

The Structural Relationship Among High School Students' Perceptions of Social Support and Academic Enthusiasm: The Sequential Mediation Effect of Concentration and Grit

Abstract

1. Research Overview

This study analyzes the structural relationship among high school students' perceived social support from parents, teachers, and friends, and academic enthusiasm. Using the Korean Children and Youth Panel Survey 2018 (KCYPs 2018), the study explores the direct and indirect effects among these variables, with a focus on the sequential mediation effect of concentration and grit.

2. Purpose of Study

The purpose of this study is to identify the structural pathways through which social support influences academic enthusiasm among Korean high school students.

Specifically, the study aims to:

- 1) Analyze the direct effects of perceived social support (parenting attitude, teacher relationship, and friendship) on concentration, grit, and academic enthusiasm.
- 2) Identify the mediating roles of concentration and grit in the relationship between social support and academic enthusiasm.
- 3) Test a sequential mediation effect (Social Support → Concentration → Grit → Academic Enthusiasm).

3. Research Methods

This study utilized data from the 7th wave of the Korean Children and Youth Panel Survey 2018 (KCYPs 2018), focusing on the 4th-grade cohort who were in their 10th-grade (the first year of high school) at the time of the survey. The final analysis sample consisted of data from 2,123 high school students.

Social support was measured using subscales of parenting attitude (warmth, autonomy support, and structure), teacher relationship (approachability, sensitivity, trustworthiness), and friendship (positive relationship). Academic Enthusiasm was measured through sub-factors including dedication, energy, efficacy, immersion. All items, including concentration and grit, were rated on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree).

After calculating descriptive statistics and conducting reliability analyses for the variables in this study, structural equation modeling (SEM) was performed. First, model fit was determined based on CFI, TLI, RMSEA, and SRMR. Second, the structural model was analyzed to test direct and indirect pathways. To identify the significance of the mediating effects, bootstrapping with 10,000 resamples was performed, and 95% confidence intervals were established.

4. Results and Discussion

The results of this study indicated that both parenting attitude ($\beta = .163, p < .001$) and friendship ($\beta = .130, p < .01$) perceived by high school students had a significant direct positive effect on concentration. Conversely, both variables were found to have a significant direct negative effect on grit (parenting attitude: $\beta = -.094, p < .05$; friendship: $\beta = -.249, p < .001$). Furthermore, teacher relationship emerged as the most significant direct predictor of academic enthusiasm ($\beta = .606, p < .001$). Unlike the indirect paths observed for parenting attitude and friendship, teacher relationship had a direct, unmediated influence.

Mediation analysis confirmed that parenting attitude ($\beta = .018, p < .05, 95\% \text{ CI } [.005, .041]$) and friendship ($\beta = .014, p < .05, 95\% \text{ CI } [.004, .034]$) influenced academic enthusiasm through concentration. However, contrary to expectations, neither the mediating effect of grit nor the sequential mediation effect of concentration and grit ($\beta = .054, p = .165$) was statistically significant.

The significance of this study lies in its identification of parenting attitude, teacher relationship, and friendship as critical environmental factors influencing high school students' academic enthusiasm. By incorporating concentration and grit as key psychological mediators, this study empirically verified the complex structural relationship among these variables.

The study revealed a partial mediating effect, indicating that the effects of parenting attitude and friendship on high school students' academic enthusiasm are further strengthened through the mediating role of concentration. Notably, it was confirmed that the relationship with teachers has a direct and significant positive effect on high school students' academic enthusiasm. In contrast, parenting attitude and friendship were found to have a significant negative effect on grit, and the partial mediating effect of grit and the sequential mediation effect of concentration and grit in the structural relationship between social support and academic motivation were not significant.

Based on these results, it is suggested that interventions aimed at enhancing academic

enthusiasm must integrate both individual psychological assets and broader social environmental supports. Despite these insights, several limitations warrant caution. The focus on first-year high school students limits the generalizability of the findings to the broader adolescent population. Future research should employ multi-group analyses across various school levels, including elementary and middle schools, to capture developmental trajectories. Furthermore, while this study utilized panel data to examine perceived social support, the measurement of parenting attitude, teacher relationship, and friendship influence was constrained by a limited set of items. Future studies are encouraged to explore a wider array of social support variables—such as extended family and community influences—and to examine these patterns across diverse national, developmental, and less competitive educational contexts to derive more implications for student adjustment.

Keywords: social support, concentration, grit, academic enthusiasm, Korean Children and Youth Panel Survey 2018