The Impact of Knowledge Sharing on the Innovation Capacity of Students at Universities: The Mediating Role of Knowledge Acquisition and Knowledge Autonomy

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ARTICLE INFO	ABSTRACT
Published Online: **20 February 2025** **Corresponding Author:** **Van Thai Nguyen**	In the face of intensifying globalization and competition, innovative capability has emerged as a crucial metric for evaluating societal competitiveness and adaptability to contemporary challenges. This study seeks to investigate the influence of knowledge sharing on the creative potential of university students in Vietnam. Employing quantitative research methodologies via structural equation modeling (SEM) analysis. The study administered a survey involving 568 university students. The research findings indicate significant contributions by illustrating the direct and positive influence of knowledge sharing on innovation capacity, alongside the mediating roles of knowledge acquisition and knowledge autonomy in the relationship between knowledge sharing and students' innovation capacity. The authors recommend several ways to enhance the creativity potential of university students in Vietnam, based on the research findings.
KEYWORDS: Knowledge Sharing; Knowledge Acquisition; Knowledge Autonomy; Innovation Capability..	

1. INTRODUCTION

In the midst of expanding globalization and competition, the capacity for innovation has emerged as a crucial metric for evaluating societal competitiveness and adaptability to contemporary challenges. Consequently, every individual in the economy, particularly students-the future labor force-must comprehend societal trends to adapt and evolve. The ongoing technological surge is resulting in the replacement of numerous industries by automation and artificial intelligence. This presents a significant problem for recent graduates in securing appropriate employment. Consequently, enhancing innovation capacity is vital for students to fulfill the demands of enterprises and the contemporary labor market, thereby contributing to the sustainable advancement of society.

On September 26, 2024, the World Intellectual Property Organization (WIPO) published the 2024 Global Innovation Index (GII) Report in Switzerland. Consequently, Vietnam is positioned 44th out of 133 countries and economies, reflecting an advancement of 2 ranks since 2023.

Vietnam has advanced four positions in its innovation input ranking, rising from 57th to 53rd in 2023. Likewise, innovation production rose by four positions relative to 2023, advancing from 40th to 36th place. WIPO acknowledges Vietnam as one of the eight middle-income nations that has significantly enhanced its rating since 2013, alongside China, Turkey, India, the Philippines, Indonesia, Iran, and Morocco. Vietnam is one of three countries that have consistently exceeded development levels for 14 straight years, alongside India and Moldova. For 14 straight years, Vietnam's innovation outcomes have consistently surpassed its developmental level. This demonstrates efficacy in converting input resources into innovative outcomes. Nonetheless, despite progress in credit, high-tech imports, and total national revenue, it is indisputable that Vietnam continues to exhibit deficiencies in institutional frameworks, investment, particularly in human resources with specialized knowledge, among other areas. Furthermore, the analysis of Vietnam's digital economy conducted by Cameron et al. (2019) identified a persistent weakness: the "lack of

innovation and monitoring of digital use." The entities involved in implementing innovation encompass universities, innovation centers, startups, and individuals. Consequently, examining the creativity capacity of university students significantly aids in addressing these deficiencies. The enhanced innovative potential of students will facilitate their success in the job market and is essential for the long-term development of Vietnam's economy.

Along with the trend of globalization, effective knowledge-sharing mechanisms are increasingly important for the sustainable development of individuals, organizations, and society. Accordingly, factors affecting the knowledge sharing and innovation capacity of students have become the subject of many scholars' research interests (Lin, 2007; Wang & Noe, 2010). Some studies focus on exploring factors affecting knowledge sharing behavior among university students (Jer Yuen & Majid, 2007; Majid & Chitra, 2013; Ong et al., 2011). For this group, the research objective is to help students learn and acquire knowledge better (Majid & Chitra, 2013; Ong et al., 2011). Research overview shows that the main factors affecting knowledge-sharing behavior among students include reward mechanism, organizational culture, belief in self-knowledge, group activities, and IT infrastructure. However, the effects of the factors are very different from case to case.

This research seeks to investigate the influence of knowledge sharing on the creative potential of university students in Vietnam. The research findings indicate significant contributions by illustrating the direct and beneficial effect of knowledge sharing on innovation capacity, alongside the mediating roles of knowledge acquisition and knowledge autonomy in the relationship between knowledge sharing and students' innovation capacity. The authors recommend several ways to enhance the creativity potential of university students in Vietnam, based on the research findings.

2. LITERATURE REVIEW AND HYPOTHESES

Knowledge sharing can be approached and conceived in several manners, contingent upon differing situations, conditions, and perspectives. Numerous definitions are provided during the study process to elucidate the concept of knowledge sharing.

Van Den Hooff and De Ridder (2004) define knowledge sharing as a process wherein individuals collaboratively exchange their tacit and explicit knowledge to create new knowledge. De Vrie et al. (2006) assert that each instance of knowledge sharing encompasses both the supply of new knowledge and the request for new knowledge. In alignment with the perspectives of Van Den Hooff and De Ridder (2004), De Vrie et al. (2006) delineate two primary behaviors of knowledge sharing: contributing knowledge, which involves disseminating one's personal intellectual capital to others, and acquiring knowledge, which entails soliciting others to share their intellectual capital. The authors contend that the activities are proactive procedures that either convey knowledge to others or seek to acquire knowledge from them. They elucidate that the two behaviors possess distinct characteristics and are likely to be affected differently by various situations (Wabwezi, 2011).

Hansen and Haas (2001) contend that knowledge sharing enhances the performance and creativity of individuals and organizations. This activity is increasingly vital for organizations, as most now function within the knowledge economy. Knowledge dissemination within an organization occurs at both the individual and collective levels (Ovbiagbonhia et al., 2019). The capacity of an organization to disseminate knowledge is essential for generating new knowledge and for its members' utilization of resources and competencies. Knowledge sharing influences not only implicit knowledge but also every phase of the knowledge-generating process (Wabwezi, 2011).

Numerous international studies have demonstrated that knowledge sharing significantly impacts innovation potential, particularly within the higher education sector. Nonaka (1994) posits that knowledge manifests in two primary forms: explicit knowledge and tacit knowledge. Knowledge can now be disseminated through books, materials, and lectures, however tacit knowledge frequently manifests as experiences, abilities, and creative thinking that individuals acquire during their study and professional endeavors. The exchange of knowledge among students provides access to diverse viewpoints and ideas, fostering an interactive learning environment that promotes innovation and creativity.

Nahapiet and Ghoshal (1998) assert that in the knowledge economy, the sharing and integration of knowledge among individuals and organizations is crucial for enhancing innovation potential. When students exchange knowledge, they not only get insights from peers but also engage in reflection, enhancing their reflective thinking and problem-solving skills. This is particularly significant in the domains of research and entrepreneurship, where creativity and innovation are essential for success.

Osterloh and Frey (2000) assert that the knowledge-sharing process facilitates the preservation and enhancement of an organization's knowledge assets while allowing individuals to implement knowledge in practice more efficiently. In a university environment, knowledge dissemination occurs through diverse modalities, including collaborative projects, classroom dialogues, participation in collective research endeavors, or via digital platforms. Active participation in the knowledge-sharing process enables students to enhance their learning while also practicing creative thinking and discovering novel ways to approach the subject matter. Escriba-Esteve and Montoro-Sanchez (2012)

demonstrate that globalization and technological advancement have facilitated knowledge dissemination in educational settings, enabling students to readily access a variety of knowledge sources and implement them in practice.

Innovation is demonstrated by the capacity to create novel ideas and products. Innovation capacity refers to the capability of an organization, individual, or society to produce novel ideas, create new products and services, or implement innovative methodologies to address present and future challenges. Innovation encompasses both the generation of novel ideas and the implementation and modification of improvements to generate value (Drucker, 1985). Innovation capacity resides not just inside organizations and units through the implementation of novel processes, technologies, and organizational methodologies, but also within individuals who possess new ideas and innovative thinking. Creativity and innovation refer to the capacity to question conventional thought, perceive circumstances from an alternative viewpoint, devise novel methodologies, and develop new goods, processes, and utilities (Tran et al., 2021). Self-efficacy pertains to an individual's confidence in their own abilities and understanding (Bandura, 1997). Teamwork encompasses the

dedication, collaboration, and advantages derived from collective efforts. Efficient collaboration, trust, and coordination will enhance the process of knowledge dissemination (Stoll et al., 2006).

Based on the theoretical overview and related works, the study proposes a model with 6 hypotheses:

H1: Knowledge sharing is positively associated with the innovation capacity of university students in Vietnam.

H2: Knowledge sharing is positively associated with the knowledge acquisition of students at universities in Vietnam.

H3: Acquiring knowledge is positively associated with the innovation capacity of students at universities in Vietnam.

H4: Knowledge sharing is positively associated with the knowledge autonomy of students at universities in Vietnam.

H5: Knowledge autonomy is positively associated with the innovation capacity of students at universities in Vietnam.

H6: Acquiring knowledge is positively associated with the knowledge autonomy of students at universities in Vietnam.
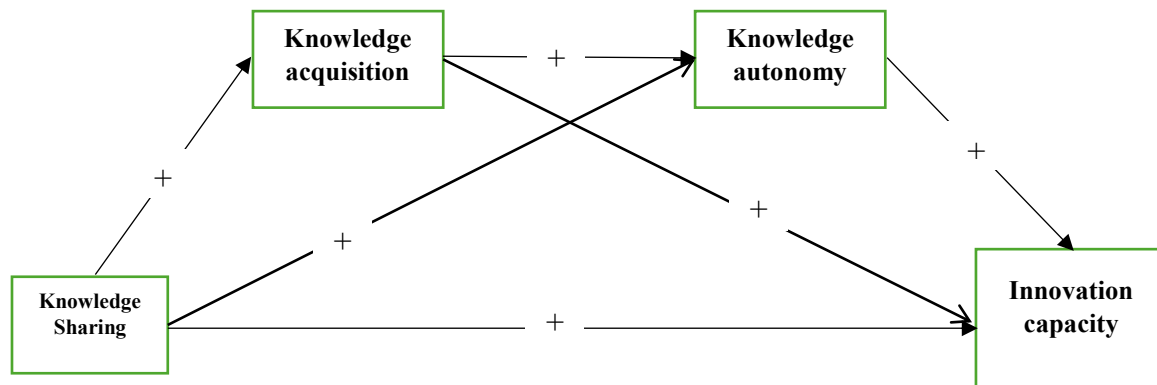
Figure 1. Proposed research model

3. RESEARCH METHODOLOGY

3.1. Research scale

The paper presents a research model of four variables, grounded in a theoretical framework and pertinent research studies. The independent variable is knowledge sharing, while the dependent variable is innovation ability. Intermediate variables comprise knowledge gain and

knowledge autonomy. The study employs a Likert scale consisting of five levels, equating to five rating points: 1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree. Indicators assessing applied variables are modified based on the characteristics of the study sample from prior research.

Table 1. Origin of the scale of variables

No.	Variable	Code	Number of observations	Origin of the scale
1	Knowledge Sharing	KSH	6	Chennamaneni (2006)
2	Knowledge acquisition	KAC	6	Obeidat et al. (2016)
3	Knowledge autonomy	KAU	5	Obeidat et al. (2016)
4	Innovation capacity	INO	5	Donate and Guadamillas (2011)

3.2. Research samples

The research sample chosen by the non-probability sampling method is convenience sampling. Data is gathered using stratified sampling at universities located in Northern, Central, and Southern Vietnam. The sample comprised 568 university students, predominantly 3rd-year students (231), representing 40.67%; followed by 1st-year students (102, 17.96%); 2nd-year students (114, 20.07%); and 4th-year students (121, 21.30%). The data collection process occurs via two methods: direct collection and online via the Google Form survey tool. Upon direct inquiry, 400 votes were issued, 298 votes were collected, and 272 votes were deemed usable. The online survey yielded 305 votes, of which 296 were deemed usable. The aggregate count of valid votes utilized for analysis is 568. The study by Hair et al. (2010) indicates that the minimum sample size should be five times the total number of observed variables. The paper contains 22 observations, whereas the research encompasses 568 samples that fulfill the analytical criteria. The duration for data gathering is from June 2024 to January 2025.

3.3. Data processing

The data collected via research and survey are analyzed using SPSS and AMOS software version 22.0. Consequently, one can infer findings that validate the model's suitability and the study assumptions. The study initially evaluated the scale's reliability using a Cronbach's Alpha coefficient threshold of >= 0.7 and a total variable correlation coefficient of >= 0.3. If the Cronbach's Alpha If Item Deleted

value exceeds the Cronbach's Alpha coefficient of a variable, that observed variable should be considered (Nunnally & Burnstein, 1994). Subsequently, the study evaluated the scale's validity by conducting an exploratory factor analysis (EFA), which necessitated a factor loading greater than 0.5; a KMO coefficient between 0.5 and 1; a significance value less than 0.05; and an extracted variance exceeding 50% (Hair et al., 2010). The factor extraction method employed was the Varimax rotation technique. The study subsequently employs AMOS software to evaluate the appropriateness of the research model via exploratory factor analysis (CFA) and ultimately tests the research hypotheses through linear structural model analysis (SEM), adhering to the criteria of chi-square/df indicators < 3 (Hair et al., 2010); GFI, TLI, CFI > 0.9 (Segars & Grover, 1993); RMSEA < 0.08 (Taylor et al., 1993).

4. RESEARCH RESULTS AND DISCUSSION

4.1. Testing the reliability of the scale

The study performed Cronbach's Alpha analysis on each variable group to assess the scale's reliability. The findings indicate that the scale's reliability in the analysis is affirmed when all Cronbach's Alpha values for the variables in the model align with the total variable correlation coefficient of the observed variables, which exceeds 0.3, and the Cronbach's Alpha coefficient surpasses 0.7. Simultaneously, the Cronbach's Alpha If Item Deleted values for all indicators are inferior to the Cronbach's Alpha coefficient of the overall variable.

Table 2. Rating the reliability of the scale through Cronbach's Alpha coefficient

No.	Variable	Code	Cronbach's Alpha
1	Knowledge Sharing	KSH	0.912
2	Knowledge acquisition	KAC	0.891
3	Knowledge autonomy	KAU	0.915
4	Innovation capacity	INO	0.892

4.2. Explore factor analysis (EFA)

Following the assessment of the scale's appropriateness, the study performed exploratory factor analysis (EFA) for the independent, intermediate, and dependent variables. The analysis method is completed only once for independent, intermediate, and dependent variables. The results indicate that the data is suitable for analysis with

a factor loading greater than 0.5, a KMO coefficient between 0.5 and 1, a significance value less than 0.05, and an extracted variance percentage exceeding 50%. Additionally, it meets two criteria: *convergent validity* (the observed variables converge on the same factor) and *discriminant validity* (the observed variables are associated with one factor and differentiate it from another).

Table 3. EFA factor analysis results

EFA analysis	KMO coefficient	P-value	Variance extracted	Factor loading	Conclusion
Independent and mediating variables	0.932	0.000	70.349	All coefficients > 0.5	Meet requirements
Dependent variable	0.869	0.000	70.050	All coefficients > 0.5	Meet requirements

4.3. Confirmatory factor analysis (CFA)

The confirmatory factor analysis (CFA) results indicate the appropriateness of the measurement model, with all indicators satisfying the criteria: Chi–square = 507.971; df = 203; P = 0.000 (< 0.05); Chi–square/df = 2.502 (< 3); GFI = 0.924 (> 0.9); TLI = 0.960 (> 0.9); CFI = 0.965 (> 0.9); RMSEA = 0.051 (< 0.08).

4.4. Structural Equation Modeling Analysis (SEM)

The results of the analysis show that the composite indicators meet the requirements. Specifically, Chi–square = 507.971; df = 203; P = 0.000 (< 0.05); Chi–square/df = 2.502 (< 3); GFI = 0.924 (> 0.9); TLI = 0.960 (> 0.9); CFI = 0.965 (> 0.9); RMSEA = 0.051 (< 0.08).
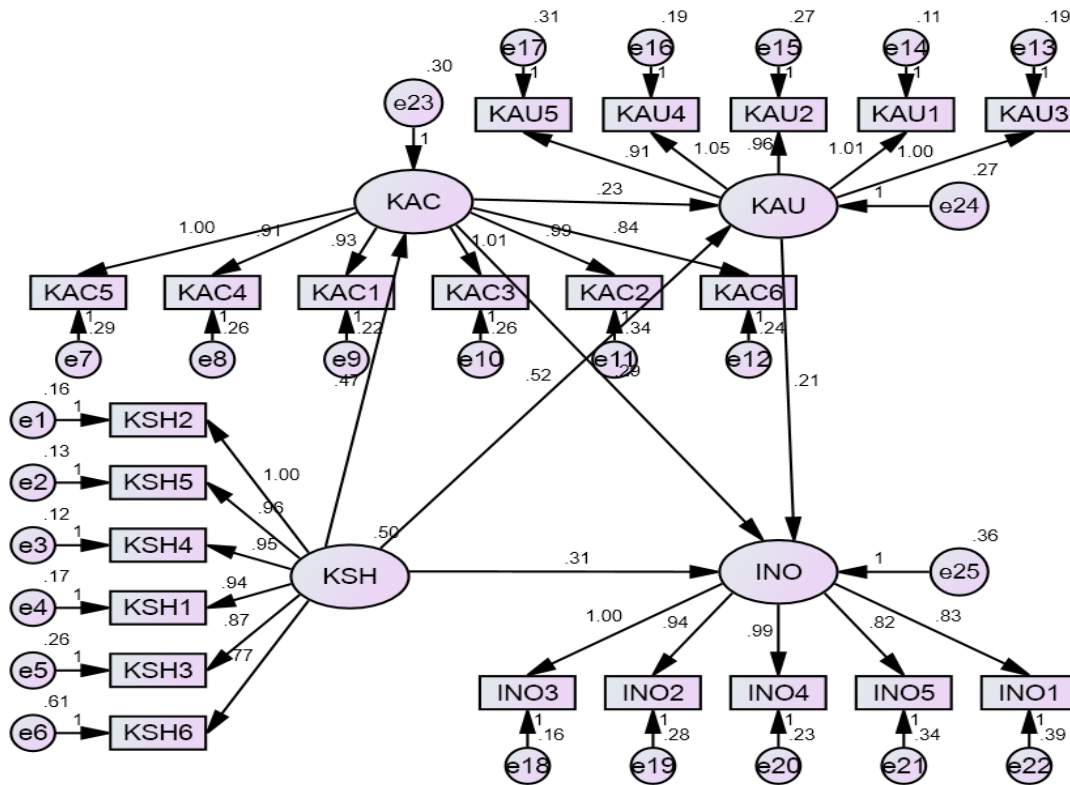

Figure 2. SEM model analysis

The findings of estimating the relationships within the model indicate that the research model aligns with all hypotheses incorporated in the model.

Hypothesis H1 specifically examines the direct influence of knowledge sharing on innovative ability. The results indicate that, with a significance level of P < 0.05 and a regression weight of 0.058 (> 0), hypothesis H1 is accepted. This indicates that knowledge sharing directly and positively influences the innovative potential of university students in Vietnam. This result is similar to the studies of Den Hooff and De Ridder (2004); De Vrie et al. (2006); Wabwezi (2011).

Hypotheses H2 and H3 are collectively accepted with a significance level in the test of less than 0.05 and exhibit positive regression coefficients of 0.468 and 0.290, respectively. Consequently, it can be inferred that knowledge sharing positively influences knowledge acquisition, which in turn enhances the innovative ability of university students in Vietnam. Knowledge acquisition serves as a mediating factor in the influence of knowledge sharing on students' innovative potential. These results also support the studies of Hansen and Haas (2001); Ovbiagbonhia et al. (2019).

Similarly, hypotheses H4 and H5 are also accepted with significance levels in the test < 0.05 and have positive regression weights (0.524 and 0.210). That is, knowledge sharing has a positive impact on knowledge autonomy and knowledge autonomy has a positive impact on the innovation capacity of students of universities in Vietnam. This shows that knowledge autonomy also plays a mediating role in the impact of knowledge sharing on students' innovation capacity. These results are similar to the studies of Nonaka (1994); Nahapiet and Ghoshal (1998).

In addition, hypothesis H6 tests the impact of acquisition on knowledge autonomy is also accepted. This shows that knowledge acquisition has a favorable impact on the knowledge autonomy of students of universities in Vietnam. This result is similar to the studies of Drucker (1985); Bandura (1997); Stoll et al. (2006).

Consequently, having all six hypotheses inside the model supported, the study has reached results that significantly enhance research in both theoretical and practical domains. The research indicates that information sharing exerts both a direct and positive influence, as well as

an indirect effect on students' innovative potential via intermediary aspects of knowledge acquisition and autonomy. The study's results will provide essential resources for policymakers and university administrators to understand information sharing and its significance in enhancing students' innovative capabilities. Subsequently, it facilitates the provision of suitable and innovative orientations and solutions, targeting sustainable development and high value in Vietnamese institutions and globally.

Table 4. Results of SEM analysis for relationships in the model

Hypothesis	Relationship	Weightage	S.E.	C.R.	P	Conclusion
H1	INO <--- KSH	0.305	0.058	5.247	0.000	Accepted
H2	KAC <--- KSH	0.468	0.041	11.281	0.000	Accepted
H3	INO <--- KAC	0.290	0.057	5.074	0.000	Accepted
H4	KAU <--- KSH	0.524	0.045	11.546	0.000	Accepted
H5	INO <--- KAU	0.210	0.058	3.644	0.000	Accepted
H6	KAU <--- KAC	0.226	0.048	4.691	0.000	Accepted

5. CONCLUSIONS AND RECOMMENDATIONS

This study seeks to develop a model and evaluate the effect of knowledge sharing on the innovative potential of university students. In the context of Vietnam, the research findings indicate significant contributions by illustrating the direct and positive influence of knowledge sharing on innovation capacity, alongside the mediating roles of knowledge acquisition and knowledge autonomy in the relationship between knowledge sharing and students' innovation capacity. The authors recommend several methods to enhance the creativity potential of university students in Vietnam based on the research findings:

Firstly, schools must promote students' exchange of knowledge activities to foster a collegial and transparent culture of knowledge exchange. Educational institutions must implement suitable systems to foster learning and research activities via collaborative efforts, facilitating students' connections, inquiry, knowledge acquisition, and sharing.

Secondly, schools should enhance group discussions and collaborative interactions among students during classroom learning through group exercises, alongside the acquisition of knowledge. Simultaneously, establish systems and regulations to reward and educate students who effectively share knowledge, thereby enhancing and contributing to the course content. Subsequently, enhance the frequency and efficacy of knowledge-sharing behaviors among students.

Thirdly, to promote knowledge autonomy, institutions must implement systems that encourage students to enhance their initiative in learning and scientific research. Simultaneously, educational institutions must use resources to provide innovative environments within lecture halls, communal areas, and research facilities, enabling students to engage in unrestricted creativity and collaborate with businesses and organizations. From that point, they may articulate their thoughts and cultivate their intellect and creativity.

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