Does Blended Learning System Boost Student's Knowledge Sharing in General Education Course? The Indonesian Higher Education Challenge

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Abstract
The role of General Education is to equip students with basic knowledge, to understand the relationship between one science and another, to teach how to apply human knowledge and experience universally, so that it will enhance mutual understanding and respect for human beings. One of the challenges in General Education learning in higher education is to improve students' ability of knowledge sharing. Knowledge sharing is usually not something normal, where people tend to hoard knowledge and suspiciously perceive knowledge from others. In this context, General Education course should strive to foster the habit of sharing knowledge in order to become the character of students as young intellectuals. The use of Blended Learning in General Education course will provide opportunities for students to share knowledge online. However, according to the experience of using Blended Learning at Universitas Pendidikan Indonesia, online forums are nothing more than an empty framework because they are deemed to have insufficient knowledge that the students need. This study seeks to find ways to improve the Online Knowledge Sharing Behaviour (OKSB). In this paper, we view that OKSB is influenced by intention factors, self-efficacy and technological capability factors.

Keywords: blended learning, general education, knowledge sharing, knowledge sharing intention, online knowledge sharing behaviour

Introduction

General Courses (henceforth GC) refer to a group of courses that carries a national mission of educating the life of the nation through "value-based education" to transform citizens that embrace religious, Pancasila (the Five Principles), and nationalism values (Winataputra & Budimansyah, 2014). In light of this, GC is a highly relevant subject for prospective teacher students so that they will later become teachers who can organize a learning process based on the Pancasila moral values whatever they teach (Tjalla, 2019).

However, since implemented at the tertiary level, GC has faced the constraints of a shortage of lecturers, the quality of which was not evenly distributed and lectures were still dominated by lecturer-centered approaches, rendering students passive. Thus, the implementation of GC has yet to attain the goal as it should (Budimansyah, 2017; Nurdin, 2017). This is a strategic issue in the implementation of GC in Indonesian tertiary institutions (henceforth ITI), including in Institutes of Teachers' Education (henceforth ITE) namely the lack of lecturers, the quality is not evenly distributed, and lectures have not been successful in fostering students to improve their information and knowledge literacy (Scott, 2015).

Addressing these problems, this research developed a blended learning (BL) system. Being an international trend at the higher education level (Pima et al., 2018), BL is a learning system that is in high demand and effective for integrating face-to-face lectures with e-learning systems (Bujdoso, Novac & Szimkovics, 2017; Mayer, 2010; Watson, 2008). This system will continue to utilize the advantages of face-to-face lectures to develop human communication between students, lecturers, and other social environments (Boelens, De Wever & Voet, 2017). At the same time, we can also take advantage of e-learning systems (Henrie et al., 2015) to provide a very broad learning access so as to get around the limited number of lecturers in multi-campus universities with many classes (Clement, Vandeput & Osaera, 2016). BL becomes a beneficial approach because of the variety of learning opportunities it offers (Diep et al., 2019). Therefore, through BL, GC will be empowered to be more meaningful, integrated, values-based, challenging, and activating (Han & Ellis, 2019; Law, Geng, & Li, 2019)

The use of the BL system is thus a middle way to overcone the shortcomings of the "face-to-face" learning system that does not allow for student independence (López-Pérez, Pérez-López & Rodríguez-Ariza, 2011), while covering the weaknesses of the "full online" learning system that does not really foster social interaction (Boelens, De Wever & Voet, 2017). This is the advantage of the BL system for GC learning in ITE. Through a learning experience that combines a system of "face-to-face" and "online" in a balanced way student teacher candidates are encouraged to be able to build broad knowledge, develop attitudes, and hone skills that are meaningful to their future profession (Hilliard, 2015).

One of the challenges in GC lis how to improve students' knowledge sharing ability, which is closely related to long-term performance and competitiveness. Knowledge sharing is a process that involves the exchange of knowledge between individuals or groups (Wang & Noe, 2010). Higher education will get added value through the development of knowledge sharing initiatives to achieve their goals. At present,

knowledge sharing can be done not only face to face, but also through the intranet, extranet, or internet. In Indonesia, knowledge sharing can be most possibly done via the internet. Based on Internet World Stats, Indonesia is the country with the third largest population of internet users in Asia, reaching one hundred seventy-one million two hundred and sixty thousand (http://www.internetworldstats.com, data: 30 June 2019). This potential may improve the quality of Indonesian higher education.

However, in actuality, knowledge sharing is not something normal; we tend to hoard knowledge and feel suspicious of knowledge that comes from other people. This study aims to examine what factors influence UPI students' knowledge sharing activities in GC lectures using the BL system.

Conclusion

To account for how a person can increase participation in online learning, Chen, Chen & Kinshuk (2009) produced an online model of knowledge sharing behavior. In so doing, Chen integrated the Theory of Planner Behavior (TPB), Social Capital Theory, and Social Cognitive Theory. Adapting the views of Chen, Chen & Kinshuk (2009), the model invoked in this research can be seen in Figure 1.

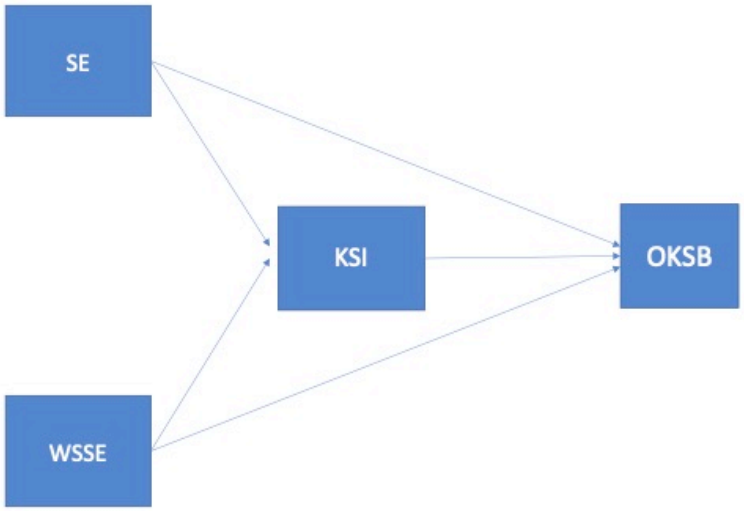

Figure 1. Research model

Based on Figure 1 above, the research model can be explained as follows. Online knowledge Sharing Behavior (OKSB) shows the process of delivering and receiving knowledge online whose success is measured by the amount of knowledge sharing and the quality of learning outcomes achieved. Knowledge Sharing Intention (KSI) is a motivational factor that shows how much a person wants to do knowledge sharing. Based on the Theory of Planned Behavior, intention is influenced by attitude, subjective norm, and perceived behavior control (Chen, Chen & Kinshuk, 2009). Self-efficacy (SE) is defined as a form of self-evaluation that influences decisions of action, amount of effort, and perseverance needed to face obstacles, ending up in mastery of behavior. Web-specific Self-efficacy (WSSE) indicates the ability to use

the function of a virtual learning community website (VLC) in the learning process (Hsu et al., 2007; Lin, Hung & Chen, 2009).

The empirical test on this research model was undertaken by using a questionnaire survey to obtain data on the perceptions of the students who were learning participants with a blended learning system at Universitas Pendidikan Indonesia in three lectures on the general course of Pancasila Education and Civics Education as many as 146 people. Blended learning was utilized to support lectures in class via such features as uploading Semester Learning Plans, online lecture materials, learning videos, discussion materials, assignments, as well as discussion forums and webinars.

Main findings

The first step performed towards the data was to analyze the conditions of the four research variables. The four research variables are as follows:

(1) Online Knowledge Sharing Behavior (OKSB) shows the behavior of delivering and receiving knowledge online whose success is measured by the amount of knowledge sharing implementation and the quality of learning outcomes achieved;
(2) Knowledge Sharing Intention (KSI) is a motivational factor that shows how much a person's desire to do knowledge sharing;
(3) Self-efficacy (SE) is defined as a form of self-evaluation that influences decisions of action, amount of effort, and perseverance to face obstacles, and ends up in mastery of behavior; and
(4) Web-Specific Self-Efficacy (WSSE) shows the ability to use the functions of online learning websites in the learning process.

From the data gathered, the statistical results of the research variables under examination can be seen in Table 1.

	N	Minimum	Maximum	Mean	Std. Deviation
Online Knowledge Sharing Behaviour	146	112	251	212.23	25.721
Knowledge Sharing Intention	146	28	50	43.15	5.828
Web-Specific Self-Efficacy	146	27	50	41.28	5.840
Self-Efficacy	146	20	50	40.08	5.877
Valid N (listwise)	146				

Table 1
Statistical Descriptions of the Research Variables

Based on the data in Table 1, of 146 students who were the respondents, the mean of their OKSB is 212.23. This means, on the basis of the categories: 1) 0.00 - 60.00: poor; 2) 60.01 - 120.00: less than satisfactory; 3) 120.01 - 180.00: satisfactory; 4) 180.01 - 240.00: good; and 5) 240.01 - 300.00: very good, the average Online Knowledge Sharing Behavior (OKSB), sits in the "good" category.

The Knowledge Sharing Intention (KSI) variable obtained a mean value of 43.15. That is, based on the categories: 1) 0.00 - 10.00: poor; 2) 10.01 - 20.00: less than satisfactory; 3) 20.01 - 30.00: satisfactory; 4) 30.01 - 40.00: good; and 5) 40.01 - 50.00: very good, the average Knowledge Sharing Intention (KSI) resides in the "very good" category.

The Web-Specific Self-Efficacy (WSSE) obtained a mean value of 41.28. That is, using the categories: 1) 0.00 - 10.00: poor; 2) 10.01 - 20.00: less than satisfactory; 3) 20.01 - 30.00: satisfactory; 4) 30.01 - 40.00: good; and 5) 40.01 - 50.00: very good, the average Web-Specific Self-Efficacy (WSSE) is included in the "very good" category.

The Self-Efficacy (SE) variable obtained a mean value of 40.08. That is, referring to the categories: 1) 0.00 - 10.00: poor; 2) 10.01 - 20.00: less than satisfactory; 3) 20.01 - 30.00: satisfactory; 4) 30.01 - 40.00: good; and 5) 40.01 - 50.00: very good, the average Self-Efficacy (SE) is in the "very good" category.

Based on the research data above, it was found that the use of blended learning in the Pancasila Education and Citizenship Education courses in UPI (Indonesia University of Education) generated excellent SE and MSEE, but OKSB was only in good category. This condition somewhat aligns with the findings of Chen, Chen & Kinshuk (2009) that the use of blended learning in lectures at a tertiary institution produced very good SE, WSSE and OKSB and differed from the findings of Amila & Suryadi (2014) that the use of blended learning at ITB produced excellent SE and WSSE, but not so with OKSB.

After obtaining a picture of the condition of each variable, the testing of the research hypotheses was carried out. This testing was divided into 3 sub-structures, namely:

1. The influence of *Self-Efficacy* and *Web-Specific Self-Efficacy* on *Knowledge Sharing Intention*. The proposed hypothesis was:
   Hypothesis 1:
   H_0: There is no significantly direct influence of *Self-Efficacy* on *Knowledge Sharing Intention*. If Sig. value > 0.05
   H_1: There is a significantly direct influence of *Self-Efficacy* on *Knowledge Sharing Intention*. If Sig. value < 0.05
   Hypothesis 2:
   H_0: There is no significantly direct influence of *Web-Specific Self-Efficacy* on *Knowledge Sharing Intention*. If Sig. value > 0.05
   H_1: There is a significantly direct influence of *Web-Specific Self-Efficacy* on *Knowledge Sharing Intention*. If Sig. value < 0.05
2. The influence of *Self-Efficacy* and *Web-Specific Self-Efficacy* on *Online Knowledge Sharing Behaviour.* The proposed hypothesis was:
   Hupothesis 3:
   H_0: There is no significantly direct influence of *Self-Efficacy* on *Online Knowledge Sharing Behaviour*. If Sig. value > 0.05
   H_1: There is a significantly direct influence of *Web Self-Efficacy* on *Online Knowledge Sharing Behaviour*. If Sig. value < 0.05
   Hypothesis 4:
   H_0: There is no significantly direct influence of *Web-Specific Self-Efficacy* on *Online Knowledge Sharing Behaviour*. If Sig. value > 0.05
   H_1: There is a significantly direct influence of *Web-Specific Self-Efficacy* on *Online Knowledge Sharing Behaviour*. If Sig. value < 0.05
3. The influence of *Knowledge Sharing Intention* on *Online Knowledge Sharing Behaviour*. The proposed hypothesis was:
   Hypothesis 5:

H_0: There is a significantly direct influence of *Knowledge Sharing Intention* on *Online Knowledge Sharing Behaviour*. If Sig. value > 0.05

H_1: There is a significantly direct influence of *Knowledge Sharing Intention* on *Online Knowledge Sharing Behaviour*. If Sig. value < 0.05

Based on the research hypothesis and after fulfilling the analysis prerequisites, further testing was done using SPSS software version 21. The results can be seen below.

The results of hypothesis testing in sub-structure 1 reveals that, R square = 0.675 so that the coefficient of determination is 67.5%. That is, the rise and fall of the variable Knowledge Sharing Intention, 67.5% is determined by Self-Efficacy and Web-Specific Self-Efficacy (see Table 2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.822[a]	.675	.670	3.7948	.675	148.500	2	143	.000

a. Predictors: (Constant), Self-Efficacy, *Web-Specific Self-Efficacy*
b. Dependent Variable: Knowledge Sharing Intention

Table 2
Results of Simultaneous Variable Testing[b]

The model testing was done by way of analysis of variance (ANOVA) aimed at investigating whether testing this model can be done or not. The results can be seen in Table 3.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4276.955	2	2138.478	148.500	.000[b]
	Residual	2059.272	143	14.401		
	Total	6336.227	145			

a. Dependent Variable: Knowledge Sharing Intention
b. Predictors: (Constant), Self-Efficacy, Web Use Satisfaction

Table 3
ANOVA[a]

Table 3 shows that Sig. = 0,000. That is, analysis of sub-structure 1 model can be done and the results can be seen in Table 4.

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.728	1.840		2.026	.045
	Web-Specific Self-Efficacy	.373	.062	.404	6.016	.000
	Self-Efficacy	.517	.072	.485	7.217	.000

a. Dependent Variable: Knowledge Sharing Intention

Table 4
Coefficeint of Sub-Structure 1[a]

Table 4 shows that, the Self-Efficacy and Web-Specific Self-Efficacy variables obtained a Sig.value of 0.000. That is, Self-Efficacy with a coefficient of 0.404 and Web-Specific Self-Efficacy with a coefficient of 0.485 directly affect Knowledge Sharing Intention.

The results of sub-structure 2 testing can be explained as follows. The results indicate that R square value is 0.098 and the coefficient of determination is 9.8%. That is, of the rise and fall of Knowledge Sharing, 9.8% is determined by Self-Efficacy, Web-Specific Self-Efficacy and Knowledge Sharing Intention (see Table 5).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.313[a]	.098	.079	24.689	.098	5.124	3	142	.002
2	.307[b]	.094	.082	24.649	-.003	.533	1	142	.467
3	.304[c]	.092	.086	24.593	-.002	.342	1	143	.560

a. Predictors: (Constant), Self-Efficacy, Web-Specific Self-Efficacy, Knowledge Sharing Intention
b. Predictors: (Constant), Web Use Satisfaction, Knowledge Sharing Intention
c. Predictors: (Constant), Web-Specific Self-Efficacy
d. Dependent Variable: Online Knowledge Sharing Behaviour

Table 5
Model Summary[d]

The model testing was done by analysis of variance (ANOVA) to see whether or not the testing of sub-structure model 2 can be done. The results can be seen in Table 6.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9369.484	3	3123.161	5.124	.002[b]
	Residual	86558.057	142	609.564		
	Total	95927.541	145			
2	Regression	9044.690	2	4522.345	7.443	.001[c]
	Residual	86882.851	143	607.572		
	Total	95927.541	145			
3	Regression	8837.028	1	8837.028	14.612	.000[d]
	Residual	87090.513	144	604.795		
	Total	95927.541	145			

a. Dependent Variable: Online Knowledge Sharing Behaviour
b. Predictors: (Constant), Self-Efficacy, Web-Specific Self-Efficacy, Knowledge Sharing Intention
c. Predictors: (Constant), Web-Specific Self-Efficacy, Knowledge Sharing Intention
d. Predictors: (Constant), Web-Specific Self-Efficacy

Table 6
ANOVA[a]

Table 6 exhibits that Sig. < 0,05. This means that sub-structure 2 model can be done. The results can be observed in Table 7.

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	179.112	12.144		14.749	.000
	Knowledge Sharing Intention	.477	.544	.123	.877	.382
	Web-Specific Self-Efficacy	1.005	.452	.280	2.223	.028
	Self-Efficacy	-.397	.544	-.096	-.730	.467
2	(Constant)	175.028	10.762		16.264	.000
	Knowledge Sharing Intention	.272	.465	.070	.585	.560
	Web-Specific Self-Efficacy	.904	.430	.251	2.103	.037
3	(Constant)	178.382	9.085		19.635	.000
	Web-Specific Self-Efficacy	1.091	.285	.304	3.823	.000

a. Dependent Variable: Online Knowledge Sharing Behaviour

Table 7
Coefficients of Sub-Structure 2[a]

Table 7 uncovers that Web-Specific Self-Efficacy variable obtained a Sig. = 0,000. That is, Web-Specific Self-Efficacy with a coefficient = 0.304 directly affects Online Knowledge Sharing Behavior.

To test sub-structure 3, the results can be explained as follows: Hypothesis testing results in sub-structure 2 show that R square = 0.066 so that the coefficient of determination is 6.6%. That is, amidst the rise and fall of Online Knowledge Sharing Behavior variable, 6.6% is determined by Knowledge Sharing Intention variable (see Table 8).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.257[a]	.066	.060	24.940

a. Predictors: (Constant), Knowledge Sharing Intention

Table 8
Model Summary

The model testing was performed by way of ANOVA analysis to probe whether or not substructure model 3 can be done. The results are presented in Table 9.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6356.892	1	6356.892	10.220	.002[b]
	Residual	89570.649	144	622.018		
	Total	95927.541	145			

a. Dependent Variable: Online Knowledge Sharing Behaviour
b. Predictors: (Constant), Knowledge Sharing Intention

Table 9
ANOVA[a]

Table 9 demonstrates that Sig. = <0.05, meaning that the sub-structure model 3 can be carried out and the results can be seen in Table 10.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	178.456	10.763		16.580	.000
	Knowledge Sharing Intention	1.002	.313	.257	3.197	.002

a. Dependent Variable: Knowledge Sharing

Table 10
Coeffecients of sub-structure 3[a]

In Table 9, it is apparent that Knowledge Sharing Intention variable gets a Sig. Of 0.002, which suggests that Knowledge Sharing Intention with a coefficient of 0.257 directly affects Online Knowledge Sharing Behavior.

Based on the results of the tests, the overall effect of Self-Efficacy and Web-Specific Self-Efficacy through Knowledge Sharing Intention on Online Knowledge Sharing Behavior can be described as follows:

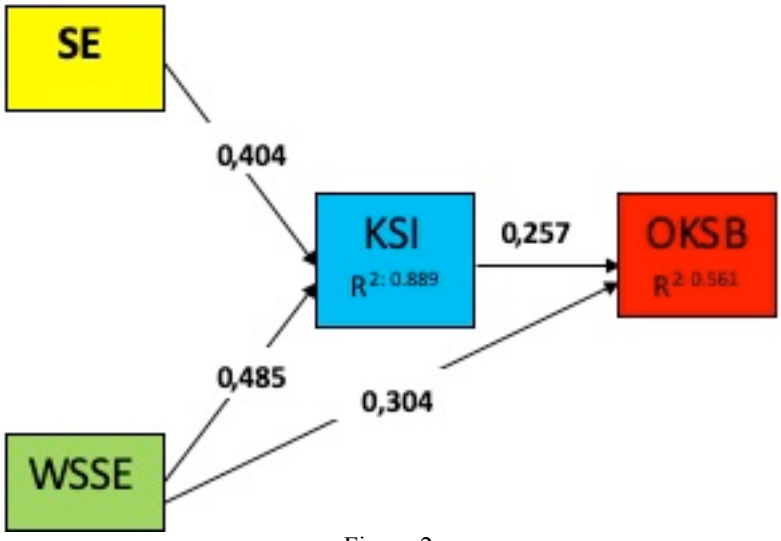

Figure 2
The testing results of the influence of *Self-Efficacy* and *Web-Specific Self-Efficacy* through *Knowledge Sharing Intention* on *Online Knowledge Sharing Behaviour*

Based on the test results, it can be concluded that the R-square value shows that Online Knowledge Sharing Behavior (OKSB) can be explained by 56.1% by the Knowledge Sharing Intention (KSI) construct and Web-Specific Self-Efficacy (WSSE) with the factors that have the greatest influence is WSSE. Self-Efficacy (SE) indirectly, through KSI, affects OKSB. KSI itself can be explained by 88.9% by the SE and WSSE constructs. The construct that has the most influence is WSSE. This empirical data is slightly different from the Theory of Planned Behavior that a person's behavior is determined by intention and perceived ability to control behavior (perceived behavioral control) (Ajzen, Brown & Carvajal, 2004). This study found that the effect of knowledge sharing intention was not very strong for online knowledge sharing. This was because the students who took the UPI BL class came from the same lecture class and from the same study program. Chen, Chen & Kinshuk (2009) conducted research on lectures attended by students from different majors. This makes it difficult for participants to meet directly with their online classmates and also with their lecturers. This difficulty raises the urge to do knowledge sharing online. In the BL case at UPI, the students had a great opportunity to meet directly with their classmates and also with their lecturers. Thus, knowledge sharing needed in the learning process was mostly done directly (offline) both in the classroom and campus environment.

This study found that the stronger influence on KSI and OKSB was the ability to use moodle-based spada.upi.edu learning applications or in other words information and communication technology literacy (ICT Literacy). WSSE significantly influences KSI and OKSB according to Liaw's research (2008) which proves that e-learning usage behavior intention is influenced by the skills and satisfaction of using e-learning programs, including website quality.

The conclusion of this research is that the main factor influencing online knowledge sharing behavior in BL of UPI is ICT literacy. The American Association of School Librarians & Association for Educational Communications and Technology (1998) reports that ICT literate students master content faster, are better at solving problems, become more independent, and take greater control of learning. ICT literacy is

essential to being productive citizens in a knowledge-driven society (Zurkowski, 1974), and employers want employees to have these skills (Herman, 2000). Many university leaders have added ICT literacy to be among the graduate and final competencies and it has recently become the focus of attention throughout the campus (Candy, Crebert & O'Leary, 2019) to improve ICT literacy for students.

The Impication

Implicationally, to buttress BL at UPI, all students must be prepared to utilize ICT to facilitate the learning process. Spada.upi.edu needs to be designed as simple and interesting as possible so that it can attract students' interest in sharing knowledge online. Social interaction also needs to be supported by lecturers by fostering an interactive learning atmosphere so that the process of sharing knowledge is more productive and substantial.

Limitation of the study

This research is cross-sectional in nature, with the evaluation undertaken only on the use of BL of UPI in the first semester of the 2019-2020 school year at the Pancasila Education course and the Citizenship Education course. Different conditions can occur in the use of BL of UPI in subsequent periods. In addition, conditions at other tertiary institutions may differ either due to differences in student characteristics or differences in scientific characteristics that affect learning styles. Further research is thus necessitated on BL of UPI in subsequent periods and also on other tertiary institutions that apply blended learning to ensure the validity of the external model.

This research is confirmatory in nature, merely using factors based on the theory to be proven. In reality, there is high possibility that other factors may influence online knowledge sharing behavior especially at BL of UPI. To this end, exploratory research is called for. A further study is required to ascertain what policies can be applied so that online knowledge sharing behavior can run effectively. Policies may start from the smallest scope, namely in class in which a lecturer has full control. Therefore, further research may gauge the effect of lecturer authority on the patterns of OKSB formation.

Finally, this research is not fully able to explain online knowledge sharing behavior through the basic concept of Theory of Planned Behavior. A further testing is needed to discover whether this discrepancy only applies at BL of UPI or applies to the application of a blended learning system in general.

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Footnotes

General Education in Indonesia is known as General Course. Under the Law of the Republic of Indonesia Number 12 of 2012 concerning Higher Education, there are four general courses in tertiary institutions: (1) Religious Education, (2) Pancasila Education, (3) Citizenship Education, and (4) Indonesian Language.

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