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Learning Community on Computer-Based Statistics Acceptance for Accounting Students

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Abstract

This study aims to examine the influence of the learning community on computer-based statistic acceptance. Acceptability is measured with perceived usefulness variables, perceived ease of use, perceived enjoyment, and reuse intention. This study used quasi-experimental design. To selecting the respondents, researchers used cluster random sampling and a questionnaire to collect the data. Respondents consisted of 207 accounting students of which 86 were engaged in the learning community while 121 were not. One-way ANOVA analysis result showed that students who participated in the learning community have better computer-based statistic acceptance than the students who did not. The learning community was found to be able to facilitate the transfer of knowledge among students more freely than in the classroom. Further research can consider true-experimental design or lab experiment with more rigorous manipulation for controlling bias from another variable that may consist.

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INTRODUCTION

The ability of statistics in business is a skill that business professionals cannot leave behind. The development of quantitative skills has become an essential requirement in accounting curriculum almost all over the world (Warwick and Howard, 2016; Nguyen, Charity, & Robson, 2016). In fact, most of the management and business accreditation bodies such as the Association to Advance Collegiate Schools of Business (AACSB), the Association of MBAs (AMBA), and the Chartered Institute of Personnel and Development (CIPD) have high expectations on bachelors or masters of business to have expertise in quantitative data analysis and data interpretation (Nguyen et al., 2016). However, previous studies have identified the existence of mathematical anxiety in accounting undergraduate students, which inhibits quantitative studies (Onwuegbuzie 2000; Williams, Payne, Hodgkinson, & Poade 2008; Warwick and Howard, 2016).

Statistics or Mathematics subject has indeed become an obstacle for business students including accounting students. Some of them feel that statistics and mathematics are difficult to solve and drain the cost of effort (Warwick and Howard, 2016). However, on the other hand, the acceleration of information technology now provides an alternative solution to the problems of statistical and mathematical economics. Software developers in the last two decades have tried to develop software which is able to solve statistical and mathematical problems, such as SPSS, EViews, STATA, SmartPLS, AMOS, LISREL, and so on. The development of technology has been able to reduce the sacrifice in analysing data with the help of data analysis software. Sagala, Zainal, Effiyanti (2017) indicate that the use of computer-based statistical analysis tools can reduce the workload while analysing data and stimulating the reuse intentions of the analysis tools. Ease gained with the help of computer-based statistics can transform anxiety that students previously felt to be enjoyment and even re-use intention. Although, if someone is reluctant to accept the use of IT then his anxiety will continue to be a stressful behaviour (Effiyanti and Sagala, 2018). Thus, the convenience offered by IT in operating statistical analysis provides two new opportunities at once, namely the acceptance of students on the statistical analysis and the acceptance of students to IT.

To be able to exploit the advantage of both opportunities, higher education institutions should take strategic steps both at the policy and practice level in instructional design. It becomes important because the primary function of Higher Education institutions is to facilitate the intellectual growth of students to have adequate competence (Fogarty, Zimmerman, & Richardson, 2015). Therefore, accounting programs should shift learning activities that previously emphasise understanding of technical knowledge with traditional learning activities into a process that accommodates students to develop their understanding of the principles and concepts that underpin accounting and business practices (Flood and Wilson, 2008).

To achieve a proficient graduate in statistical analysis and interpretation, universities need to enhance both formal and informal existing learning processes. The learning of statistical analysis has found in the classroom as a formal learning. However, the explanation of the use of IT in statistics courses is not always obtained comprehensively by the students in the classroom because of time constraints. To support the quality of the learning process in the college, students need to strengthen their knowledge outside the classroom through the completion of tasks, projects, synthesis analysis, and various other activities. These activities can be done individually, formal groups formed by lecturers, or voluntarily informal or facilitated campus. In this regard, Cavanagh, Evans, Fiatarone, Hagberg, McAuley, & Startzell (1998) and Nguyen et al. (2016) offer that schools should be viewed as a community rather than a formal organization. Within the community, students can behave and learn according to the consequences of their dynamic

culture and learning environment which urge students to live and work productively (Fullan, 1993; Sergiovanni, 1993; Nguyen et al., 2016).

On various conditions, group or community interaction, both formally and informally, can generate knowledge-sharing activities and even knowledge creation which in turn will improve individual and organizational performance (See: Dalkir, 2005; Nonaka and Takeuchi 1995). Several studies have examined the concept in the form of community practitioners and learning communities and reviewed their impact on individual and organizational performance. Balyer et al. (2015) discuss the learning community among teachers which improve student academic performance. While Reinl and Kelliher (2014) found that learning community can explain alteration of social dynamics among students. Several researchers have examined the role of learning communities among students in supporting their academic performance (Leonardi, 2017, Martin and Etzberger, 2015; Davies and Graff, 2005; Chapman, Ramondt, & Smiley, 2005). Interestingly, much of the research focuses on knowledge sharing in the online community. Whereas, actual interaction in the sharing of knowledge directly in the real world has its virtues (see Leonardi, 2017, Reinl and Kelliher, 2014). Therefore, this study aims to examine the influence of the student learning community (non-online) on the acceptance of computer-based statistics of accounting undergraduate students.

This study aims to investigate the impact of learning communities on statistics-based computer capabilities on accounting students. This problem becomes essential because the ability to analyse the data using a computer will be the provision of students when they become business professionals. Business professionals with these capabilities can reduce their cost of effort in conducting data analysis for research and forecasting purposes. So that, the remaining energy can be used for other strategic agendas such as decision making, planning, or finding alternative business models to achieve competitive advantage. Interestingly, accounting students in Medan, Indonesia, basically have their learning community, such as accounting club, accounting students community, economics and business students community, and so on. Therefore, the learning community in this study was formed voluntarily. However, the discussion in the community related to the acceptance of IT-based statistics was implemented by first giving instruction to the students to discuss further in the community after obtaining statistical subject in the classroom. In the activity, the students by themselves became peer tutors and naturally did knowledge exchange (sharing knowledge) and self-development in the community. This research recommends the developing of flexible learning paradigm in the classroom. This research can provide recommendations for policymakers in universities to manage student learning communities by empowering the student's competencies. So the campus can deliberately manage non-classroom activities and programs that offer assistance to accounting students to deepen their cognitive abilities while providing them with opportunities to develop themselves through the community's dynamic (Kaenzig & Keller, 2011).

The framework of IT acceptance has long been developed and its validity test has been conducted repeatedly by many researchers. The most common models used in testing the acceptability of information systems are Davis's Technology Acceptance Model (TAM) (1989) and Davis, Bagozzi, & Warshaw (1989). TAM was built by Davis (1989) to explain the behaviour of computer use (Hu, Chau, Sheng and Tam, 1999). Basically TAM is built on Theory of Reasoned Action (Fishben and Ajzen, 1977) and Theory of Planned Behaviour (Ajzen, 1985). The theory is offered to explain that individuals perform certain actions or intentions for certain actions based on specific reasons and plans. Broadly speaking, the reason for choosing an action can be formed through subjective (external) and behaviour (internal) norms. While further Ajzen (1985) equips the model with belief (internal)

which is deemed to be able to rely on human behaviour. In TAM (Davis, 1989; Davis et al., 1989) adopted both models and embedded the cognitive beliefs of IT users. Belief is built on individual cognitive abilities that make individuals rational in decision making. In this case, the perception of technology acceptance is built by Davis (1989) and Davis et al. (1989) to measure the quality of an information technology so that the technology should be accepted and adopted. While in this study perceptions of acceptability are used to measure computer cognitive which in the TAM model is used as an assumption. The quality of IT is actually used as an assumption. This can be done because the application used in this research is a very public acceptable in various organizations. So the assumption in this study is the real aspect. The use of TAM as a proxy of previous computing capabilities has been used by Effiyanti and Sagala (2018) in predicting technostress behaviour on end-user computing and demonstrating the suitability of a good model.

TAM proposes only two beliefs specifically: perceived usefulness and perceived ease of use, which are the primary determinants of behaviour toward the use of new technologies. Perceived usefulness is the level at which the user believes that the use of the technology is beneficial to him and will improve his performance, while perceived ease of use is defined as the degree to which a person believes that using a system, in particular, will mitigate his efforts (Davis, 1989; Davis et al., 1989, Nasrie and Charfeddine, 2012). Meanwhile, in further analysis, studies show that there is a hedonistic aspect that also naturally adheres to the use of SI despite productive tasks (Van Der Heijden, 2003; Sagala and Sumiyana, 2014). Some researchers reviewed the hedonic aspect with perceived enjoyment constructs (see Venkatesh, 2000; Venkatesh, Speier, & Morris, 2002; Yi & Hwang, 2003), while some other researchers looked at them with specific hedonic value constructs (see Wang and Scheapers, 2012; Zhou, Fang, Vogel, Jin, & Zhang, 2012). Therefore, to measure IT acceptance comprehensively, this study requires perceived usefulness and perceived ease of use as a utilitarian value and perceived enjoyment as a hedonic value.

Furthermore, in general the technological acceptance results in a reduced workload of its user (Effiyanti and Sagala, 2018). The workload that previously became the pressure of work can actually generate comfort in working. These conveniences can ultimately lead to a person feeling satisfied even late in his work. Several previous studies have proven that attitude toward IS can trigger user satisfaction. Meanwhile, satisfaction is an important factor determining behavioural intention in SI (Igbaria and Tan, 1997). Meanwhile, other researchers have also used and tested user satisfaction in the information system success model (DeLone & McLean, 1992; Wang, 2007; Roca, Carlos, Chiu, & Martinez, 2006; Zhou et al., 2012). Likewise, in the end, a key aspect of SI's success is the behavioural intention that is generally viewed with intention variables using (Seddon, 1997, DeLone & McLean, 2003, Roca et al, 2006) or reuse intentions (Wang, 2007; Wang & Scheepers, 2012 ; Zhou et al., 2012). Variations of perceived usefulness, perceived ease of use, and perceived enjoyment of either directly or indirectly will ultimately result in user loyalty to an information system (Wang, 2007; Zhou et al., 2012). Therefore, this study uses the perceived usefulness, perceived ease of use, perceived enjoyment, and reuse intention variable to review user loyalty comprehensively. Those variables are useful to increase confidence in the absorption of computer-based statistics in accounting students.

In the business sector, the learning community is formed as a Community of Practice (CoP). The CoP is a group of individuals (practitioners) who share the same interests and take the place to share, participate and build friendship (Dalkir, 2005). Thus, the CoP seeks to generate knowledge sharing on the issues and obstacles they experience in the work that leads to solving the problem. The process of problem-solving will create new understan-

ding to overcome practical problems at work so that will contribute to innovation (Nonaka and Taekuchi, 1995; Dalkir, 2005). Dalkir (2005) explains initially that this concept is not formally established, because the CoP is a small community formed accidentally after the company employees going home. Over time the company management realized that this concept could contribute to the company to achieve competitive advantage. So along with its development, some companies still keep this community in non-formal condition, and some companies start to formalize it. So that these realizing companies to begin to facilitate and provide the container to the CoP.

Furthermore, Dalkir (2005) also explains that this CoP was ultimately formed for business reasons so that the presence of CoP should contribute to the company's competitive advantage or the creation of innovations which in turn will result in increased profits. Nonaka and Taekuchi (1995) named Japanese Companies as Knowledge-Creating Company. That is because Japanese companies are establishing communities like CoP to improve their production processes and knowledge creation to achieve their competitive advantage. They go through a slow and continuous process to reach their position today. The method of establishing a community is managed to facilitate knowledge sharing as a basis for evaluation, and the results are realized with small improvements on an ongoing basis. Japanese companies also embrace suppliers in the company's CoP group to gain external knowledge that uses it as leverage for competitive advantage and innovation within the company. Thus they have strengthened and built their own value chain.

Regarding teaching and learning activities, CoP frameworks can be adapted to support student academic performance. It can give students the opportunity to develop their practical understanding as well as concepts that are supported by the principles and theories that have been conveyed in class. The CoP among students can stimulate the exchange of knowledge for using computers between students who have computer skills and unskilled students. The transfer of knowledge will narrow the knowledge gap between the two groups of students. Therefore, students who are not proficient in using the computer, after actively sharing knowledge will have the ability in operating computer approaching students who have advanced equipment. That learning dynamics will be very helpful in achieving learning objectives. Hence, the hypothesis formulated as (1) Students who engaged in the learning community have higher perceived usefulness compared to students who do not attend the learning community, (2) Students who engage in the learning community have higher perceived ease of use than students who do not attend the learning community, (3) Students who engage in the learning community have higher perceived enjoyment compared to students who do not attend the learning community, and (4) Students who engage in the learning community have higher perception of reuse intention than students who do not attend the learning community.

METHODS

The population of this study is undergraduate accounting students at the Faculty of Economics, the Universitas Negeri Medan and the Universitas Muhammadiyah Sumatra Utara. The Universitas Negeri Medan represents a state university while the Universitas Muhammadiyah Sumatra Utara represents a private university. We used the purposive sampling technique to obtain the appropriate data. Therefore, the samples used are students who engage in the Statistics for Research and Forecasting Course. Furthermore, we separate the samples into two groups. The first group consists of students who participate in a learning community which classifies as the experimental group while the second group includes students who do not intend to a learning community which classified as the control group. The unit of analysis in this research is individual. Nevertheless, the results of this study can still be generalized to translate populati-

on conditions, because each student will pass both courses and the competence of the population on the ability of computing is assumed to be the same.

This study collected the data for perceived usefulness variables, perceived ease of use, and perceived enjoyment with the help of questionnaires. Questionnaires for perceived usefulness and perceived ease of use variables were adapted from Davis (1989) and Davis et al. (1989), while the perceived enjoyment variable was adapted from Venkatesh (2000) and reuse intention (Wang, 2012). Then, to observe the influence value of learning community variable in this research, experimental manipulation was done, and then test different score perceived usefulness, perceived ease of use, and perceived enjoyment between the two experimental and control groups. The experiment is a research design to investigate a phenomenon by way of engineering conditions or conditions through specific procedures and then observe the results of the engineering and interpret it (Nahartyo, 2012).

This study used a quasi-experimental design which conducted in the field. Data were collected from students with self-reporting using questionnaire. The respondent was chose by cluster random sampling to control response bias while maintaining the natural condition of the sample (Cooper and Schindler, 2001; Kerlinger, 1986). We should maintaining the natural state of the respondents because the subject was engaged in learning community voluntarily and the researchers make efforts to capture that natural phenomenon. We collected the pre-test and post-test data. The pre-test is used to ensure the similarity of sample characteristics. At the end of the manipulation, the respondents were asked to refill the instruments as post-test and asked to fill out a manipulation check instrument to determine whether the manipulation was carried out as per the researcher's expectation. In the first stage, this study divided respondents into two groups; the first group was the experimental group given the manipulation of the learning community. While the other group was classified into a control group that was only given lectures without using the learning community, it served to know the causal effects of community learning design offered to improve students' computer-based statistics skills.

Furthermore, in the second stage students were given a pre-test to map their initial skills. This mapping was used to ensure that both groups have the match characteristics. Furthermore, the group given the community learning manipulation was instructed to engage in an existing learning community, namely Accounting Club, Accounting Student Community, Economics Study Community, etc. The lecturer would continuously confirm the student meeting activities in the community to ensure continuity of knowledge sharing process. Each group was designed with the heterogeneous computing knowledge among students to provide the transfer of knowledge between students who have high competency in computing and students who are not.

Finally, in the third stage of this research was identifying the perceived usefulness, perceived ease of use, perceived enjoyment, and reuse intention. The identification was made with the aid of the instrument as described previously. To improve the efficiency and usefulness in generating quantitative data, this study used electronic questioner with the help of google drive applications.

Furthermore, the data analysed by using one-way ANOVA. One-way ANOVA is used to analyse the significance of differences in computer acceptance of control and experimental group. One-way ANOVA allows researchers to know the significance of the effects of the manipulations that have given to the experimental group by comparison with the control group. This study using SPSS 19 software assistance to analyse the data. Therefore, the interpretation of data refers to its output. The p-value indicates the significance of the

difference (Hair, Anderson, Babin, & Black, 2010).

RESULTS AND DISCUSSION

Respondents of this study were in the age range 19-23 years. It represents all age levels in undergraduate students at the Faculty of Economics. The sample demographics show that the majority of respondents are women. This situation describes the composition of students of the Faculty of Economics who are generally dominated by women. Likewise, this situation can still avoid gender bias against the results of the study of male and female samples remain distributed both in the experimental group and in the control group. Furthermore, from the demographic data can be seen that the number of respondents experimental group as much 86 people while in the control group as many as 121 people and that number has been qualified for testing the experimental hypothesis (Sekaran, 2016). In general, the purpose of respondents to use IT is divided into two, namely the use of IT for and the use of IT for financial research data analysis and financial reporting and forecasting. Most of the samples admitted that they often

Tabel 1. Demografic Data of Sample

Category		Frequency	Percent	Valid Percent	Cumulative Percent
Age	19th years old	45	21.7	21.7	21.7
	20th years old	35	16.9	16.9	38.6
	21st years old	42	20.3	20.3	58.9
	22nd years old	69	33.3	33.3	92.3
	23rd years old	16	7.8	7.8	100.0
	Total	207	100.0	100.0	
Gender	Man	41	19.8	19.8	19.8
	Women	166	80.2	80.2	100.0
	Total	207	100.0	100.0	
Purposes	Financial Reporting and forecasting	106	51.2	51.2	51.2
	Data Analysis	101	48.8	48.8	100.0
	Total	207	100.0	100.0	
Intensity	Rare	4	1.9	1.9	1.9
	Normal	156	75.4	75.4	77.3
	Often	47	22.7	22.7	100.0
	Total	207	100.0	100.0	
Community Engagement	Community Member	86	41.5	41.5	41.5
	Non-Community Member	121	58.5	58.5	100.0
	Total	207	100.0	100.0	

Source: Processed Primary Data (2018)

Table 2. Descriptive Statistics

Variable	Group	N	Min	Max	Mean	Std. Dev.	Std. Error
PU	Community Member	86	23.00	30.00	27.01	2.348	.253
	Non-Community Member	121	16.00	30.00	24.92	2.530	.230
	Total	207	16.00	30.00	25.79	2.658	.184
PEU	Community Member	86	15.00	30.00	24.04	3.453	.372
	Non-Community Member	121	15.00	30.00	22.76	3.016	.274
	Total	207	15.00	30.00	23.29	3.259	.226
PE	Community Member	86	6.00	25.00	20.56	3.404	.367
	Non-Community Member	121	11.00	25.00	19.25	2.785	.253
	Total	207	6.00	25.00	19.80	3.118	.216
RI	Community Member	86	3.00	15.00	12.05	2.192	.236
	Non-Community Member	121	3.00	15.00	10.72	2.085	.189
	Total	207	3.00	15.00	11.28	2.224	.154

Source: Processed Primary Data (2018)

Table 3. The Result of One-Way ANOVA Test

		Sum of Squares	df	Mean Square	F	Sig.
PU	Between Groups	218.749	1	218.749	36.242	.000
	Within Groups	1237.319	205	6.036		
	Total	1456.068	206			
PEU	Between Groups	83.161	1	83.161	8.095	.005
	Within Groups	2105.864	205	10.273		
	Total	2189.024	206			
PE	Between Groups	86.740	1	86.740	9.280	.003
	Within Groups	1916.139	205	9.347		
	Total	2002.879	206			
RI	Between Groups	89.039	1	89.039	19.612	.000
	Within Groups	930.709	205	4.540		
	Total	1019.749	206			

Source: Processed Primary Data (2018)

use the IT, while only 1.9% are rarely using IT. In general, the sample demographics can be reviewed in Table 1 below.

Furthermore, the result of descriptive statistic test is shown in Table 2 describes that perception of acceptance of IT owned experimental group of four variables, namely: Perceived Usefulness, Perceived Ease of Use, Perceived Enjoyment, and Reuse Intention, showed higher mean rate than perception acceptance of IT owned by the control group. Although in each group there are students who have the maximum score and the same minimum, however, students who have high acceptance perceptions of IT was dominated by the experimental group. It indicated by the relatively high standard deviation of the experimental group. To ensure the significance of the differences, we analysed the data using One-Way ANOVA.

The result of One-Way ANOVA between two groups shows that there was a significant difference between perception of IT acceptance of the experimental group and the control group. The conclusion was obtained from the sig number (p-value) of the test result. With reference $\alpha = 5\%$, the critical point of p-value is below <0.05. The p-value on the different perceived usefulness test shows 0.000 indicating the significant difference in perceived usefulness in the students who engaged in the learning community compared to the students who do not attend the learning community. This finding supports Hypothesis 1.

Furthermore, based on Table 2, it can be observed that the mean of perceived usefulness score of the experimental group was higher than the control group. Then, the one-way ANOVA score had the number of sig. <0.05 which was the indicator of the significant differences between perceived usefulness of students who were engaged in the learning community and students who were not involved in the learning community. These findings supported H1. Furthermore, the perceived usefulness variables also showed that students were engaged in the learning community to have higher mean scores than students who were not involved and the ANOVA test results also showed the significance of differences between those groups, these findings supported H2. In the perceived enjoyment variable, it was also found that the scores obtained by the experimental group were higher than the control group, while the ANOVA test result showed number of sig. <0.05 which indicated that there was a significant difference in perceived enjoyment of students who engaged in learning communities and those who did not, so that the H3 was supported. Finally, the perception of reuse intention of students who participated in learning community was also found to be higher than students who were not engaged, and the ANOVA test result showed a significant number sig.<0.05, so that H4 was supported. Descriptive statistical results can be observed in Table 2, while the results of the One-way ANOVA are presented in Table 3.

CONCLUSION

This study aims to analyse the influence of learning communities on the acceptance of computer-based statistics on undergraduate accounting students. This research is necessary because the digital age urges business professionals to work with information technology. Human should able to absorb IT to continue owning a competitive advantage. One of the efforts to prepare such skills is by using both formal and informal learning. Unfortunately, the process of learning in the classroom is only up to the provision of knowledge rather than the cultivation of an understanding of critical analysis in the use of IT in the implementation of accounting. Therefore, this study selected students who are members of the learning community as research subjects to see the dynamic impact of learning experienced by students through the learning community on IT acceptance.

This research has been carried out following the research methods that have been designed and found the results to answer the hypothesis or research question. The results of the study show that the learning commu-

nity has a significant causal relationship to the acceptance of IT students. The virtue that occurs in this learning community is the process of sharing knowledge experienced by students in organizing the learning community. Hence, there is a process of developing knowledge from the dynamics of the community itself. The empowerment process can move the advantages of one community member to another community member and transform the weakness into the strengths of community members. In line with previous studies, the confidence of members and values within the community will influence the perspectives of other community members and increase community empowerment success (Crawford, Roger, & Candin, 2016; Hunt, 1998; Leonardi, 2017; Rizan, Maasum, Maarof, 2012).

The acceptance of IT in this study is a dependent variable which was influenced by the community as independent variables. Community learning is known to have a positive impact on community members. The positive effect is realized on the actualization of materials obtained in class in the learning community. Students can freely apply materials received in the classroom and ask or think more freely with colleagues in the community. Various debates, arguments, analysis, synthesis, teamwork, and other group dynamics will occur naturally within the community and trigger the development of knowledge which in turn makes students enjoy more the use of IT in their daily activities as candidates for accountants. The findings reinforce previous studies which suggest that learning communities can play a role in complementing the initial capacity of community members or contributing to the learning of particular subjects (Gougeon, Johnson, & Morse, 2017; Mtika and Kistler, 2017). Other studies in more detail revealed that the community would have a positive impact if the interaction between its members is well implemented and the community has a clear purpose as the basis for the implementation of the learning community (Dholakia, Bagozi, & Pearo, 2004; Sasao, Konomi, Kostakos, Kuribayashi, & Goncalves, 2017). In this case, knowledge sharing is one of the critical value of the communities to compete competitively (Al-Hawamdeh, 2003; Navimipour and Charband, 2016).

Those findings address and reinforce the arguments conveyed by Liu and Liu (2017), Wygal (2015) and Gougeon, Johnson & Morse (2017) that communities have benefits for the performance progress of their members. Similarly, Grant (1996), Dalkir (2005) and Alavi and Leidner (2001) stated that in the community there is a process of transferring knowledge from individuals or groups so that it is useful for others. On the other hand, this study has also strengthened previous studies on communities that impact community members and the community surrounding communities (Datzberger, 2016; Samkin & Francis, 2008).

From an academic point of view, this research has recommendations in the practice of community learning on university regarding synergy between community and community member. The process of knowledge sharing requires the quality to enhance the competitive advantage of its members. Community quality should be built from the quality of interaction between community and community members. Moreover, the study also recommends policy makers at universities to formally accommodate and manage student learning communities which in turn will enhance the university and regional competitive advantage at national even global scale.

Limitations of this research lie in the issue of gender because this study dominated by women as research subjects and the narrow scope of samples with only 64 samples. Development of a sample based in gender cannot be overcomed because it was determined based on the number of members registered in the community. The level of confidence in this study can be improved by conducting lab experiments by controlling gender as well as other experimental treatment. It can be a reference for the next researcher.

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