Self-Concept Modulates Motivation and Learning Strategies in Higher Education: Comparison According to Sex

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ABSTRACT

This study explores how university students' academic self-concept influences their learning motivation and the use of learning strategies through the satisfaction of basic psychological needs (autonomy, competence, and relatedness). The study employed a cross-sectional design, with 2736 Spanish university students participating. Measurements included self-concept, the degree of satisfaction of psychological needs, and various learning strategies (such as refinement, organization, and self-regulation). Structural equation modeling analysis showed that self-concept positively predicted the satisfaction of autonomy and competence, both of which further promoted the use of effective learning strategies. Gender differences were also observed: women scored higher on refinement strategies, while men performed better on effort regulation. The findings emphasize that improving students' self-concept and the satisfaction of their psychological needs is crucial for enhancing learning motivation and academic performance.

INTRODUCTION

Why do some students thrive academically while others struggle despite similar abilities?
Academic self-concept—the belief in one's own academic competence—has been identified as a key factor shaping motivation and persistence. Building on Self-Determination Theory, this study explores how fulfilling basic psychological needs (competence, autonomy, and relatedness) supports motivation and effective learning. By understanding how self-concept and need satisfaction interact, educators can design interventions that foster engagement and reduce dropout risk in higher education.

REFERENCE

Chacón-Cuberos, R., Serrano-García, J., Serrano-García, I., & Castro-Sánchez, M. (2025). Self-Concept Modulates Motivation and Learning Strategies in Higher Education: Comparison According to Sex. Education Sciences, 15(7), 873. https://doi.org/10.3390/educsci15070873

METHOD-Participants

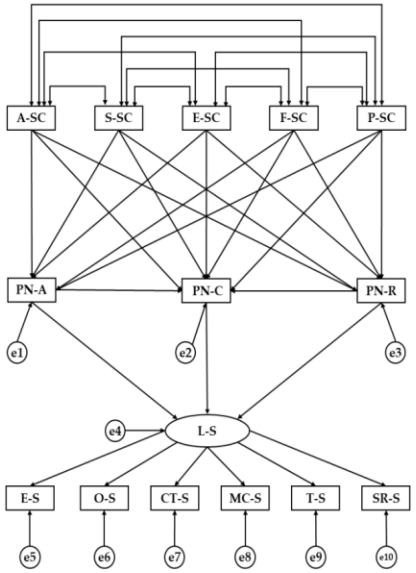
The study involved 2,736 university students from various disciplines and both genders across Spanish universities.

METHOD-Measures

Three main constructs were assessed:
(1) Self-Concept: Five domains (academic, social, emotional, family, physical) evaluating students' perceived abilities and self-image.
(2) Basic Psychological Needs: Autonomy, competence, and relatedness, reflecting satisfaction of key motivational needs.
(3) Learning Strategies: Elaboration, organization, critical thinking, metacognitive control, time management, and self-regulation, capturing how students plan and regulate learning.

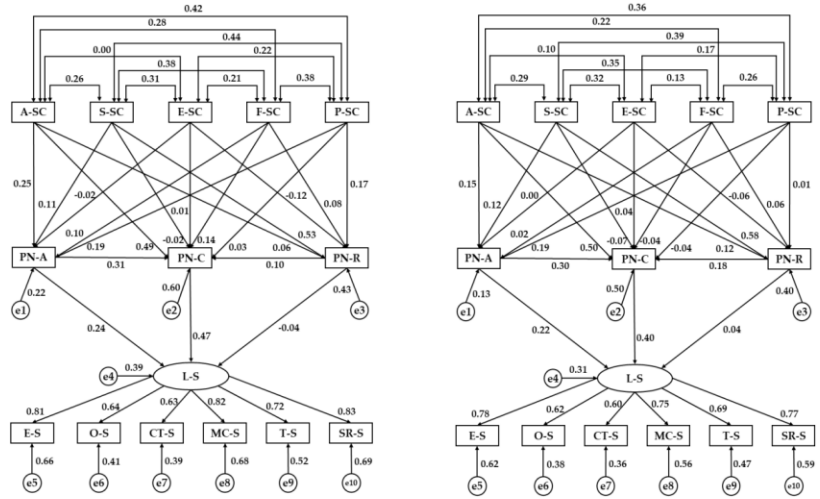
METHOD-Analysis.

Data were analyzed with Structural Equation Modeling (SEM) to test the hypothesized links among self-concept, psychological needs, and learning strategies.
The follow figure presents the model structure.
The model shows how self-concept predicts basic psychological needs, which in turn enhance students' learning strategies.



RESULTS

The structural equation models were analyzed separately for male and female students. For both groups, self-concept positively predicted the satisfaction of autonomy and competence, which in turn enhanced the use of learning strategies. Gender differences appeared mainly in the strength of these relationships: females showed stronger links between competence and elaboration, whereas males exhibited higher effort regulation and time-management associations.
Left picture present the SEM models for males and right females.



CONCLUSION

Self-concept significantly influences students' motivation and learning strategies through the satisfaction of autonomy and competence. Strengthening self-concept and basic psychological needs may enhance engagement, promote academic success, and reduce dropout risk.

Self-Concept Modulates Motivation and Learning Strategies in Higher Education: A Gender-Based Comparison

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INTRODUCTION

Higher education represents a key stage of personal and academic development where students face complex cognitive, social, and emotional challenges. Understanding how **self-concept**, **motivation**, and **learning strategies** interact is essential for promoting student engagement and reducing dropout rates. This study investigates how these relationships differ by gender among Spanish university students, applying **Self-Determination Theory (SDT)** as the theoretical foundation.

Objectives

1. To develop a structural model describing the relationships between self-concept, basic psychological needs, and learning strategies.
2. To examine gender-based differences within this model.

Hypotheses:
H1: Positive relationships exist between self-concept and psychological needs, regardless of gender.
H2: Psychological needs positively predict learning strategies, with stronger effects among males.

Methodology

•**Design:** Descriptive, cross-sectional, ex post facto.
•**Participants:** 2736 Spanish university students (66.2% female), aged 18–45 (M = 23.3).
•**Instruments:**
•*Self-Concept Scale (*Shavelson et al. ,1976)
•*Basic Psychological Needs Scale* (Sheldon & Hilpert, 2012)
•*Motivated Strategies for Learning Questionnaire* (Pintrich et al., 1993)
•**Analysis:** Structural Equation Modelling (SEM) and multi-group comparison (IBM SPSS/AMOS 22.0).

RESULTS

•The model demonstrated acceptable fit: **CFI = 0.91**, **RMSEA = 0.067**.
•**Self-concept** positively correlated with **autonomy** and **competence** for both genders.
•**Females:** Higher elaboration and metacognitive strategies.
•**Males:** Greater effort regulation and autonomy orientation.
•The **need for relatedness** predict learning strategies.

Key Findings:

- Academic self-concept strongly predicts competence needs (b = 0.489 in males; 0.497 in females).
- Learning strategies are more influenced by competence (b = 0.473 in males; 0.401 in females).
- Females exhibit more effective elaboration, while males demonstrate stronger effort regulation.

Discussion & Implications

The findings support the integrative role of **self-concept** and **motivation** in academic engagement. Universities should promote environments that:

- Strengthen **autonomy, competence, and relatedness** through active and collaborative learning.
- Enhance **metacognitive and self-regulation skills** via personalized feedback and reflective practices.
- Address **gender differences** by tailoring interventions (e.g., emotional literacy for males; effort regulation for females).

Promoting intrinsic motivation and positive self-image can prevent dropout and support holistic student development.

CONCLUSION

Self-concept and basic psychological needs jointly shape learning strategies in higher education. While both genders benefit from motivational satisfaction, men and women employ distinct strategies. Universities should embed self-determined learning principles to foster sustainable engagement and well-being.

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Responses toward the ChatGPT

- 1. change
  - The result section may use more figure rather than text to show result more intuitive.
- 2. mistakes
  - 1 H2: with stronger effects among females
  - 2 The need for relatedness did not significantly predict learning strategies.
  - 3 Self-Concept Scale is created by García and Musitu