# Factors affecting the knowledge-sharing activities of university students in Can Tho city

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***Abstract:***

**Knowledge-sharing plays a crucial role in the development of both individuals and organizations. In a university setting, this process is especially important, as it enhances students' learning and research efficiency. Actively and voluntarily sharing knowledge not only helps students acquire more information but also facilitates the application of what they have learned to real-world scenarios later in life. This article aims to explore the factors influencing knowledge-sharing activities among university students by surveying 455 students in Can Tho City. Cronbach's alpha coefficient was used to eliminate variables with low reliability, followed by exploratory factor analysis (EFA) to redefine the groups of variables in the research model. A regression analysis was then conducted to determine the factors impacting students' knowledge-sharing activities. The results indicate that factors such as Sociability, Trust, Information Technology, Instructor Support and Teamwork influence the knowledge-sharing activities of university students in Can Tho. Based on these findings, the study suggests several strategies to promote knowledge-sharing among university students.**

***Keywords***: **knowledge, knowledge sharing, knowledge-sharing activities.**

***Classification numbers:*** **3.2, 7**

## 1. Introduction

Knowledge not only plays an important role in organizations but is also one of the main resources that create an organization's competitive advantage. When a person leaves the organization without sharing their experiences and knowledge with other members, that results in great loss for the organization. Therefore, knowledge-sharing plays an important role in the sustainable development of individuals, organizations and society [1, 2]. In university environments, knowledge-sharing needs to be emphasized even more because this is where knowledge is created, acquired and distributed. Knowledge-sharing plays an important role in student development, ensuring that learning is effective and meaningful. Active and voluntary knowledge-sharing helps students gain more knowledge and also makes it easier for them to apply learned knowledge later in life, especially in a new world requiring more and more in-depth knowledge everyday. Along with the trend of globalization, the distance in time and space is gradually narrowing, the speed of information transmission is increasing, and the role of knowledge-sharing is becoming increasingly important.

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## 2. Theory and research model

### 2.1. Theoretical basis

According to K.M. Wiig (1994) [3], knowledge includes truths and beliefs, opinions and concepts, assessments and expectations, methods and know-how. T. Zheng (2017) [4] believes that knowledge is drawn from information and data to actively support improving work performance, problem-solving, decision-making, learning and teaching. T.H. Davenport (1997) [5] defines knowledge as a set of experiences, values, information and wisdom that can help evaluate and acquire new experiences and information. I. Nonaka (1998) [6] conceptualizes knowledge as the dynamic process of humans justifying personal beliefs as "truths".

Knowledge-sharing is defined as sharing knowledge and ideas with others related to the task being performed [7], or the exchange of experiences, thoughts, and understanding about any issue to others [8]. Knowledge-sharing includes the exchange of explicit and tacit knowledge at individual, group and organizational levels [9]. This requires cooperation and voluntary knowledge-sharing between individuals and groups within the organization for a common benefit [10]. Effective knowledge-sharing activities will reuse individual knowledge and enhance knowledge to a new level.

According to T. Bradberry (2007) [11], personality is the psychological difference between individuals, which makes an individual a unique individual with unique psychological characteristics. Personality includes an individual's range of emotions, thoughts, and behaviours [12]. Since the early 1990s, a number of personality studies have demonstrated that five personality traits are sufficient to describe an individual's entire personality. Among them, the Big Five model has emerged and has been expanded to describe prominent aspects of individual personality [13, 14]. The following Table 1 describes studies on individual personality.

**Table 1. Studies on individual personality.**

| Author | Personality traits |
|---|---|
| W.T. Norman (1963) [15] | Extraversion, Sociability, Dedication, Emotional stability, Culture |
| M.D. Botwin, et al. (1989) [16] | Extraversion, Sociability, Dedication, Emotional stability, Culture |
| P.T. Costa Jr, et al. (1992) [17] | Extrovert, Sociable, Conscientious, Emotionally stable, Open to experience |
| S.V. Paunonen, et al. (1996) [18] | Extrovert, Sociable, Conscientious, Spiritual, Open to experience |
| B. Gupta (2008) [7] | Extraversion, Conscientiousness, Agreeableness, Emotional stability, Openness |

According to the Big Five personality traits or Big Five-factor model of B. Gupta (2008) [7], the 5 factors include emotional stability, extroversion, conscientiousness, agreeableness, and openness.

C.W. Chong, et al. (2014) [19], and S. Wangpipatwong (2009) [20] pointed out the important role of personal factors such as extraversion, dedication, instructor support, level of competition, and information technology in the model. The Big five personalities have a positive impact on knowledge-sharing. At the same time, rewards that can be monetary or non-monetary are also factors that increase knowledge-sharing [21]. Sociable individuals are often more satisfied when working in groups and can increased knowledge-sharing among group members to achieve a common goal [22]. Besides, in an organization, when employees have trust in each other and work together, they will share knowledge and discuss together to find more effective methods of doing work. S.S. Alam, et al. (2009) [23]; M.S. Rahman, et al. (2014) [24] showed that trust is the most effective and least costly tool in motivating people to share information. Some domestic studies show that factors such as information technology, trust, rewards, lecturer support, and teamwork have a strong impact on students' knowledge sharing activities [25-27].

### *2.2. Research method and data*

*2.2.1. Research method*

The study is carried out using qualitative and quantitative research methods.

Qualitative research: Based on the research objectives, the research builds a theoretical framework for knowledge-sharing activities. Using this framework, the authors identify factors that can impact students' knowledge-sharing activities and design a preliminary interview questionnaire. The next step is to directly interview students in some universities in Can Tho city, ask for expert opinions on the appropriateness of the factors in the model, and eliminate unnecessary factors, or add elements that have not been included in the research model. From there, an official questionnaire was formed to conduct a student survey.

Quantitative research: This study tested the reliability of the scale through Cronbach's alpha reliability coefficient to check the rigour and correlation between the observed variables, combined with EFA, and finally, linear regression analysis was applied to test the impact between the independent variable and the dependent variable in the model.

*2.2.2. Research data*

This study used the convenient sampling survey method, questionnaires were sent directly to students in Can Tho city. According to J.F. Hair (2009) [28], for EFA, the minimum sample size must be no less than 50 samples, preferably 100 samples, and the observed/measured variable ratio must be 5:1; this means that 1 measured variable needs at least 5 observed variables, preferably a ratio of 10:1 or more. According to D.T. Nguyen (2012) [29], the appropriate sample size for a multiple regression model is n ≥50 + 8 x p, where n is the minimum necessary sample size and p is the number of independent variables in the model.

Given that the model proposes 38 observed variables, the minimum sample size required for the study is 38×5=190. Therefore, the study's sample size of 455 meets the necessary criteria.

### *2.3. Research model*

Based on the theoretical basis and overview of previous research works, the study builds a model of factors affecting the knowledge-sharing activities of university students in Can Tho city, including Extraversion, Sociability, Dedication, Teamwork, Trust, Instructor support, Level of Competition, Rewards, and Information technology (Fig. 1).

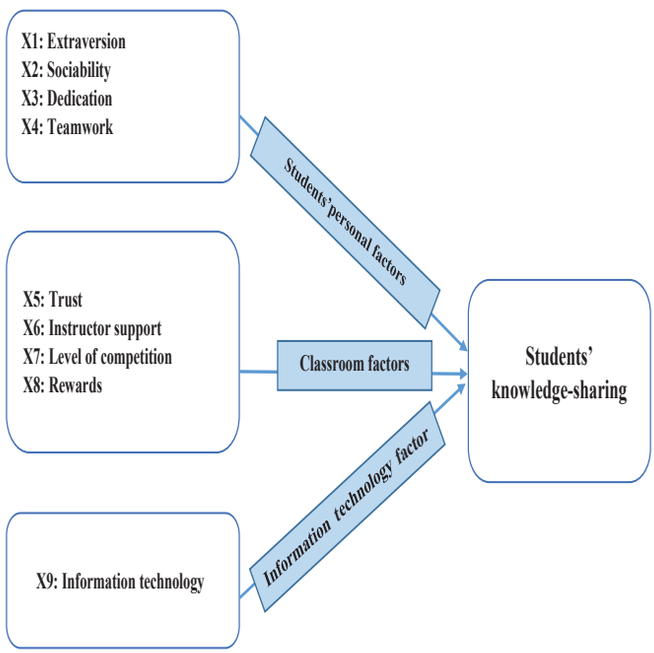


**Fig. 1. Research model.** Soure: Authors.

## 3. Results and discussion

### *3.1. Results*

*3.1.1. Descriptive statistics*

A total of 455 students from universities in Can Tho City, including Can Tho University, Can Tho University of Engineering and Technology, Nam Can Tho University, and Tay Do University, were surveyed between April 2023 and June 2023. The survey was conducted online using Google Forms to analyse the

students' knowledge-sharing activities. Information is collected according to a scale of factors affecting knowledge-sharing with a total of 38 observed variables corresponding to 10 factors: extraversion factor (5 observed variables), sociability factor (5 variables), dedication factor (5 observed variables), teamwork factor (3 observed variables), trust factor (3 observed variables), instructor support (3 observed variables), competition level factor (3 observed variables), reward factor (3 observed variables), information technology factor (3 observed variables), and knowledge-sharing factor (5 observed variables).

Regarding gender, 54.9% of students participating in the survey were male, and 45.1% of students participating in the survey were female. Regarding school year, 11.0% of surveyed students are first-year students, 15.4% of students are second-year students, 35.2% of students are third-year students, and 38.4% of students are fourth-year student. About the school, 26.3% of surveyed students are studying at Can Tho University, 21.7% of surveyed students are studying at Can Tho University of Engineering and Technology, 24.3% of students surveyed are studying at Tay Do University, 27.7% of surveyed students are studying at Nam Can Tho University.

*3.1.2. Factors affecting the knowledge-sharing activities of university students in Can Tho city*

From the results of the first Cronbach's alpha coefficient analysis, several variables with a total variable correlation coefficient less than 0.3 were eliminated: Sociability 2, Sociability 5, and Dedication 5. Second Cronbach's alpha results from Table 2 after eliminating variables from the first Cronbach's alpha, it shows that the second Cronbach's alpha reliability coefficient and total variable correlation coefficient both meet the requirements. All variables were accepted and used in the subsequent EFA.

After analysing Cronbach's alpha reliability coefficient, 3 observed variables: Sociability 2, Sociability 5, Dedication 5 were eliminated, so the total number of remaining observed variables is 35 variables, including 30 multiplicative observed variables, independent factors as well as 5 observed variables, dependent factors. Performing exploratory factor analysis with The Principal Component extraction method, combined with Varimax rotation for independent and dependent variables, the results are as follows (Table 3):

**Table 2. Evaluate scale reliability.**

| Numerical order | The scale | Corrected item-total correlation | Cronbach's alpha if item deleted | Cronbach's alpha (Total) |
|---|---|---|---|---|
| 1 | Extraversion (E) | 0.610-0.894 | 0.849-0.892 | 0.836 |
| 2 | Sociability (S) | 0.622-0.781 | 0.658-0.822 | 0.827 |
| 3 | Dedication (D) | 0.856-0.887 | 0.885-0.889 | 0.889 |
| 4 | Teamwork (TW) | 0.887-0.897 | 0.800-0.894 | 0.897 |
| 5 | Trust (T) | 0.770-0.898 | 0.855-0.961 | 0.926 |
| 6 | Instructor support (IS) | 0.596-0.888 | 0.745-0.996 | 0.888 |
| 7 | Level of Competition (C) | 0.885-0.895 | 0.890-0.897 | 0.895 |
| 8 | Rewards (R) | 0.770-0.898 | 0.855-0.961 | 0.962 |
| 9 | Information Technology (IT) | 0.745-0.760 | 0.759-0.769 | 0.777 |
| 10 | Knowledge-sharing (KS) | 0.474-0.754 | 0.744-0.825 | 0.801 |

Source: Results of processing survey data using SPSS software.

**Table 3. Factor analysis explores observed variables.**

| Factor name | Observed variables | Factor | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | *1* | *2* | *3* | *4* | *5* | *6* | *7* |
| Sociability | E1 | 0.902 | | | | | | |
| | E2 | 0.907 | | | | | | |
| | E3 | 0.911 | | | | | | |
| | E4 | 0.534 | | | | | | |
| | E5 | 0.707 | | | | | | |
| | S1 | 0.730 | | | | | | |
| | S3 | 0.814 | | | | | | |
| | S4 | 0.600 | | | | | | |
| Trust | T1 | | 0.699 | | | | | |
| | T2 | | 0.892 | | | | | |
| | T3 | | 0.880 | | | | | |
| | R1 | | 0.698 | | | | | |
| | R2 | | 0.897 | | | | | |
| | R3 | | 0.886 | | | | | |
| Dedication | D1 | | | 0.957 | | | | |
| | D2 | | | 0.945 | | | | |
| | D3 | | | 0.954 | | | | |
| | D4 | | | 0.963 | | | | |
| Information technology | IT1 | | | | 0.863 | | | |
| | IT2 | | | | 0.880 | | | |
| | IT3 | | | | 0.854 | | | |
| Teamwork | TW1 | | | | | 0.957 | | |
| | TW2 | | | | | 0.953 | | |
| | TW3 | | | | | 0.955 | | |
| Level of competition | C1 | | | | | | 0.970 | |
| | C2 | | | | | | 0.968 | |
| | C3 | | | | | | 0.960 | |
| Instructor support | IS1 | | | | | | | 0.821 |
| | IS2 | | | | | | | 0.825 |
| | IS3 | | | | | | | 0.583 |
| **KMO** | | | | | | | **0.952** | |
| **Total variance extracted** | | | | | | | **69.267** | |
| **Sig** | | | | | | | **0.000** | |

Source: Results of processing survey data using SPSS software.

From Table 3, the factor rotation matrix shows that the factor loading coefficients of the observed variables all have values greater than 0.5. Therefore, this scale of 30 observed variables is highly reliable.

In the original research model, nine factors influence students' knowledge-sharing actions: Sociability, Extroversion, Trust, Reward, Dedication, Teamwork, Instructor support, Information technology, and Competition. However, when analyzing EFA, it is grouped into seven factors. Based on the characteristics of each observed variable, the study named seven factors: Sociability, Trust, Dedication, Information Technology, Teamwork, Competition, and Instructor support.

The results of Table 4, show that the coefficient Sig=0.000, so the regression model is meaningful, meaning that the independent variables influence the dependent variable. $R^2$=84.2% means that 84.2% of the variation in students' knowledge-sharing activities is explained by factors included in the model, leaving 15.8% of sharing activities. Students' knowledge is influenced by other factors that have not been researched. The VIF variance magnification of the variables in the model is much smaller than 10, so the variables included in the model do not pose multicollinearity.

**Table 4. Factors affecting the knowledge-sharing activities of university students.**

| Model | Unstandardized coefficients | Standardized coefficients | t | Sig. | VIF |
|---|---|---|---|---|---|
| (Constant) | 0.228 | | 2.116 | 0,036 | |
| Sociability (S) | 0.612 | 0.717 | 15.520 | 0.000*** | 2.139 |
| Trust (T) | 0.083 | 0.098 | 2.122 | 0.035** | 2.145 |
| Dedication (D) | 0.029 | 0.330 | 0.937 | 0.350 | 1.226 |
| Information technology (IT) | 0.080 | 0.103 | 2.504 | 0.013** | 1.702 |
| Teamwork (TW) | 0.003 | 0.004 | 0.112 | 0.011** | 1.234 |
| Competition (C) | 0.035 | 0.056 | 1.635 | 0.104 | 1.162 |
| Instructor support (IS) | 0.058 | 0.077 | 1.739 | 0.084* | 1.979 |
| Number of observations (N) | | 455 | | | |
| $R^2$ adjustment | | 0.842 | | | |
| Sig | | 0.000 | | | |

Source: Results of processing survey data using SPSS software.
Note: *** Significance level 1%, ** Significance level 5%, * Significance level 10%.

From the results of Table 4, the regression equation estimates the factors affecting students' knowledge-sharing activities as follows:

KS = 0.228 + 0.612S + 0.083T + 0.080IT + 0.003TW + 0.058IS

### 3.2. Discussion

Based on Table 4, it is shown that the level of positive influence of the factors on students' knowledge-sharing activities ranked in descending order is Sociability, Trust, Information technology, Support and Teamwork. Among these 5 factors, 1 factor (Sociability) is statistically significant at a level of 1%, and 3 factors (Trust, Information technology, Teamwork) are statistically significant at a level of 5%, and 1 factor (Instructor support) is statistically significant at a level of 10%. This can be explained as follows: students who are more open and sociable easily share knowledge with other students; The more students trust each other, the more favourable conditions are created for sharing knowledge; Information technology helps students easily access new knowledge and easily exchange information with other students; The more actively students work together in groups, the easier it is to share knowledge with other students to complete assigned tasks; The more instructors encourage and facilitate information exchange, the easier it is for students to share knowledge with other students.

This result is consistent with previous studies by C.W. Chong, et al. (2014) [19], S. Wangpipatwong (2009) [20], N.A. Dinh (2017) [25], and H.X. Quan (2019) [26], which have shown that personal factors such as instructor support and information technology have a positive impact to knowledge-sharing. Besides, rewards {C.C. Wei, et al. (2012)] [21]; H.X. Quan (2019) [26]; L.N. Nguyen (2021) [27]}, sociability, teamwork [F.G. Agyemang, et al. (2016) [22], and trust {S.S. Alam, et al. (2009) [23]; M.S. Rahman, et al. (2014) [24]; N.A. Dinh (2017) [25]; L.N. Nguyen (2021) [27]} also play a significant role in motivating individuals to share knowledge.

## 4. Conclusions and suggestions

### 4.1. Conclusions

This research was conducted to identify factors affecting the knowledge-sharing activities of university students in Can Tho city. The research model is built and based on the models of authors: F.G. Agyemang, et al. (2016) [22], M.S. Rahman, et al. (2014) [24], and S. Wangpipatwong (2009) [20] with adjustments and additions to factors discovered based on data. The original research model was designed with 9 factors that affect students' knowledge-sharing actions: Sociability, Extraversion, Trust, Rewards, Dedication, Teamwork, Instructor support, Information technology, and Competition.

The study tested the reliability of the scale through Cronbach's alpha coefficient. The test results showed that 3 observed variables were eliminated: Sociability 2, Sociability 5, and Dedication 5 because the total variable correlation coefficient was less than 0.3.

Next, performing an exploratory factor analysis with the Principal Component extraction method combined with Varimax rotation, the results show that there is a grouping into 7 factors: Sociability, Trust, Dedication, Teamwork, Instructor support, Information technology and Competition.

The results of the linear regression analysis determined that 5 factors positively affected the knowledge-sharing activities of university students in Can Tho city: Sociability (β=0.612), Trust (β=0.083), Teamwork (β=0.003), Instructor support (β=0.058) and Information technology (β=0.080).

### 4.2. Suggestions

From the research results, the authors propose several suggestions to help improve students' knowledge-sharing activities:

*First,* improve student sociability. To improve students' sociability, it is necessary to encourage and create a learning and playing environment to help students understand the importance of sociability. Schools should regularly open short-term courses in the curriculum to educate and train students how to listen, how to respect, how to live positively, how to live tolerantly, with the spirit of generosity, and learning to practice non-stop. From there, students realize the importance of the collective meaning that sharing knowledge will also take place more smoothly.

*Second,* improve student confidence. To improve students' confidence, it is necessary to have support from schools and lecturers in standardizing knowledge and teaching methods to help students gain strong confidence in learning. Furthermore, encouraging group work activities (group presentations, group exercises, group essays) as well as sharing knowledge

between groups through presentation and discussion activities. In addition, the school can organize debate competitions with the motto "Speak to persuade - Speak to succeed" to create a healthy playground for students to participate. Rhetoric truly has great power and is an indispensable tool in the luggage of successful people. According to employers' assessments, the majority of Vietnamese students today are still passive, and do not boldly express their ideas and opinions in front of a group. Meanwhile, training rhetoric skills for students at universities often stops at drawing experience from presentations. At the same time, there also needs to be additional reward regulations to encourage students' spirit of voluntarily sharing-knowledge, as well as create certain constraints for individual student cases.

*Third,* promote information technology factors. To promote information technology elements, in addition to investing in modern technological equipment for students to quickly grasp new information and trends, organizing an online library system, forums, and virtual online communities with the participation of business/ organization representatives, scientists, researchers, lecturers, etc. are equally important in motivating students to boldly share and receive knowledge.

*Fourth,* increase lecturers' support during the teaching process. In the classroom environment, knowledge sharing occurs when instructors encourage and motivate students to exchange and share information. Besides, the way the lecturer organizes classroom activities also affects the way students behave with knowledge sharing. Lecturers need to come up with reward policies to further promote knowledge-sharing activities through points and praise to encourage students to voluntarily share knowledge through discussions and comments. At the same time, setting reward regulations with students' commitment to implementation will also promote knowledge sharing and trust between students.

*Fifth,* enhance teamwork skills. During the teaching process, lecturers should combine teaching methods to improve students' learning efficiency. Group work should be encouraged more and more because, through this form, students will voluntarily share knowledge as well as gain knowledge easily. Activities such as group presentations, group exercises, group essays, group discussions. These are activities that bring students together. At the same time, encourage students to improve openness to create a friendly exchange atmosphere, and instruct students how to contribute opinions and how to receive contributions positively.

## CRediT author statement

Thi Khanh Thanh Ho: Conceptualisation, Methodology; Hoang Thanh Truc Nguyen: Data collection and Analysis; Nguyen Tuyet Minh Ha: Writing, Editing.

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## COMPETING INTERESTS

The authors declare that there is no conflict of interest regarding the publication of this article.

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