

The influence of knowledge sharing and competence on academic performance

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Abstract

This study goals to conclude the results of knowledge sharing and academic competence. The results obtained in this research aid as a orientation for stakeholders in the world of education to improve academic performance through knowledge sharing and competence so that the quality of learning increases. Questionnaires were distributed to 100 PTN students in Bandung in 2020. Sampling was carried out by using probability sampling method, this study uses path analysis. This analysis is used to define the causal relationship among variables sharing knowledge, competence and direct academic performance. and indirect influence. The results presented that there were indications of a affirmative and significant relationship among knowledge sharing and competence, knowledge sharing and academic performance, but there was a affirmative but not significant relationship between knowledge sharing through competence on academic performance.

Keywords: Knowledge sharing, competence, academic performance

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1. The Introduction

The rapid development of technology and the era 4.0 greatly influence the characteristics of existing jobs, where knowledge, skills and competencies are the main points that need to be considered especially in universities. According to Absah (2009: 194) one of the tools of national education is higher education which could be the center of the development and implementation of higher education as well as the preservation, progress of science, art and technology, which is expected to growth the quality of life, society, nation and state.

One of the assessments for the university is the results of the performance produced, or it can be called academic performance (Macan, Dipboye, & Phillips, 1990; Tam, 2010). Academic performance produced by universities is currently a very important topic and an interesting topic to study (Alexander & Judy, 2008; Guney, 2009; O'Connor & Paunonen, 2007). Based on search results, the topic of academic performance became an interesting topic to study, and even increased research on the subject in 2015 - 2018. Research on student academic performance received great attention from stakeholders in the education world. These stakeholders want to know the factors that need to be improved in improving academic performance so that they can improve the quality of learning (Booth, Luckett, & Mladenovic, 2002; Duff, 2003; Kaighobadi & Allen, 2008).

Human resources owned by the university have knowledge, both tacit knowledge (knowledge that is located in someone's brain), or explicit (knowledge that has been documented). Realizing the increasingly competitive competition in the industrial revolution 4.0, it is necessary to change the paradigm for educational institutions from those originally relying on resources-based to knowledge-based which relies on analysis of certain fields of science (Setiarso et al, 2012: 1). In the end, knowledge sharing is needed in improving academic performance. Knowledge sharing is a process of a person or group that works with other people to share knowledge and benefit each other (Al-Alawi, Al-Marzooqi, & Mohammed, 2007a; Chang & Chuang, 2011; F. J. Islamy, 2013).

There are several results of research that say that academic performance is influenced by knowledge sharing (Aslam, Shahzad, Syed, & Ramish, 2013; Moghavvemi, Sharabati, Klobas, & Sulaiman, 2018), but there are differences in the results of research conducted by the two researchers. Variable Knowledge sharing and academic performance are positively correlated (Moghavvemi et al., 2018), but there are other opinions that say that Knowledge involvement has a negative effect on academic presentation (Aslam et al., 2013). Seeing this shows that there are differences in the results of research that are very contradictory, therefore researchers intend to examine further about academic performance with knowledge distribution.

In addition to knowledge involvement, in answering the challenges of industry 4.0 are competencies (Grzybowska & Łupicka, 2017; Prifti, Knigge, Kienegger, & Krcmar, 2017). (Agbim, Zever, & Oriarewo, 2014; Armstrong, Michael & Taylor, 2014; Jyoti & Rani, 2015) defines, that competence is a capacity that is owned by employees that leads to behavior that is in accordance with the demands of the work, and in accordance with the provisions of the organization which will ultimately bring the desired results which will ultimately affect performance. The outcomes of research showed by (Agbim et al., 2014; R. Boyatzis & Boyatzis, 2008; R. E. Boyatzis, 1993; Jyoti & Rani, 2015) say that some companies have expressed the urgency of competence in encouraging performance.

State universities are expected to be role models for other universities, especially the academic performance of students that they produce. There are data on the ranking of universities in Indonesia in the world (QS Wold University Ranking), presented in table 1:

Table 1 University Rank in Indonesia Based on QS World University Ranking

Rank	University
292	University of Indonesia
359	Bandung Institute of Technology
391	Gadjah Mada University
651-700	Padjadjaran University
701-750	Bogor Agricultural Institute

751-800	Airlangga University
801-1000	Diponegoro University
801-1000	Sepuluh Nopember Institute of Technology

Based on these data the academic performance of tertiary institutions in Indonesia requires special attention, because the highest ranking of universities in Indonesia and the best universities in Indonesia is still ranked 14th when compared to Malaysia, Thailand and Singapore. Seeing this, Indonesia still needs improvement from all aspects, especially the academic performance of students. Student academic performance certainly has a very close relationship with knowledge, both tacit knowledge (knowledge located in someone's brain), or explicit (knowledge that has been documented).

Most of the studies that examine the relationship between variables Knowledge sharing with student academic performance is done abroad. Research on this matter is still small in Indonesia, even researchers have not found research on the relationship between knowledge sharing variables with student academic achievement in Indonesia. The situation in Indonesia has many differences with the countries where other studies are conducted, both in terms of geographical, economic, social and cultural as well as educations that are very interesting to study. In terms of geography, Indonesia is an archipelagic country, different from Malaysia, Singapore or England, which is a country on one island or continent. As an archipelagic country, it is more difficult to make the same educational standards, evenly distributed to all islands. As happy as developing countries, economic conditions in Indonesia are also different from developed countries such as Malaysia, Britain and Singapore. High social disparities still occur. This difference in the background of the social strata will certainly make a difference in the motivation and readiness of students to take college. With this particular characteristic, we want to examine whether there are differences in the results of research with similar studies conducted in other countries. The persistence of this research was to define the effect of sharing knowledge on academic competence and performance, and the effect of competence on academic performance.

1.1. Research Question

To what degree do students use knowledge sharing and use their competencies in improving academic performance?

1.2. Hypotheses

1. Variable knowledge sharing and variable academic performance are positively correlated.
2. Variable knowledge sharing and competence are positively correlated.
3. Variable competence and variable academic performance are positively correlated.

2. Literature Review

2.1 Knowledge Sharing

An important factor in the knowledge management process is Knowledge sharing (Al-Alawi, Al-Marzooqi, & Mohammed, 2007b; F. J. Islamy & Nurjaman, 2018; F. Islamy, Yuniarsih, Ahman, & Kusnendi, 2020). According to (Al-Alawi et al., 2007a; F. J. Islamy, 2013), " knowledge sharing (knowledge transfer) lets individuals or groups collaborate with each other to share knowledge and achieve mutual benefits". After reviewing various writings on knowledge sharing, (Kamaşak & Bulutlar, 2010; van den Hooff & de Leeuw van Weenen, 2004; Van Den Hooff & Ridder, 2004) defines Knowledge sharing has two processes which consist of: Knowledge Donating, which is communicating to others the knowledge that someone has, consisting of (1) Capability, capability is to the extent that someone has the knowledge and willingness to disseminate the knowledge they have, (2) Credibility, credibility reflects the level of trust in support of colleagues, and (3) Seriousness, seriousness reflects the level of seriousness someone is enthusiastic to share knowledge. Knowledge Collecting: consult with contemporaries to gain knowledge from them, consisting of (1) Sense of belonging, reflecting the level of willingness and willingness to accept new knowledge, (2) Commitment, which is to the extent of one's commitment to applying new knowledge, and (3) Satisfaction, is the degree to which

a person can adapt to new knowledge. Knowledge sharing leads to better team performance, better problem solving, and enhanced creativity Knowledge Sharing (Choi, Lee, & Yoo, 2017; Huang, Chiu, & Lu, 2013; Lee, Gillespie, Mann, & Wearing, 2010; Srivastava, Bartol, & Locke, 2006). Academic performance gets special attention considering the unemployment rate of new graduates or graduates in Indonesia is still relatively high. This fact shows that the importance of research on knowledge involvement and the competencies possessed by students in improving academic performance can ultimately be a factor of readiness in facing industrial revolution 4.0.

2.2 Competency

In general, experts provide a varied view of competence, (Adler, 1982; Armstrong, Michael & Taylor, 2014; Lozano, Boni, Peris, & Hueso, 2012) defines, that capability is a capacity that is owned by individuals that leads to behavior that is in accordance with the demands of the work, and in accordance with organizational provisions which in turn will bring results such as those desired. According to (R. Boyatzis & Boyatzis, 2008; R. E. Boyatzis, 1993; Chan, Chi, & Yeung, 2019; Eraut, 1998) the components of competency consist of: (1) Motive: "repeated attention to statements of purpose, or conditions, which appear in the shadow that encourage, order or select individual behavior" (R. Boyatzis & Boyatzis, 2008; R. E. Boyatzis, 1993; Mannayong & Haerul, 2019; McClelland, 1973). Motive also includes thoughts related to specific statement of purpose or theme. Examples of this motive are: need or encouragement of achievement, need or encouragement in power. (2) Traits: are psychomotor thoughts and activities related to general categories of events. An example of this trait is risk taking. (3) Self image: is a person's perception of him and evaluation of his image. This definition of self image includes self concept and self esteem. (4) Social role: is the perception of people towards a set of social norms of behavior that are accepted and valued by social groups or organizations that have them. (5) Skills: are capabilities that show a system or sequence of behaviors that are functionally related to achieving performance goals. Internal attribution, namely the ability or competence possessed by a person, can affect the application of knowledge sharing. If needed, the knowledge distribution process will run optimally, because the knowledge needed is enough to share with other colleagues (Lekhawipat, Wei, & Lin, 2018).

2.3 Academic Performance

Academic performance is the result achieved by students as a measure of success during education at an educational institution. Academic performance can be used as a measure of the success or failure of an education process in a school, especially at the university level. Academic performance is needed in today's advanced economy, even in the current industrial revolution 4.0, and academic performance has substantial implications (Felipe, Hernández, Cascallar, & Kyndt, 2019; Poropat, 2009). The fundamental components of organizations' competitive advantage are Organizational capabilities that lead to effective knowledge creation and transfer, (Argote & Ingram, 2000; Aslam et al., 2013; Dyer & Hatch, 2006; Matusik & Hill, 1998). Successes that can be obtained from organizations that focus on the individual needs needed from their abilities. To optimize organizational performance, is to choose the right human resources and have the ability in roles in the organization. Competence becomes a concept used in measuring performance, and focuses on human resources (Agbim et al., 2014; Bahar & Köroğlu, 2020; Jyoti & Rani, 2015; Robotham & Jubb, 2004). One measure of academic achievement is the competence possessed by students.

Therefore, this study hypothesizes that knowledge sharing will affect academic performance on Figure 1

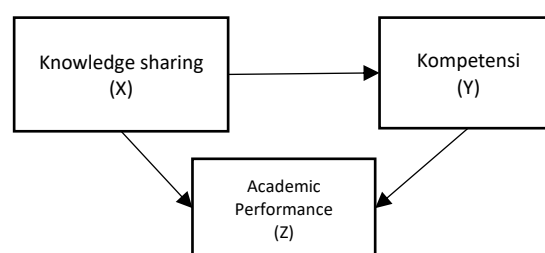


Figure 1 Research Framework

3. Research Methodology

This research uses a quantitative method. In the survey design, researchers describe quantitatively some of the behavior, trends and opinions of a population by means of research a particular sample, (Cresweel, 2018: 208). The sample of this study was students at the state university in Bandung, Indonesia. The number of respondents is 100 students. The research data were collected using paper and online questionnaires. Collecting data in this study using an online questionnaire. The indicators of each statement developed in measuring the variables in the study model are presented in Table 2. The Likert scale is used to measure the causal factors for academic performance, sharing of knowledge and competence, with values from 1 (strongly agree) to 4 (strongly disagree), the constructs and items are briefly described in Table 2.

Table 2 Constructs and items

Constructs	Items
Academic Performance	(AP1) I can repeat and teach the material explained by the lecturer to my friend. (AP2) I can communicate to my colleagues well when the lecturer explained. (AP3) I have the ability to analyze and describe very carefully. (AP4) Sharing knowledge between myself and my colleagues can improve the performance of my team in completing assignments (AP5) Sharing knowledge between me and my colleague can improve my individual performance in completing assignments (AP6) Sharing knowledge between me and my colleague can facilitate individual decision making (AP7) Sharing knowledge between myself and my colleagues can solve individual problems that I have well (AP8) Sharing knowledge between myself and my colleagues can increase the individual's creativity that I have
Knowledge sharing	
Knowledge Collecting	(KC1) I have very good knowledge. (KC2) I always give to always share the knowledge that I ask of my colleagues. (KC3) I really believe in the abilities of my colleagues. (KC4) I really need an official forum to exchange knowledge with my colleagues
Knowledge Donating	(KD1) I feel very proud to receive new knowledge from my colleague. (KD2) If I get new knowledge, I really want to learn more and develop it. (KD3) I always try to improve my knowledge with new knowledge. (KD4) If I get new knowledge, I am often inspired to apply.
Competences	
Competence (Ethics)	(KE1) I am able to control emotions both in lectures and in everyday life. (KE2) I am able to act fairly without being influenced by pressure or (KE3) requests from friends or lecturers. (KE4) I try to be responsible for the actions that I do inside and outside the campus.
Competence (ability)	(KA1) I am ready if I have to work in a team, because I always participate actively in every group. (KA2) I was able to influence other people to agree with me. (KA3) My ability to negotiate is very good.
Competence (Knowledge)	(KK1) I have knowledge of more subjects than my friends. (KK2) My general knowledge is better than my friend. (KK3) I am able to adapt quickly to new environments or situations.
Competence (Relationship)	(KP1) I am able to communicate interpersonally very well. (KP2) I always respect every ethnic, racial and religious difference in people around me.
Competency Analysis	(KH1) In solving problems, I always try to find the root of the problem. (KH2) I always re-correct the tasks that I have completed. (KH3) When I receive information that is unclear, I look for the truth of the information.

This study utilizes path analysis to outline and examine the causal relationships between variables in the model (not a form of interactive/reciprocal relationship). Therefore, in the relationship model between these variables, there are independent variables which in this case are called exogenous variables, and the dependent variable called the Endogenous variable.

4. Results and Discussion

Knowledge sharing, competency and academic performance at state universities in Bandung Indonesia, this study sample was taken from a list of students at university who obtained a sample of 100 students. Data has been collected through online and paper questionnaires by self-managed random sampling method, between March 1, 2019 and April 1, 2019. Paper questionnaires issued for samples that do not have a personal connection through online questionnaires are used through personal connections with shared Google forms via telephone contact number. The composition of respondents based and characteristics of respondents each university based on knowledge sharing variable, competency variable, and academic performance can show on table 3, table 4, and table 5.

Table 3: Cross Tabulation of the Characteristics of Respondents Based on Knowledge Sharing Variable

		Knowledge Sharing				Sum
		Very High	High	Low	Very Low	
Respon		35	65	0	0	100
Sex	Male	17	18	0	0	35
	Female	14	51	0	0	65
	Sum	31	69	0	0	100
Strata Education	D3	0	2	0	0	2
	S1	19	57	0	0	76
	S2	9	3	0	0	12
	S3	8	2	0	0	10
	Sum	36	64	0	0	100

Table 4: Cross Tabulation of the Characteristics of Respondents Based on Competency Variable

		Competency				Sum
		Very High	High	Low	Very Low	
Response		27	71	2	0	100
Sex	Male	16	23	1	0	40
	Female	11	48	1	0	60
	Sum	27	71	2	0	100
Strata Education	D3	0	2	0	0	2
	S1	10	67	0	0	77
	S2	9	2	2	0	13
	S3	8	0	0	0	8
	Sum	27	71	2	0	100

Table 5: Cross Tabulation of the Characteristics of Respondents Based on Academic Performance

		Academic Performance				Sum
		Very High	High	Low	Very Low	
Response		27	71	2	0	100
Sex	Male	16	23	1	0	40
	Female	11	48	1	0	60
	Sum	27	71	2	0	100
Strata Education	D3	0	2	0	0	2
	S1	10	67	0	0	77

S2	9	2	2	0	13
S3	8	0	0	0	8
Sum	27	71	2	0	100

4.1 Hypothesis Testing

The initial Model indicates that all assessment indicators are included in the measurement. Based on the results the calculation is obtained not all indicators significantly measure the dimensions of the varieties. It can be seen from the Average Variance Extracted (AVE) which is worth below 0.5. All Variable dimensions are insignificant to measurements in models. It can thus be sung that the initial model is not fit to measure influence in the hypothesis test. The next step is to remove the indicator with the loading factor value below 0.5. After the model is repaired, the variable dimensions have an AVE value above 0.5. Thus it can be stated that the model is fit for measurement in the hypothesis test. The calculation results to assess the valid and reliable models can be appreciated in the Table 6.

Table 6 Summary model Reliability and Validity

Variable	Cronbach's Alpha Model 1	Cronbach's Alpha Model 2	Average Variance Extracted Model 1	Average Variance Extracted Model 2
Z	0.817	0.775	0.425	0.522
Y	0.846	0.852	0.343	0.575
X	0.676	0.738	0.327	0.639

Results r Square (r^2) for the Z and variable Y before and after the model is repaired can be seen in table 7. The R^2 value of X shows that after the model is repaired the magnitude of X effect is 23.9%. The R^2 value on Z was indicated that after the model corrected the magnitude of X and Y influences was 41.4%.

Table 7 Summary model R2

Variable	R^2 model 1	R^2 Model 2	R^2 Adjusted model 1	R^2 Adjusted Model 2
Z	0.254	0.239	0.265	0.250
Y	0.420	0.414	0.359	0.251

The significance test results in table 8 show the sig. value amounting to $0.000 < 0.05$. Thus, H_0 is rejected and H_a is accepted.

Table 8 Summary research

Variable	Influence		T Statistic	P Value
	Direct	Indirect		
$Y \rightarrow Z$	0.041		0.408	0,683
$X \rightarrow Z$	0.492	0.021	5.647	0.000
$X \rightarrow Y$	0.509		5.554	0.000

Based on Table 8, the hypothesis test can be stated as follows,:

- Hypothesis 1. The X-Y connectivity has a P-Value value below 0.05. The value shows that the relationship between Knowledge sharing of competencies has been significant influence and has a positive relationship of 50.9%.
- Hypothesis 2. The connectivity between X-Z has a P-Value value below 0.05. The value shows that the affiliation among Knowledge sharing of academic performance has a significant influence and has a affirmative relationship of 49.2%.

- Hypothesis 3. Connectivity between Y-Z has a P-Value value above 0.05. The value shows that the relationship between competence to academic performance has no significant influence and but has affirmative relationship of 4.1%.

Connectivity between X and Y to Z has a P-Value value above 0.05. The value performances that the relationship among knowledge sharing and competence simultaneously to academic performance has no significant influence and but has positive relationship of 2.1%. The final result for hypothetical test could be shown on figure 2.

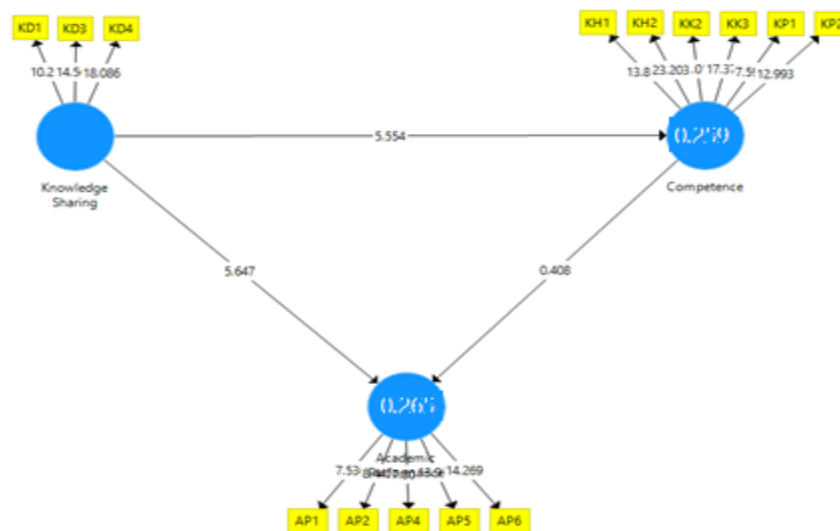


Figure 2 Structure of influence X, Y, Z

The Model of figure 2 displays a significant indicator of the rating of the variable dimensions. The final indicator on each variable mashing is:

1. Knowledge sharing

Knowledge sharing variable dimension is built by the following indicators:

- Proud to receive new knowledge from my colleague.
- Try to improve my knowledge with new knowledge.
- Get new knowledge will often inspired to apply.

2. Student competency

Student competency variable dimension is built by the following indicators:

- General knowledge is better than my friend.
- Adapt quickly to new environments or situations.
- Communicate interpersonally very well.
- Respect every ethnic, racial and religious difference in people around me.
- Try to find the root of the problem in solving problems
- Re-correct the tasks that I have completed.

3. Academic performance

Academic performance sharing dimension is built by the following indicators:

- Repeat and teach the material explained by the lecturer to my friend.
- Communicate to my colleagues well when the lecturer explained.

5. Conclusion and Implication

Based on research conducted on student respondents at the state university in Bandung, then conclusions can be drawn as follows: Based on respondents' perceptions as a whole, the average percentage of knowledge sharing is in the high category, respondents' perceptions as a whole, the average percentage of competency

is in the high category, respondents' perceptions as a whole, the average percentage of academic performance is in the high category.

The results presented that knowledge had a significant affirmative consequence on student academic performance, knowledge sharing on student ability, and student competence had a affirmative relationship but did not have a substantial effect on student academic performance at state universities in Bandung, Indonesia. The results showed that knowledge sharing has a significant affirmative effect through competence on academic achievement, this indicates that competence is an important variable in the process of involvement student knowledge in improving academic achievement at state universities in Bandung, Indonesia. This is contrary to the results conducted by (Moghavvemi et al., 2018)(Aslam et al., 2013)(Chordkunpan & Worasatepongsa, 2020) which says that knowledge sharing is directly related to academic performance.

The results of this research are knowledge sharing has a significant and affirmative effect on competence, this is the same as the results of research conducted by (Lekhawipat et al., 2018) (Ley et al., 2008) (Agbim et al., 2014)(Chordkunpan & Worasatepongsa, 2020)(Chordkunpan & Worasatepongsa, 2020) that individual factors, namely knowledge sharing processes can affect the ability of owned by someone. As well as in this study show that competence has a affirmative and significant effect on student academic implementation at state universities in Bandung Indonesia, this is reinforced by the results of research conducted by (Robotham & Jubb, 2004) (Agbim et al., 2014)(Jyoti & Rani, 2015)(Manwa, 2020) that competencies which are individuals owned by a person can influence individual performance resulting from.

Can be put together that: 1) Sharing positive knowledge is not significant to academic performance, 2) Sharing knowledge that supports positive and significant impact on competence, 3) Positive and significant competence on academic performance and Knowledge involvement has a significant affirmative effect on academic performance through competence

Subsequent research can re-examine the three variables that are the same as this study but with different respondents so that they can distinguish the results of the study, because in this study there are insignificant results that are about the stimulus of knowledge sharing on academic performance. And can compare based on the unit of analysis studied by considering the existing organizational culture.

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