
THE INFLUENCE OF PERCEIVED SOCIAL LOAFING ON KNOWLEDGE SHARING INTENTIONS AMONG COLLEGE STUDENTS

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Abstract. *Introduction.* From the students' perspective, social loafing has also become a major challenge and problem in group tasks in the classroom. Social loafing may affect students' enthusiasm and attitude to share knowledge.

Aim. This study aims to investigate the mediating effects of knowledge sharing (KS) attitudes on the relationships between KS intentions, perceived social loafing, and learning goal orientation.

Methodology and research methods. This study used a game-based team learning situation to explore the students' KS attitudes and intentions. Questionnaires were also delivered to 336 students in business colleges in Ho Chi Minh City, Vietnam. The authors used Structural Equation Modelling (SEM) with bootstrapping estimation to test all the hypotheses.

Results and scientific novelty. The findings show that (1) perceived social loafing has a negative influence on KS attitudes and intentions; (2) learning goal orientation has a positive influence on KS attitudes and intentions; (3) KS attitudes have mediating effects on the relationships of perceived social loafing, learning goal orientation and KS intentions.

Scientific novelty. This study uses business simulation games as team learning activities to verify the impact of students' attitudes and intentions on KS in the context of perceived social loafing.

Practical significance. Based on the findings, the authors suggest that teachers should not only enhance students' learning goal orientation, decrease perceived social loafing to promote the intention to share knowledge in teams, but also make students have positive attitudes towards KS.

Keywords: knowledge sharing attitudes, intentions, perceived social loafing, learning goal orientation, game-based team learning.

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ВЛИЯНИЕ ВОСПРИНИМАЕМОЙ СОЦИАЛЬНОЙ ЛЕНОСТИ НА НАМЕРЕНИЯ МЕНЯТЬСЯ ЗНАНИЯМИ СРЕДИ СТУДЕНТОВ КОЛЛЕДЖА

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Аннотация. *Введение.* С точки зрения учащихся, социальная леность стала серьезным препятствием и проблемой при выполнении групповых заданий в классе. Она может повлиять на энтузиазм учащихся и их отношение к обмену знаниями.

Цель. Настоящее исследование направлено на изучение опосредующего влияния установок обмена знаниями на взаимосвязь между намерениями меняться знаниями, воспринимаемой социальной леностью и ориентацией на цели обучения.

Методология и методы исследования. В этом исследовании использовалась игровая ситуация командного обучения для изучения отношения студентов к обмену знаниями и их намерений. Анкеты были также разосланы 336 студентам бизнес-колледжей в Хошимине (Вьетнам). Авторы использовали моделирование структурными уравнениями (SEM) с начальной оценкой для проверки всех гипотез.

Результаты и научная новизна. Результаты показывают, что: (1) воспринимаемая социальная леность оказывает негативное влияние на установки и намерения меняться знаниями; (2) ориентация на цели обучения оказывает положительное влияние на установки и намерения меняться знаниями; (3) установки обмена знаниями оказывают опосредующее воздействие на отношения воспринимаемой социальной лености, ориентации на цели обучения и намерений меняться знаниями.

Научная новизна. В этом исследовании бизнес-симуляционные игры используются в качестве командной учебной деятельности для проверки влияния отношения учащихся к обмену знаниями и их намерений в контексте воспринимаемой социальной лености.

Практическая значимость. Основываясь на полученных данных, авторы предлагают учителям не только повышать целеустремленность учащихся, уменьшать воспринимаемую социальную леность, чтобы стимулировать намерение делиться знаниями в группах, но и формировать у студентов положительное отношение к обмену знаниями.

Ключевые слова: отношение к обмену знаниями, намерения, воспринимаемая социальная леность, ориентация на цель обучения, командное обучение на основе игр.

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Introduction

The 21st century is an era dominated by knowledge, and knowledge management has become a key factor for organisations to maintain long-term competitive advantage [1, 2]. Through knowledge management, an organisation can enhance its competitive advantage, innovation ability, and adaptability to the external environment [3]. To achieve knowledge management, it depends on effective knowledge sharing (KS). Nonoka and Takeuchi [4] pointed out that the organisation itself cannot create knowledge by itself, knowledge is stored in individuals, and the creation of organisational knowledge must be shared by members of the organisation.

However, Davenport, De Long [5] pointed out that KS is not an unnatural behaviour, because people think that knowledge is valuable and will not easily share the knowledge they own. Spencer [6] also believes that when knowledge owners consider KS, they may lose their position in the organisation, power and self-worth, and will have reservations about KS. According to the Theory of Reasoned Action (TRA) [7], an individual's behaviour is determined by "behavioural intentions", and an individual's behavioural intentions are determined by an individual's "attitude" toward a particular behaviour. A number of related studies in the past have used the TRA to explore KS behaviours [8–10]. Therefore, based on the TRA, this study believes that KS attitudes and intentions are the primary conditions that affect KS behaviours, and will take KS attitudes and KS intentions as the variables in this study.

KS is a process of social exchange that requires people to participate in this activity [11] and is influenced by individual goal orientation [12]. Past studies have also pointed out that goal orientation can affect the learning process [13, 14], and is considered to be an important factor affecting KS [12]. According to different purposes, we can divide goal orientation into learning goal orientation and performance goal orientation [15, 16]. Since the focus of this study is to explore students' learning behaviours in the classroom, we mainly focus on learning goal orientation. We infer that learning goal orientation has a positive impact on KS attitudes and KS intentions because learning goal orientation tends to seize learning opportunities [16]. They believe that KS is a kind of teaching and learning behaviour, so they will be more willing to share knowledge.

In the past, some scholars have studied the impact of games on student learning [17, 18] and found that games can encourage students to interact and increase their willingness to learn [19]. Learning through games is also an interactive way of knowledge exchange [20]. Therefore, in order to increase the motivation and learning effect of students in the course, business simulation games have been widely used as teaching aids [21, 22]. Create a better learning environment through a game-based learning model, because for students,

compared with the content in textbooks, teaching simulation games can stimulate students' learning motivation [23, 24]. Some studies have pointed out that simulation games are closely related to learning, and adding simulation games to the classroom can increase students' learning motivation [25]. Terrell and Rendulic [26] also believed that games can improve students' intrinsic motivation and learning effectiveness. To test this effect, Schwabe and Göth [19] added simulation games to learning activities, and found that it not only stimulated students' learning motivation, but also increased the opportunities for group members to learn from each other. For students, they believe that simulation games can help them organise new skills that can be used in future workplaces [27, 28], including data analysis, problem solving, and decision-making, even communication skills [22], teamwork and adaptability to new environments. In addition, some students pointed out that the training of simulation games is very important and useful for the development of management ability, which can help to understand the basic knowledge of business management, how to effectively use organisational resources and the relationship between business departments and organisational fields [27, 29]. However, previous studies have mostly focused on the study effect of simulation games [18, 29, 30]. Few studies have applied simulation games to students' classrooms to explore KS behaviours. Therefore, this study aims to take business school students as the research participants, and introduce online business simulation games into the classroom as a group task. Each group is given an account to simulate the operation of a store, and the competition model is used to increase the authenticity. It is hoped that through this activity, students can actually experience team management, so as to further explore the impact on students' attitudes and intentions of KS under such circumstances.

When the team members are willing to do their best to the team, they can bring the best benefits to the team, but there is a gap between the reality and the ideal [31, 32]. There are differences in the contribution of members to the group, that is, some group members hold a fluke mind, thinking that there are other group members who can help them do all the tasks, but they can get the same scores. This is the so-called social loafing behaviours. However, when such a phenomenon occurs in the team, it will also cause the Sucker effect, which means that when a team member perceives other members to have social loafing behaviours, it will reduce his/her willingness to work hard and contribute to the team in the future [33]. From the students' perspective, social loafing has also become a major challenge and problem of group tasks in the classroom [34, 35]. Specifically, students will look at the contribution and effort of group members [36], and then affect their enthusiasm and attitude to participate in group activities in the future.

Research purpose

This study aims to explore the effects of perceived social loafing and learning goal orientation on KS intentions, and refers to the Theory of Reasoned Action proposed by Fishbein M. & Ajzen I. [7] to explore whether KS attitudes have a mediating effect on the relationships among the other variables. Specifically, the research aims to answer the two research questions: (1) when group members perceive that other group members have social loafing behaviours, will it affect their KS attitude and thus their KS intention? (2) When group members have learning goal orientation, will it affect their KS attitudes and thus their KS intentions?

Literature Review

KS attitudes and KS intentions

Attitude is a tendency that people hold towards people, things and the environment, and an individual's attitude towards behaviour is an important factor in the intention of this behaviour. Therefore, an individual's view on KS behaviour is the KS attitude, and the intention of KS depends on the KS attitude. Attitude toward behaviour refers to an individual's attitude towards the possible consequences of engaging in behaviour. According to Expectancy-Value Theory, when individuals believe that engaging in certain behaviour can bring good benefits, the attitude towards this behaviour will be more positive, thus increasing the intention to engage in this behaviour. Behavioural intention is defined as the intensity of a voluntary plan to engage in a specific behaviour [37], that is, the individual's subjective probability of engaging in behaviour [7]. When an individual's intention of certain behaviour is stronger, the more likely he/she is to engage in that behaviour.

According to the TRA proposed by Fishbein and Ajzen [7], an individual's behaviour is determined by behavioural intentions, and an individual's behavioural intentions are determined by an individual's attitude toward specific behaviours and subjective norms [7]. However, this study focuses on personal inner feelings, but subjective norm refers to the other people's perceptions of their own behaviour. Therefore, the influence of subjective norm on intention is omitted, and only the influence of attitude on behaviour intention is discussed. When individuals have a positive attitude toward behaviour, they are more inclined to engage in this behaviour.

A number of related studies in the past have used the TRA to explore KS behaviours and found that individual attitudes do affect behavioural intentions [8, 10, 38]. Bock & Zmud [9] defined KS attitudes as individuals' feelings about KS, while KS intentions are the degree to which individuals believe that they will engage in KS. In addition, in the study of Bock & Zmud [9], it was found

that the attitudes and intentions of organisational members towards KS are positively related. A study by Chow and Chan [39] also pointed out that when organisational members have a more positive attitude towards KS, there will be a higher KS intention. Based on the above discussions, this study believes that when an individual's KS attitude is positive and favorable, the intention of KS will increase, so hypothesis 1 is proposed:

H1: KS attitudes have a positive influence on KS intentions.

Perceived social loafing, KS attitudes and intentions

When every member of the team does his/her best to make contributions, the organisation will get the most benefit, but in real life it is not so ideal [31, 40]. There are the so-called "free riders". Latané & Williams [41] believed that this phenomenon is ubiquitous, as long as it is a task that requires effort and contribution to the team, social loafing may occur [40]. Perceived social loafing refers to an individual's perception that one or more team members contribute less to the team than he/she should [42]. When team members feel that other members are free-riding or taking the opportunity to be lazy, it may reduce the willingness and effort of individuals to engage in team activities, which will have a negative impact on the team [43]. That is, when individuals perceive the phenomenon of social loafing in the team, they may also reduce their willingness to work hard for the team, because they do not want to be taken advantage by other team members [44], thus resulting in a Sucker effect.

Jassawalla & Sashittal [33] pointed out that team activities are often accompanied by social loafing. When team members perceive other members' social loafing behaviour, they will reduce their willingness to participate in team activities. A study by Teng and Luo [45] on college students show that perceived social loafing will significantly and negatively affect team learning performance. However, past studies related to perceived social loafing have mostly explored the relationship between perceived social loafing and team member contributions, and fewer studies have directly explored the impact of perceived social loafing on KS, and based on the TRA, individual behaviour is determined by behavioural intentions, and an individual's behavioural intention is determined by an individual's attitude toward a particular behaviour [7]. Therefore, KS can be divided into two aspects: KS attitudes and KS intentions. This study aims to explore the impact of perceived social loafing on KS intentions, and individual behavioural intentions are determined by individuals' attitudes toward specific behaviours. Besides, we also explore whether group members' perception of other members' social loafing behaviours will directly influence KS attitudes.

Based on the above discussions, hypotheses 2 and hypothesis 3 are proposed:

H2: Perceived social loafing has a negative influence on KS intentions.

H3: Perceived social loafing has a negative impact on KS attitudes.

Learning goal orientation

Learning goal-oriented people believe that ability is malleable [15, 46]. They believe that self-enhancement can be enhanced through personal learning, and they will also affirm self-effort value, and a willingness to study harder [16]. Learning goal orientation can be regarded as a personal trait and tendency [47], and some scholars have pointed out that personal traits can affect an individual's attitude and behaviour toward learning [48]. On the other hand, the personal characteristics of knowledge sharers and receivers are decisive factors for effective KS, because they need the willingness and ability to share knowledge and receive knowledge [49]. Goal orientation affects individual behaviour, and those with learning goal orientation have a significant impact on KS, as people with this trait increase their willingness to share knowledge [50]. Matzler and Mueller [50] found that learning goal orientation will positively affect KS. People with learning goal orientation believe that ability is malleable and needs to be learned through the process of KS. In addition, learning goal oriented people not only hope to improve their own ability, but also hope that other members of the organisation can also improve together. KS is considered to be a necessary condition for learning [51]. KS is not only to share one's knowledge with others, but also to enhance each other's abilities by learning from each other in the process of KS. A study by Swift and Balkin [12] on the effect of goal orientation on KS shows that people with learning goal orientation have a higher willingness to share knowledge, because they believe that KS not only benefits knowledge recipients, but also motivates knowledge sharers to learn by themselves. Therefore, we believe that those with learning goal orientation will have a higher willingness to share knowledge.

Learning goal orientation positively affects KS behaviour [12, 50], and individual behaviour is determined by behavioural intentions [7]. Therefore, this study aims to explore whether learning goal orientation also has a positive impact on KS intentions. The behavioural intention of an individual is determined by the individual's attitude toward a specific behaviour, so we also explore whether those with learning goal orientation will directly affect the attitude of KS. Thus, hypothesis 4 and hypothesis 5 are proposed:

H4: Learning goal orientation has a positive influence on KS intentions.

H5: Learning goal orientation has a positive influence on KS attitudes.

Mediating effects of KS attitudes

In the past, based on the TRA, many previous studies have used knowledge-sharing attitudes as mediators to explore the influencing factors of KS [9, 39].

Therefore, this study will use “KS attitude” as a mediating variable in the conceptual model. However, according to the related literature on KS in the past, we found that there is no research on KS related topics in game-based learning situations. Therefore, we will further explore whether KS attitudes have a mediating effect on the relationship between perceived social loafing and KS intentions when students study in teams. In addition, we also explore the influence of personal characteristics on KS. Previous studies only focused on learning goal-oriented KS behaviours [12, 50]. Based on the TRA, this study aims to explore in more depth whether learning goal orientation affects KS attitudes and thus KS intentions, and explore the mediating effect of KS attitudes on the relationship between learning goal orientation and KS intentions. Therefore, hypothesis 6 and hypothesis 7 are proposed:

H6: KS attitudes mediate the relationship between perceived social loafing and KS intentions.

H7: KS attitudes mediate the relationship between learning goal orientation and KS intentions.

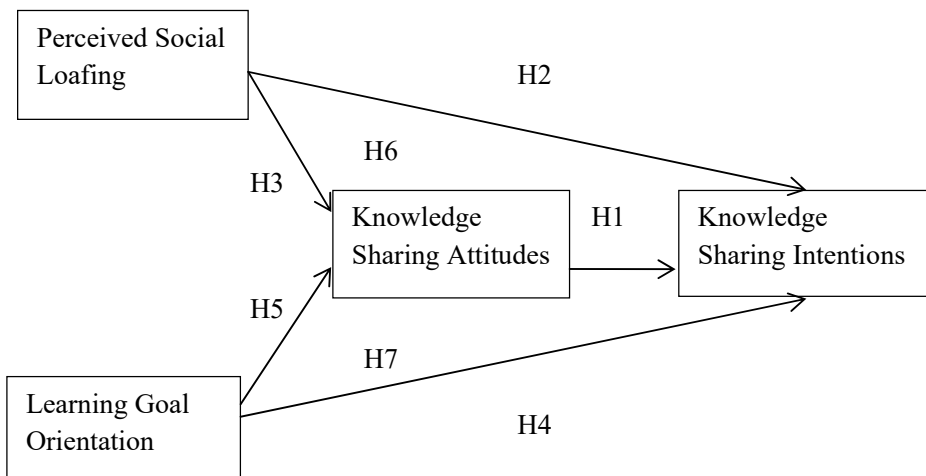


Fig. 1. Conceptual model

Method

Participants and design

Based on the background of an online business simulation game, this study aims to explore the effects of perceived social loafing, learning goal orientation, and KS attitudes on KS intentions. The participants are business college students, and they have participated in the classroom group activities

(online business simulation game) related to this research. The students from two business schools in Ho Chi Minh city, Vietnam, and the selected classes are related to business management courses. In the classroom, we let the students group freely, with 5-8 people as a team to carry out group activities. A total of 50 groups in 5 classes participated in this research activity. The online business simulation game is a virtual entrepreneurship system. Students can simulate the process of starting a business in the system. The theme of this game is cafe management, which includes personnel management, raw material procurement, marketing strategy and market analysis and other activities. In order to observe the real performance of students in group activities and avoid letting the course performance interfere with the research activities, we inform the students before this activity that the performance presented in the simulation game is for reference only and is not included in the calculation of course grades. By playing games for 15–20 minutes in each class, and allowing each group of students in each class to participate in 8–10 rounds of games, the questionnaires of this research are delivered.

Questionnaire delivery

In this study, questionnaires were delivered through the course activities of the instructors. Since this study was based on an online business simulation game, it must be delivered to students who participated in this classroom game. In order to ensure that the identity of the respondents is in line with the subjects to be tested and the rate of correct answers, the researchers distributed paper questionnaires to the classroom, and collected the questionnaires on the spot to ensure a good answering status. The questionnaire delivery and recovery period was from 25 December 2020 to 08 January 2021. During that period, 342 paper questionnaires were delivered in 5 courses in batches. After manual inspection, invalid questionnaires with poor answers were deducted. A total of 336 valid questionnaires were obtained, and the effective recovery rate was 98.25%.

Measurements

Perceived social loafing: This study uses the social loafing scale developed by George [52]. The original scale contains 10 questions, but considering that the subjects of the research are students, the inappropriate items are deleted, and 7 of them are retained. The text is also slightly modified. This study uses the Likert 7-point scale (1 is strongly disagree, 7 is strongly agree) with a total of 7 items.

Learning goal orientation: This study adopts the 13 items that VandeWalle [16] used to develop and verify the goal-orientation construct, and goal-orientation

includes three sub-constructs: learning goal-orientation, performance-proof goal-orientation, and performance-avoidance goal-orientation. Considering the research purpose of this study, we used the items of learning goal orientation. This study uses the Likert 7-point scale (1 is strongly disagree, 7 is strongly agree) with a total of 5 items.

Knowledge sharing attitude: This study used the scale developed by Bock and Kim [8] and Bock, Zmud [9], and slightly modified the text based on the research context, using the Likert 7-point scale (1 for strongly disagree, 7 for strongly agree) with a total of 5 items.

Knowledge sharing intentions: This study used the scale developed by Bock and Kim [8] and Bock, Zmud [9], and slightly modified the text based on the research context, using the Likert 7-point scale (1 for strongly disagree, 7 for strongly agree) with a total of 5 items.

Results

Descriptive statistics

There are a total of 336 valid questionnaires in this study. Because the participants are all college students, the survey is conducted only for gender. Among the valid questionnaires, 110 (32.7%) were male students and 226 were female students (67.3%).

Correlation analysis

We used Pearson's correlation coefficient analysis to measure the correlation between the two variables, the mean of the overall variable ranged from 3.328 to 5.761, and the standard deviation ranged from 1.081 to 1.806. The Pearson coefficient is the degree of correlation between two variables and is measured between -1 and 1. According to the results of correlation analysis (see Table 1), learning goal orientation, KS attitudes and KS intentions are positively correlated with each other, and the correlation coefficients range from .407 ($p < .01$) to .595 ($p < .01$). And perceived social loafing is negatively correlated with the above three variables, the correlation coefficient between perceived social loafing and learning goal orientation is $-.056$ ($p < .01$), and the correlation coefficient between perceived social loafing and KS attitudes is $-.253$ ($p < .01$), the correlation coefficient between perceived social loafing and KS intentions is $-.309$ ($p < .01$). Therefore, when perceived social loafing increases, learning goal orientation, KS attitudes and intentions will be relatively reduced, it shows an inverse relationship

Table 1

Descriptive statistics and correlation analysis

Constructs	M	SD	1	2	3	4
Learning goal orientation	5.241	1.173	.776			
Perceived social loafing	3.328	1.805	-.056**	.854		
KS attitudes	5.761	1.080	.479**	-.253**	.833	
KS intentions	4.917	1.236	.407**	-.309**	.595**	.811

Confirmatory factor analysis

According to the standard suggested by Fornell and Larcker [53], the factor loading of an item above 0.5 is the normal recommended value, and the factor load above 0.6 is higher than the recommended value. If it is less than 0.5, it means that the question is not representative. Therefore, it is recommended to delete this question. Based on the above criteria, we deleted the items that did not meet the criteria. The confirmatory factor analysis results of this study are shown in Table 2.

Reliability analysis

The reliability test of this study adopts Construct Reliability (CR) proposed by Bagozzi and Yi [54] and Cronbach’s α of Cronbach [55] to measure the internal consistency of the measurement variables of each construct. According to the results in Table 2, the CR values of the four potential variables are all over 0.8, indicating that the research model has good reliability. In addition, according to Nunnally [56] suggested that Cronbach’s α value above 0.7 indicates that the scale has sufficient internal consistency. According to the results in Table 2, the Cronbach’s α of the four latent variables ranges from 0.88 to 0.93, all exceeding 0.7, indicating that the model in this study has good reliability.

Table 2

CFA, reliability and validity analysis

Constructs	Items	Factor loadings	Cronbach’s alpha	CR	AVE
Perceived social loafing	SL1	.758	.930	.931	.730
	SL2	.916			
	SL3	.892			
	SL4	.904			
	SL5	.789			

Learning goal orientation	LG1	.814	.880	.882	.602
	LG2	.845			
	LG3	.880			
	LG4	.700			
	LG5	.609			
KS attitudes	KA1	.840	.895	.900	.694
	KA2	.724			
	KA3	.918			
	KA4	.837			
KS intentions	KI1	.772	.880	.884	.658
	KI2	.851			
	KI3	.914			
	KI4	.690			

Validity analysis

In this study, the average variance extracted (AVE) was used to test the convergent validity. The AVE represents the ability of the total variation of the observation index to be explained by the latent variable. A higher mean variance extraction indicates that the latent variable has higher convergent validity. According to the convergent validity criteria suggested by Fornell and Larcker [53], the mean variation extraction estimator (AVE) needs to be greater than 0.5. Table 2 lists the average variance extraction estimators for each construct in this study. The AVE results for each latent variable are all greater than 0.5, so the model has convergent validity.

Structural Model Fit

The model fit index is to evaluate whether the model is compatible with the collected data. It can help to confirm that the research model has variability that reflects the observed data. This study uses absolute fit metrics and incremental fit metrics to assess overall model fit [54]. As showed in Table 3, all the indicators in this study were above the standard.

Table 3

Statistical test	Results	Standard indices of model fit	Model fit judgment
X2/df	2.966	<3	Good Fit
GFI	.886	>.80	Good Fit
AGFI	.849	>.80	Good Fit
RMSEA	.077	<.10	Good Fit
IFI	.941	>.90	Good Fit
CFI	.941	>.90	Good Fit
RMR	.083	<.10	Good Fit
NFI	.914	>.90	Good Fit

Structural model fit

Structural Equation Modelling (SEM)

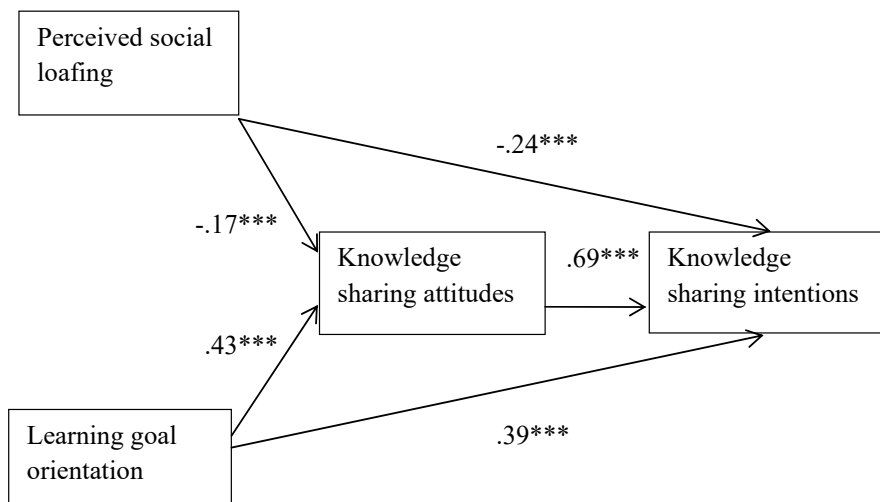


Fig. 2. Structural Equation Modelling

In this study, path analysis and statistical testing were used to verify the hypothesis.

The path coefficient of KS attitudes and KS intentions is 0.69, and p-value is less than 0.001, and the statistical value reaches the significant standard. Therefore, hypothesis 1 is supported.

The path coefficient of perceived social loafing and KS intentions is -0.24, the p-value is less than 0.001, and the statistical value reaches the significant standard. Therefore, hypothesis 2 is supported.

The path coefficient of perceived social loafing and KS attitudes is -0.17, p-value is less than 0.001, and the statistical value reaches the significant standard. Therefore, hypothesis 3 is supported.

The path coefficient of learning goal orientation and KS intentions is 0.39, p-value is less than 0.001, and the statistical value reaches the significant standard. Therefore, hypothesis 4 is supported.

The path coefficient of learning goal orientation and KS attitudes is 0.43, p-value is less than 0.001, and the statistical value reaches the significant standard. Therefore, hypothesis 5 is supported.

Mediating effects

This study uses the Bootstrapping method to obtain the confidence interval (CI) to analyse the mediating effects. If the confidence interval does not contain 0, it means that the mediating effects exist [57]. Therefore, we simulate sampling 2000 times with Bootstrapping, and test the bias value confidence interval (Bias 95% CI) and percentage confidence interval (Percentile 95% CI), respectively. We aim to test whether the total effect, indirect effect and direct effect contain 0, and if they do not contain 0, it means a significant effect.

Table 3 explores the mediating effect of KS attitudes on perceived social loafing and KS intentions. As showed in Table 3, the Z value of indirect effect is -3.500, the Z value of direct effect is -2.886, and the Z value of total effect is -2.886. -4.405, when the Z value is greater than 1.96, it indicates a significant level. The three effects of the model are all significant. Both the deviation value confidence interval and the percentage confidence interval of the total effect do not contain 0, which is a significant level, and then we check the indirect effect: perceived social loafing → KS attitudes → KS intentions. Its deviation value confidence interval and percentage confidence interval do not contain 0, reaching a significant level, indicating that the mediating effect exists. Finally, the confidence interval of the direct effect also does not contain 0 to reach a significant level, so there is a partial mediating effect of KS attitudes on the relationship between perceived social loafing and KS intention. Thus, hypothesis 6 is supported.

Table 4

The mediating effect of KS attitudes on the relationship between perceived social loafing and KS intentions

	Estimate	Multiplying coefficients		Bootstrapping			
		Product of coefficients		Bias-corrected 95% CI		Percentile 95% CI	
		SE	Z	Lower	Upper	Lower	Upper
Indirect effects							
Perceived social loafing → KS attitudes → KS intentions	-.084	.024	-3.500	-.143	-.044	-.137	-.040
Direct effects							
Perceived social Loafing → KS intentions	-.101	.035	-2.886	-.172	-.035	-.172	-.036
Total effects							
All	-.185	.042	-4.405	-.267	-.104	-.272	-.107

Table 4 discusses the mediating effect of KS attitudes on learning goal orientation and KS intentions. As showed in Table 4, the Z value of indirect effect is 5.058, the Z value of direct effect is 2.352, and the Z value of total effect is 5.584. The Z values of the three effects are all greater than 1.96, which is a significant effect. Both the deviation value confidence interval and the percentage confidence interval of the total effect do not contain 0, which is a significant level, and then we check the indirect effect: learning goal orientation → KS attitudes → KS intentions. Its deviation value confidence interval and percentage confidence interval do not contain 0, reaching a significant level, indicating that the mediating effect exists. Finally, the confidence interval of the direct effect does not contain 0 to reach a significant level, so there is a partial mediating effect of KS attitudes on the relationship between learning goal orientation and KS intentions. Thus, hypothesis 7 is supported.

Table 5

The mediating effect of KS attitudes on the relationship between Learning goal orientation and KS intentions

	Estimate	Multiplying coefficients		Bootstrapping			
		Product of coefficients		Bias-corrected 95% CI		Percentile 95% CI	
		SE	Z	Lower	Upper	Lower	Upper
Indirect effects							
Learning goal orientation → KS attitudes → KS intentions	.263	.052	5.058	.177	.383	.172	.380
Direct effects							
Learning goal orientation → KS intentions	.167	.071	2.352	.030	.310	.034	.314
Total effects							
All	.430	.077	5.584	.292	.602	.294	.602

Conclusion and Discussions

According to the results, the path coefficient of personal KS attitudes to KS intentions is 0.69, which indicates that KS attitudes have a positive and significant influence on KS intentions. When students have a positive attitude towards KS, their intention to share knowledge will be enhanced. This means that when members in the team share knowledge with group members, they believe that KS is a valuable and beneficial behaviour, and they will have a

higher willingness to share. The results of this study are consistent with those of Bock and Kim [8] and Bock, Zmud [9], and are consistent with the TRA that behavioural intentions are influenced by attitudes toward the behaviour [7].

The path coefficient of perceived social loafing on KS intentions is -0.24, which means that perceived social loafing has a significant influence on KS intentions. In this study, KS attitudes refer to the willingness and degree to engage in KS behaviours. Therefore, when students perceive that other members are lazy or free-riders in the context of team activities, they will reduce their enthusiasm for the group, which will make them less willing to participate in and contribute to the group, so they will not be willing to share knowledge with the group.

The path coefficient of on KS attitudes is -0.17, which means that perceived social loafing has a significant influence on KS attitudes. Compared with the KS intentions with -0.24, the KS attitude with -0.17 is lower. Thus, when students perceive that there are team members of social loafing; the influence of perceived social loafing on their KS intentions is greater than that on KS attitudes. Since KS attitudes in this study refer to the feelings about KS behaviours, when there are free-riding behaviours in team activities, students will think that KS in this group is bad, because it will only make the lazy members luckier.

Besides, learning goal orientation has a positive and significant influence on KS intentions and attitudes. Because people with learning goal orientation attach great importance to the opportunity to learn and build knowledge, they believe that KS is a good and valuable behaviour. They can exchange ideas and create new knowledge activities through mutual communication among members, so they have a positive attitude towards KS, and also increase their willingness and inclination to share knowledge with other members in group activities.

KS attitudes have a partial mediating effect on the relationship between perceived social loafing and KS intentions. This means that when students are in a team learning situation, when they perceive that other members have social loafing behaviours, they will not be likely to share knowledge with group members through KS attitudes. Since perceived social loafing influences KS intentions through KS attitudes, KS attitudes play a mediating role in this study.

KS attitudes have a partial mediating effect on the relationship between learning goal orientation and KS intentions. This means that when students are in a team learning situation and have the characteristics of learning goal orientation, they will have a positive attitude towards KS, thus promoting their willingness to share knowledge.

Therefore, learning goal orientation will affect KS mediating role between learning goal orientation and KS intentions.

Theoretical Implications

According to the findings, KS attitudes positively and significantly affect KS intentions, which is consistent with the findings by Bock and Kim [8] and Bock, Zmud [9]. However, in the past studies, few studies have explored students' KS attitudes and intentions in the context of game-based learning. Besides, this study used the TRA as a theoretical background.

Different from the traditional teaching mode, in order to arouse students' motivation and interest in learning, business simulation games have become the most popular teaching aids in business education [21, 22]. However, although there have been a large number of academic studies related to business simulation games in recent years, most of them are to explore the learning effects of business simulation games on individual students [18, 29, 58]. In business education, in addition to individual learning, team-based learning is also one of the indispensable abilities. Therefore, based on the aforementioned research background, this study hopes to escape from the past research themes and use a game-based team learning situation to explore students' KS attitudes and intentions.

Team learning can inspire a better learning environment, but it can also create negative problems for the team. Teng and Luo [45] pointed out that team activities are often accompanied by social unemployment, and when team members perceive that other members have social loafing behaviours, they will reduce their willingness to participate in team activities. Based on the research background, this study uses business simulation games as team learning activities to verify the impact of students' attitudes and intentions on KS in the context of perceived social loafing. Although no previous studies have discussed the impact of perceived social loafing on KS attitudes and intentions, this study also brings new findings and contributions to academic research. According to the findings of this study, perceived social loafing does negatively and significantly influence KS attitudes and intentions, and we further found that KS attitudes play an important mediating role in the relationship between perceived social loafing and KS intentions. Although previous studies have pointed out that attitudes affect intentions [8, 9], this has not been used to explore the relationship with perceived social loafing and KS intentions with KS attitude as a mediator. Therefore, in this study, we found that KS attitudes have a partial mediating effect, and the sharing attitude is very important to the context of team learning.

In addition to personal feelings in team activities, we also discuss the impact of personal learning goal orientation on team learning. Many previous studies have pointed out that learning goal orientation influences KS behaviours

[12, 50], but no studies have further explored KS attitudes and intentions. Extending previous research and based on the TRA, this study focuses on testing whether learning goal orientation also influences KS attitudes and intentions in the context of team learning activities. The finding shows that learning goal orientation has a positive and significant influence on KS attitudes and intentions, and KS attitudes play an important mediating role in the relationship between learning goal orientation and KS intentions. We hope to fill the research gap on the impact of learning goal orientation on KS and make a contribution in this field of research.

The biggest feature of this study is the use of a “game-based learning environment” as the research context. Besides, the four variables of perceived social loafing, learning goal orientation, KS attitudes and KS intentions are put together for in-depth discussion, and KS attitudes are used as a mediating variable to explore the mediating effects. Since this conceptual model has not yet used in the past, this study also brings new contributions and breakthroughs to this field. The empirical findings of this study show that both perceived social loafing and learning goal orientation will affect KS attitudes and KS intentions; and KS attitudes had a mediating effect on the relationship between perceived social loafing, learning goal orientation and KS intentions.

Managerial Implications

In today’s era dominated by the knowledge economy, effective KS can bring innovation and competitive advantages to the team, but to achieve the benefits of KS, it cannot rely on the efforts of only one person, but requires the joint efforts of the entire team. In order to create an environment for KS, we suggest that teachers can stimulate students’ willingness to share knowledge through motivation and team mode in the classroom. Since attitudes influence behavioural intentions, and behavioural intentions influence the occurrence of behaviour, we suggest that teachers can let students understand the benefits of KS before class activities, so that students have a positive attitude towards KS. When students recognise that KS is a good behaviour, it can enhance their willingness to share knowledge, and create a team learning atmosphere, so that team members can actively share self-knowledge and skills.

Social loafing always accompanies group activities. When a member perceives that other members have social loafing, it will have negative effects on team performance and learning. Therefore, we suggest that teachers should explain the responsibilities of team tasks to students when conducting team activities, and implement the mechanism of mutual evaluation within the group, so that students can understand their role and the importance of team contribution,

so as to reduce the occurrence of social loafing. In addition, in the workplace, when the organisation is implementing team projects or tasks, social loafing may also occur. In order to prevent employees from free-riding behaviour, the human resources management department can implement an evaluation system for employees to check whether employees are fulfilling their responsibilities.

We also found that learning goal orientation is an important factor affecting KS attitudes and intentions. People with learning goal orientation tend to learn more and challenge more. Such personality traits are helpful for KS among team members. Therefore, teachers can first strengthen students' positive attitude towards KS in classroom activities, so that students with learning goals can feel that sharing knowledge is a good learning opportunity. Besides, students can discover the deficiencies of what they have learned through communication and sharing, and motivate themselves to continue learning. Moreover, students with such characteristics will be more willing to share knowledge in the team, and even promote the sharing atmosphere of the whole team, thereby optimising the benefits of KS in the team.

With the advancement of technology, the external temptation has far surpassed the attractiveness of textbooks. In order to increase students' concentration and learning motivation, many teaching courses have begun to introduce business simulation games as auxiliary tools [21, 22]. Therefore, we suggest that teachers can use more of this type of teaching materials in the design of business courses to increase the richness and practicality of the courses. Since business simulation games are a set of virtual entrepreneurship management systems, through such auxiliary teaching tools, not only can students' learning motivation and fun be stimulated, but also students can experience the process of entrepreneurship simulation management. The combination of courses enables students not only to apply the majors they have learned in practice, but also to prepare for the abilities required in the future workplace.

Limitations

In this study, only business college students in Ho Chi Minh City, Vietnam were asked to participate in the research. Therefore, future studies can expand to students from other counties and cities to increase the sampling diversification. Besides, since this study is to explore the research context of team activities, we only focus on the feelings of the subjects in a certain period of time. So we suggest that future scholars can collect samples across time points for the same group of subjects when conducting related studies. In addition, future research can add potential moderating variables (for example, organisational climate or cultural moderating variables) to the framework, or extend the mediating model of this study.

References

1. López-Nicolás C., Meroño-Cerdán Á. L. Strategic knowledge management, innovation and performance. *International Journal of Information Management*. 2011; 31 (6): 502–509.
2. Foss N. J., Pedersen T. Transferring knowledge in MNCs: The role of sources of subsidiary knowledge and organizational context. *Journal of International Management*. 2002; 8 (1): 49–67.
3. Quinn J. B., Anderson P., Finkelstein S. Managing professional intellect: Making the most of the best. *Harvard Business Review*. 1996; 74 (2): 71–80 .
4. Nonaka I., Takeuchi H. The knowledge creating company: How Japanese companies create the dynamics of innovation. *Harvard Business Review*. 1995; 69 (105): 96–104.
5. Davenport T. H., De Long D. W., Beers M. C. Successful knowledge management projects. *MIT Sloan Management Review*. 1998; 39 (2): 43.
6. Spencer J. W. Firms' knowledge-sharing strategies in the global innovation system: empirical evidence from the flat panel display industry. *Strategic Management Journal*. 2003; 24 (3): 217–233.
7. Fishbein M., Ajzen I. Belief, attitude, intention, and behavior: An introduction to theory and research. *Philosophy and Rhetoric*. 1977; 10 (2): 130–132.
8. Bock G. W., Kim Y.-G. Breaking the myths of rewards: An exploratory study of attitudes about knowledge sharing. *Information Resources Management Journal (IRMJ)*. 2002; 15 (2): 14–21.
9. Bock G. W., Zmud R. W., Kim Y. G., Lee J. N. Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate. *MIS Quarterly*. 2005; 29 (1): 87–111.
10. Cabrera E. F., Cabrera A. Fostering knowledge sharing through people management practices. *The International Journal of Human Resource Management*. 2005; 16 (5): 720–735.
11. Argote L., Ingram P. Knowledge transfer: A basis for competitive advantage in firms. *Organizational Behavior and Human Decision Processes*. 2000; 82 (1): 150–169.
12. Swift M., Balkin D. B., Matusik S. F. Goal orientations and the motivation to share knowledge. *Journal of Knowledge Management*. 2010; 14 (3): 378–393.
13. Harris E. G., Mowen J. C., Brown T. J. Re-examining salesperson goal orientations: personality influencers, customer orientation, and work satisfaction. *Journal of the Academy of Marketing Science*. 2005; 33 (1): 19–35.
14. Vermetten Y. J., Lodewijks H. G., Vermunt J. D. The role of personality traits and goal orientations in strategy use. *Contemporary Educational Psychology*. 2001; 26 (2): 149–170.
15. Dweck C. S. Motivational processes affecting learning. *American Psychologist*. 1986; 41 (10): 1040.
16. VandeWalle D. Development and validation of a work domain goal orientation instrument. *Educational and Psychological Measurement*. 1997; 57 (6): 995–1015.
17. Rogmans T., Abaza W. The impact of international business strategy simulation games on student engagement. *Simulation & Gaming*. 2019; 50 (3): 393–407.
18. Tao Y. H., Cheng C. J., Sun S. Y. What influences college students to continue using business simulation games? The Taiwan experience. *Computers & Education*. 2009; 53 (3): 929–939.
19. Schwabe G., Göth C. Mobile learning with a mobile game: Design and motivational effects. *Journal of Computer Assisted Learning*. 2005; 21 (3): 204–216.

20. Gosen J., Washbush J. A review of scholarship on assessing experiential learning effectiveness. *Simulation & Gaming*. 2004; 35 (2): 270–293.
21. Faria A. J., Hutchinson D., Wellington W. J., Gold S. Developments in business gaming: A review of the past 40 years. *Simulation & Gaming*. 2009; 40 (4): 464–487.
22. Loon M., Evans J., Kerridge C. Learning with a strategic management simulation game: A case study. *The International Journal of Management Education*. 2015; 13 (3): 227–236.
23. Prensky M. Digital game-based learning Computers in Entertainment (CIE). *Listen to the Natives Educational Leadership*. 2003; 1 (1): 22–25.
24. Papastergiou M. Digital game-based learning in high school computer science education: Impact on educational effectiveness and student motivation. *Computers & Education*. 2009; 52 (1): 1–12.
25. Randel J. M., Morris B. A., Wetzel C. D., Whitehill B. V. The effectiveness of games for educational purposes: A review of recent research. *Simulation & Gaming*. 1992; 23 (3): 261–276.
26. Terrell S., Rendulic P. Using computer-managed instructional software to increase motivation and achievement in elementary school children. *Journal of Research on Computing in Education*. 1996; 28 (3): 403–414.
27. Borrajo F., Bueno Y., De Pablo I., Santos B., Fernández F., García J. SIMBA: A simulator for business education and research. *Decision Support Systems*. 2010; 48 (3): 498–506.
28. Doyle D., Brown F. W. Using a business simulation to teach applied skills—the benefits and the challenges of using student teams from multiple countries. *Journal of European Industrial Training*. 2000; 24 (6): 336–336.
29. Fitó-Bertran A., Hernández-Lara A. B., López E. S. The effect of competences on learning results an educational experience with a business simulator. *Computers in Human Behavior*. 2015; 51 (B): 910–914.
30. Buil I., Catalán S., Martínez E. Exploring students' flow experiences in business simulation games. *Journal of Computer Assisted Learning*. 2018; 34 (2): 183–192.
31. Jackson J. M., Williams K. D. Social loafing on difficult tasks: Working collectively can improve performance. *Journal of Personality and Social Psychology*. 1985; 49 (4): 937.
32. Simms A., Nichols T. Social loafing: a review of the literature. *Journal of Management Policy and Practice*. 2014; 15 (1): 58.
33. Jassawalla A., Sashittal H., Sashittal A. Students' perceptions of social loafing: Its antecedents and consequences in undergraduate business classroom teams. *Academy of Management Learning & Education*. 2009; 8 (1): 42–54.
34. Williams D. L., Beard J. D., Rymer J. Team projects: Achieving their full potential. *Journal of Marketing Education*. 1991; 13 (2): 45–53.
35. Voyles E. C., Bailey S. F., Durik A. M. New pieces of the jigsaw classroom: increasing accountability to reduce social loafing in student group projects. *The New School Psychology Bulletin*. 2015; 13 (1): 11–20.
36. Walker A. British Psychology students' perceptions of group-work and peer assessment. *Psychology Learning & Teaching*. 2001; 1 (1): 28–36.
37. Harrison D. A., Mykytyn J. P. P., Riemenschneider C. K. Executive decisions about adoption of information technology in small business: Theory and empirical tests. *Information Systems Research*. 1997; 8v(2): 171–195.
38. Mafabi S., Nasiima S., Muhimbise E. M., Kasekende F., Nakiyonga C. The mediation role of intention in knowledge sharing behavior. *VINE Journal of Information and Knowledge Management Systems*. 2017; 47 (2): 172–193.

39. Chow W. S., Chan L. S. Social network, social trust and shared goals in organizational knowledge sharing. *Information & Management*. 2008; 45 (7): 458–465.
40. Karau S. J., Williams K. D. Social loafing: A meta-analytic review and theoretical integration. *Journal of Personality and Social Psychology*. 1993; 65 (4): 681–706.
41. Latané B., Williams K. D., Harkins S. G. Many hands make light the work: The causes and consequences of social loafing. *Journal of Personality and Social Psychology*. 1979; 37: 822–832.
42. Comer D. R. A model of social loafing in real work groups. *Human Relations*. 1995; 48 (6): 647–667.
43. Mulvey P. W., Klein H. J. The impact of perceived loafing and collective efficacy on group goal processes and group performance. *Organizational Behavior and Human Decision Processes*. 1998; 74 (1): 62–87.
44. Schippers M. Social loafing tendencies and team performance: The compensating effect of agreeableness and conscientiousness. *Academy of Management Learning & Education*. 2014; 13 (1): 62–81.
45. Teng C. C., Luo Y. P. Effects of perceived social loafing, social interdependence, and group affective tone on students' group learning performance. *The Asia-Pacific Education Researcher*. 2014; 24 (1): 259–269.
46. Joo B. K., Park S. Career satisfaction, organizational commitment, and turnover intention. *Leadership & Organization Development Journal*. 2010; 31 (6): 482–500.
47. Noordzij G., van Hooft E. A. J., van Mierlo H., van Dam A., Born M. P. The effects of a learning-goal orientation training on self-regulation: A field experiment among unemployed job seekers. *Personnel Psychology*. 2013; 66 (3): 723–755.
48. Colquitt J. A., Simmering M. J. Conscientiousness, goal orientation, and motivation to learn during the learning process: A longitudinal study. *Journal of Applied Psychology*. 1998; 83 (4): 654–665.
49. Osterloh M., Frey B. Motivation, knowledge transfer, and organizational forms. *Organization Science*. 2000; 11 (5): 538–550.
50. Matzler K., Mueller J. Antecedents of knowledge sharing – Examining the influence of learning and performance orientation. *Journal of Economic Psychology*. 2011 2011; 32 (3): 317–329.
51. Castaneda D. I., Cuellar S. Knowledge sharing and innovation: A systematic review. *Knowledge and Process Management*. 2020; 27 (3): 159–173.
52. George J. M. Extrinsic and intrinsic origins of perceived social loafing in organizations. *The Academy of Management Journal*. 1992; 35 (1): 191–202.
53. Fornell C., Larcker D. F. Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*. 1981; 18 (3): 382–388.
54. Bagozzi R. P., Yi Y., Singh S. On the use of structural equation models in experimental designs: Two extensions. *International Journal of Research in Marketing*. 1991; 8 (2): 125–140.
55. Cronbach L. J. Coefficient alpha and the internal structure of tests. *Psychometrika*. 1951; 16 (3): 297–334.
56. Nunnally J. C. An overview of psychological measurement. In: Wolman B. B. (Ed.). *Clinical diagnosis of mental disorders: A handbook*. Boston, MA: Springer US; 1978. p. 97–146.
57. Zhao X., Lynch J. J. G., Chen Q. J. Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*. 2010; 37 (2): 197–206.
58. Kiili K., Lainema T., Freitas S., Arnab S. Flow framework for analyzing the quality of educational games. *Entertainment Computing*. 2014; 5 (4): 367–377.

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