale-Student version (UWES-S) [8]. The scale was developed by Schaufeli [42]. Cronbach's alpha coefficient scores of every dimension indicate good reliability: vigor (0.78), dedication (0.84) and absorption (0.73) [42]. In this study, this scale consists of 17 items with concise questions (e.g., as far as my studies are concerned, I always persevere, even when things do not go well). It consists of three dimensions, namely vigor, dedication, and absorption. Participants rates themselves on a 7-point Likert scale.

2.3. Data analysis

Statistical analysis was performed using SPSS 26.0 version and AMOS 26.0 version. In this study, perceive social support is independent variable, academic self-efficacy is mediating variable, learning engagement is dependent variable. A Pearson correlation analysis was conducted to assess the strength of social support, academic self-efficacy, and learning engagement. Reliability was calculated using Cronbach's alpha coefficient. In addition, the structural equation model was used to test the path coefficients among perceive social support, academic self-efficacy, and learning engagement, and test the mediating role played by academic self-efficacy in the relationship between perceive social support and senior high school students learning engagement.

3. RESULTS AND DISCUSSION

3.1. Results

It can be seen from the data in Table 1 that there was a statistical significant correlation between perceive social support and senior high school students' academic self-efficacy ($r=0.546$, $p<0.01$), and a significant positive correlation with learning engagement ($r=0.542$, $p<0.01$). There was a significant positive correlation between academic self-efficacy and learning engagement of senior high school students ($r=0.703$, $p<0.01$). Three scales were used in this study, namely social support scale for children and adolescents (CASSS), Academic Self-efficacy Scale, and Utrecht Work Engagement Scale-Student version (UWES-S). The reliability of each subscale should be tested. the Cronbach's α was selected as the reliability indicator. The results are shown in Table 1. The Cronbach's α for each variable was higher than 0.80, indicating that the reliability of all scales was good.

The model fits indices are as: $\chi 2/df=3.830$, CFI=0.993, IFI=0.993, NFI=0.991, GFI=0.987, RMSEA=0.065. The path relationships among different variables are shown in Figure 2 and Table 2. First, perceive social support positively predicted senior high school students' learning engagement ($\beta=0.425$, $p<0.001$). Second, perceive social support positively predicted senior high school students' academic self-efficacy ($\beta=0.575$, $p<0.001$). Finally, academic self-efficacy of senior high school students had a positive correlation with learning engagement ($\beta=0.408$, $p<0.001$). Therefore, the hypothesis H1, H2, H3 were supported. This study further tested the indirect of the mediation model. the results showed that the mediating effect of academic self-efficacy between perceive social support and senior high school students' learning engagement was 0.235, and the bootstrap 95% confidence interval=[0.186, 0.295], indicating significant mediating effect, and the mediating effect accounted for 35.61%. The hypothesis H4 was verified.

Table 1. Correlation coefficient of each variable

Variable	1	2	3
1. Perceive social support	1		
2. Academic self-efficacy	0.546**	1	
3. Learning engagement	0.542**	0.703**	1
Mean	4.668	4.456	4.810
SD	0.754	0.612	0.682
Cronbach's α	0.963	0.919	0.862

Table 2. Direct and indirect effects

Paths		Point estimate	SE	95% Confidence intervals	
				Lower	Upper
Direct effect	SS→LE	0.425	0.038	0.289	0.424
	SS→ASE	0.575	0.036	0.215	0.337
	ASE→LE	0.408	0.038	0.585	0.865
Indirect effect	SS→ASE→LE	0.235	0.028	0.186	0.295
Total effect	SS→LE	0.660	0.026	0.608	0.708

Note: SS=social support, LE=learning engagement, ASE=academic self-efficacy

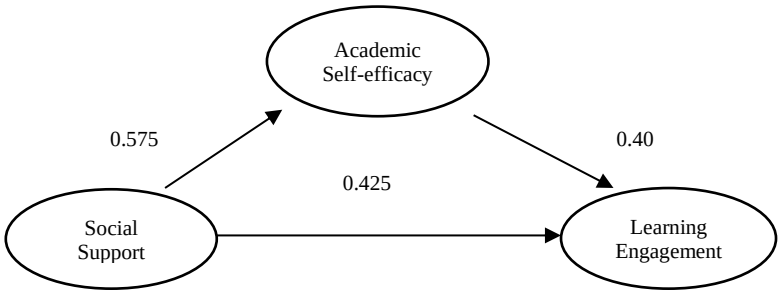

Figure 2. Path coefficient of SEM

3.2. Discussion

This study investigated the predictive relationship students perceive social support and their learning engagement, with academic self-efficacy serving as a mediator. The analysis revealed positive correlation among these variables. The results showed that perceive social support directly predicted senior high school students learning engagement, which supports findings reported in previous research [16]. A possible explanation for these results might be that students who perceive a high level of social support will have a higher level of learning engagement and are more willing to invest time, energy and emotion in learning. Continuous social support from teachers and parents can help students cope with daily learning pressure, enhance students' academic self-efficacy, and enable students to have a good learning status. The higher the level of students' learning engagement, the more willing they are to learn and reflect their independent and positive attitude in learning activities [26], [27].

The second finding of this study was that perceive social support directly predicted senior high school students academic self-efficacy, as conformed by several prior studies [31]. These studies found that students with higher perceive social support tend to have a higher level of academic self-efficacy. A possible explanation for these results might be that Students with high social support can obtain more learning resources, and their initiative and self-confidence in completing academic tasks will also be enhanced, thus improving their self-efficacy level [32].

The third finding of this study was that academic self-efficacy directly predicted senior high school students learning engagement. This result corroborate the findings of a great deal of the previous work in the relationship academic self-efficacy and students learning engagement. This is in line with social cognitive theory [38], which indicates that students with high academic self-efficacy are motivated to perform better at study. Senior high school students who are confident in their abilities to meet their studies' needs may become more motivated and invested their studies activities. According to Yi *et al.* [35], academic self-efficacy affects learning engagement, and this was supported by the study [7], [37] who found a positive relationship between academic self-efficacy and learning engagement. This result suggests that when students are confident in their ability to induce learning, they allocate more time and effort to their study and become more engaged in it.

The fourth finding of this study was that academic self-efficacy serve as a mediator for the relationship between perceive social support and learning engagement, indicating that if teachers and parents provide effective support to senior high school students, their confidence in completing study tasks can be improved, consequently improving the academic self-efficacy and enhancing their learning engagement. which supports previous findings [43], [44]. These findings have some practical and theoretical implications for future work. First, this study expands the role of perceive social support from the only direct influence on senior high school students learning engagement, to the potential indirect effect on learning engagement via academic self-efficacy. This study provides a clearer picture of the association between perceive social support and senior high school students learning engagement, as enhancing perceive social support and academic self-efficacy simultaneously may be more effective to promote learning engagement.

4. CONCLUSION

This study investigated senior high school students in China, and examined the positive impacts of perceive social support on academic self-efficacy and learning engagement. Additionally, the mediating roles of academic self-efficacy between perceive social support and learning engagement was tested. First, perceive social support had a significant positive impact on academic self-efficacy and learning engagement. The study has demonstrated consistent association between academic self-efficacy and learning engagement. In addition, perceive social support not only directly promotes learning engagement, but also indirectly positively affects learning engagement through the partial mediating effect of academic self-efficacy.

A number of limitations need to be noted regarding the present study. Firstly, the sample size is relatively limited, and future studies can consider increasing the sample size to improve the reliability and validity of empirical research. Secondly, this study uses cross-sectional data for analysis, and it is difficult to explain the casual relationship between perceive social support, academic self-efficacy, and learning engagement. Future studies may consider using longitudinal research design to explore the relationship between perceive social support, academic self-efficacy, and learning engagement. Thirdly, this study focuses on broad learning engagement rather than specific disciplines. Therefore, future research should be undertaken to investigate the role of academic self-efficacy in mediating perceived social support and learning engagement within specific disciplines.

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