The Influence of the Learning Environment on the Student's Innovation Capability: the Case of Undergraduate Students in Vietnam

Thu Hang Nguyen, Minh Phuong Vu and Duong Viet Anh Nguyen

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1. Introduction

The significance of innovation capabilities of students has grown considerably across all domains, with particular emphasis on its role in fostering economic progress (Fagerberg et al., 2010). Universities have been endeavoring to enhance students' capacity for innovation through the implementation of innovative educational programs, the facilitation of entrepreneurial endeavors, and the adoption of innovative teaching methodologies (Hoidn & Kärkkäinen, 2014). Among that, the learning environment has been demonstrated to be one of the most crucial aspects in enhancing innovative skills (Mayhew et.al., 2012). However, past research mainly interpreted the learning environment through the classroom environment, which is considered to be insufficient.

Therefore, this study aims to provide a comprehensive framework to understanding how various factors within a learning environment, both at the school and classroom level, influence student's innovation capabilities. This research can potentially offer valuable insights for educators and policy makers to create effective learning environments that foster innovation and creativity among students.

2. Literature Review

Learning Environment

The concept of "learning environment" commonly refers to the social, psychological, or psychosocial setting in which learning or teaching occurs (Cleveland & Fisher, 2014) including virtual and non-traditional spaces (Fraser, 2012). When referring to the learning environment, much previous research has concentrated on the many components of the classroom context. Although the school environment is also a type of learning environment, there is less research focused on school context when studying a learning environment. In our research, when interpreting the learning environment, we use both the school and classroom environment.

School Environment

The school environment is defined as the outcome of the school's norms and values, and how people at the school relate to and interact with one another (Freiberg and Stein, 1999). There is a body of scientific research that supports the idea that a positive school environment can foster students' innovation capacity (Mayhew et.al., 2012; Selznick, & Mayhew, 2019; Bock et.al., 2020). According to Wang & Degol (2015), the school environment is classified as (1) a Safety & Safety Environment; (2) Physical Environment; and (3) Academic Environment.

Classroom Environment

The classroom environment is defined as the environment where the process of learning takes place (Kaufmann et al., 2015). Studies show that the classroom climate significantly affects student's innovation capabilities (Keyser & Barling, 1981; Wright & Cowen, 1982). Moreover, teacher-relating factors, the motivational environment, and students' beliefs are identified as barriers to creativity (Beghetto, 2010).

Stockard (1992), divided the classroom into social, psychological, and physical environments. While there are some overlaps between social and psychological environments, we combine these two aspects into a psychosocial environment. Besides, since this research focuses on innovation capabilities, we also viewed the classroom environment from the perspective of a creative environment. A creative classroom environment is a learning setting that promotes and encourages specifically creativity, innovative thinking, and problem-solving among students (Fan & Cai, 2020), which is shown to have influence on student's innovation capabilities (Richardson & Mishra, 2018).

Therefore, in this study, the classroom environment is classified as a physical, psychosocial, and creative environment.
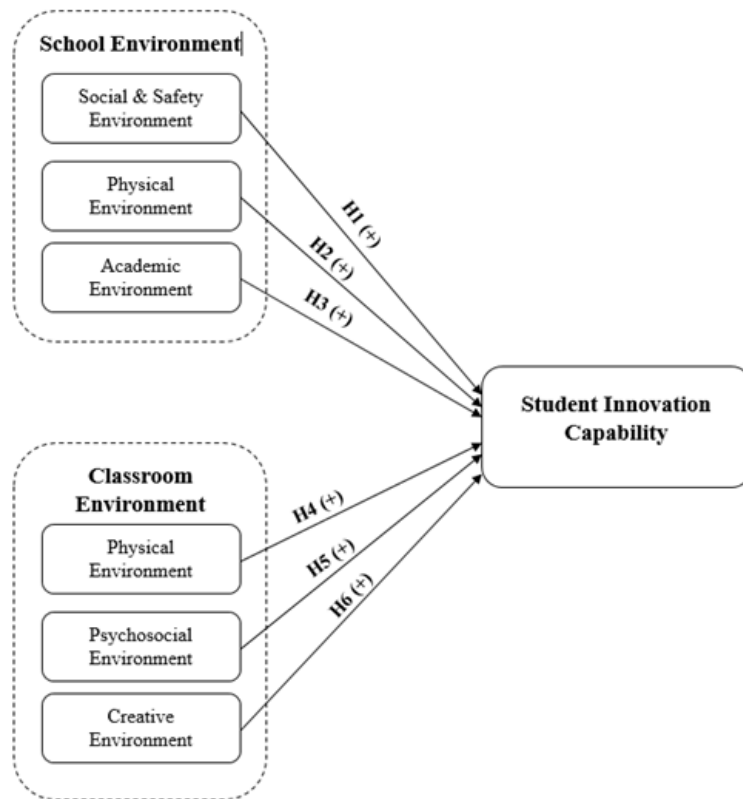

Figure 1: Conceptual Framework

3. Methodology

The instruments are developed from previous research (Richardson & Mishra, 2018; Kanwar, 2021). In this study, we analyzed the total sample size of 455 undergrad students by SEM model.

4. Results and Discussion

2/3 school-level factors (socialsafety_school, academic_school) and all the class-level factors (physical_class, creative_class, psychosocial_class) have positive relationships and could explain 77.2% the variance in students' innovation capabilities. Among that, the psychosocial environment of classroom is the most influential factor ($\beta=0.508$; $p<0.01$). Besides, the physical_school environment is revealed to be insignificant.
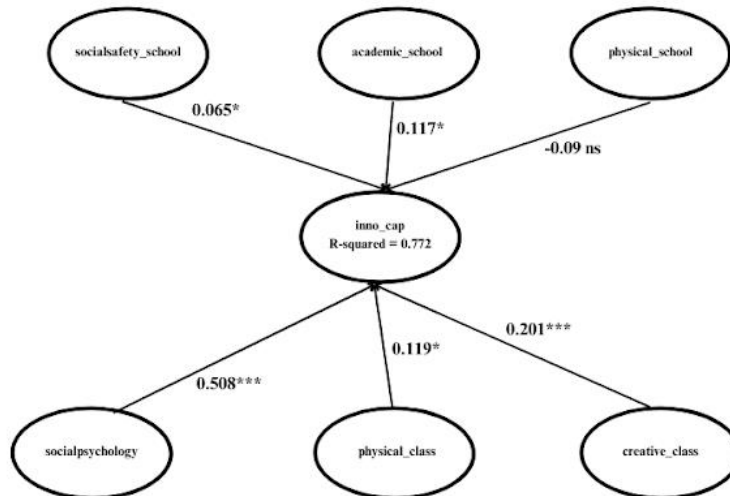
Figure 2: Results summary

Theoretically, the study contributes to a new framework for building a learning environment that encourages innovation capabilities. While previous research mainly focused on the classroom, we also acknowledge the significance of Social Safety and Academic aspects in School. Besides, this study also includes a new aspect, creative classroom environment, which can be considered an improvement compared to most previous studies. With a comprehensive approach, our model includes different measurements, from tangible scales (social, safety, and physical factors) to intangible scales (academics, psychology, creative environments).

Practically, the study provides a guideline for teachers, school leaders and policy makers to build an effective learning environment that fosters innovation capabilities. Since the Psychosocial_class has the strongest effect, we suggest that the priority should be providing an innovation-oriented climate as well as ensuring students' engagement in class activities.

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