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Competency Mastery of Information Literacy and Collaboration on Prospective Teacher Students

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Abstract

This study aims to describe and explore the achievement of competencies in information literacy and collaboration skills as part of 21st century competency in accounting education students at the Muhammadiyah University of Surakarta (UMS). The respondents of this study were 207 students with a mixed method approach through convergent parallel design. The results of the study showed that most students had information literacy skills but were still relatively low. This can be seen from students who had mostly used the internet, but did not use trusted sources. This condition is exacerbated by students not filtering and validating the information so that the information submitted tends to be biased, only a few used credible journals as a reference while the rest used sources whose information credibility was still doubtful. In collaboration skills, the achievement of this competency varies between students who are active in campus organizations, non-campus organizations, and do not follow any organization. Those who were active in the organization seem to be better at mastering this competency. This can be seen in the aspect of contributions in groups and accepting responsibility. Courage to accept new responsibilities was not fully owned, some were still hesitant to accept the responsibility given to him for various reasons, especially those classified as inactive organizations. In this aspect, it appears that students who were active in non-campus organizations considered a mandatory task to be disliked. Whereas in the aspect of collective responsibility, students both active and non-active in organizations had the same competencies where they wanted and were able to work together in teams..

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INTRODUCTION

The teacher is an important factor in the world of education so it must be able to be someone who is longlife learner by following the times (Ciolan, Petrescu, Radulescu, & Bucur, 2014). Education provides a vital position in preparing high quality human resources as well as producing graduates who are ready to compete. To improve the quality of education standards, improving the quality of teachers must be a priority (Budiyono, 2016).

In this 21st century era, classroom management has a profound effect on teacher professionalism (Ninlawan, 2015). Professional teachers must be able to manage and produce students to have competencies that are in accordance with the demands of the times. Preparing students in the 21st century is the main key in reform in the world of education (Heinrichs, 2016). There are 8 key competencies, namely: (1) Communication with mother tongue, (2) Communication with foreign languages, (3) Mathematical competence, basic science and technology, (4) Digital competence, (5) Competence in learning something, (6) social competence and citizenship, (7) Innovative power and citizenship, (8) Cultural awareness and expression (Tuparova, Kaseva, & Tuparov, 2014).

One of the important factors in 21st century competency is learning and innovation skills (Ongardwanich, Kanjanawasee, & Tuipae, 2015). Whereas to be able to be a person who is able to learn and innovate must have the ability including: (1) communication and collaboration, (2) communicating clearly, (3) collaborative with others, (4) cricital thinking and problem solving, (5) creativity and innovation, (6) leadership and responsibility, (7) productivity and accountability, (8) social and cross cultural skills, (9) learning environment (Nissim, Weissblueth, Scott-Webber, & Amar, 2016; Pacific Policy Research Center, 2010; Quieng, Lim, & Lucas, 2015). Besides these factors, leadership, community, and sharing knowledge between students have a significant impact on mastery of 21st century competency (Heinrichs, 2016).

In addition, education for prospective teachers must be carried out effectively to support the complex burden of teachers in the 21st century era (Katitia, 2015). In this era, social media can be used as an effective learning tool (B Boholano, 2017). There are three main competencies that must be owned by humans at that time, namely foundational knowledge (to know), meta knowledge (to act), humanistic knowledge (to value) (Kereluik, Mishra, Fahnoe, Terry, & Karr, 2013). In foundational knowledge, there are several competencies that must be possessed, namely ICT literacy, core content knowledge, and cross-disciplinary knowledge. In terms of learning to act, there is creativity and innovation, problem solving and critical thinking, and communication and collaboration. In addition, humanistic knowledge has cultural competence, ethical/ emotional awareness, and life/ job skills.

Various efforts have been made to achieve 21st century competency, one of which is carried out by teachers in Singapore who use 21st learning competency design (21LCD) to improve 6 dimensions of competence (Trinidad et al., 2013). In addition, to support the achievement of competencies, there is Learning Analytics (LA) which is used to track student learning behavior, education data, pattern visualization, and providing feedback between educators and students (Buckingham Shum & Deakin Crick, 2016).

Unfortunately, there are several factors that hinder mastery of 21st century competency in the school and university environment. The results showed that even though the student's/ student's ICT skills were very good and the level of library use was high, these factors could not fully support 21st century competency improvement (Ahmad et al., 2016; Husaini, Aziz, Abdullah, & Rambli, 2012). The results of other studies show that teachers only have moderate abilities in 21st century competence so that they are unable to educate students to get the desired competencies (M, E. S P, & Chiemezie, 2016). In fact, with the rapid development of technology now requi-

res teachers to be able to adjust their pedagogical competencies by using the digital world (Nykvist & Mukherjee, 2016). In this regard, the government is advised to make proper regulation and planning, revise the curriculum, set clear goals and curriculum, digitize in the field of education, and improve interaction between schools and the community to improve community and student competencies (SC Kong et al., 2014; M et al., 2016).

The studies that have been conducted have shown that ICT capabilities and collaboration are important to support 21st century competence. The ICT capabilities of students can now be said to be good, but these studies have not revealed how students use the internet for their competency enhancement needs. In addition, the collaboration ability of students who are active in organizations both inside and outside the campus has not been revealed by previous studies.

The accounting education program of Muhammadiyah University of Surakarta (UMS) is one of the study programs for accounting teachers who are accredited A (superior) by the National Accreditation Board of Higher Education (BAN-PT). As one of the leading institutions in the field of education, this study program always strives to improve the quality of inputs, processes and outputs. One of the obstacles faced in the lecture process is the weakness of student soft skills related to the competencies needed in the 21st century, namely information literacy competencies and cooperation competencies.

The indication of the weakness of this competency can be seen from the performance of students when working on assignments that require the ability to find valid information through the internet and tasks that require collaboration with peers. When the task of making a paper for example, there are still many students who copy-paste from the internet even from obscure sources. In addition, the use of gadgets and facilities from libraries such as journal access has not been utilized optimally by students.

In terms of collaboration, every lecture design in accounting education study programs always uses designs that prioritize group assignments to hone students' social skills and use e-learning fairly well. However, based on the observation of the teaching staff in this study program, group lectures became one of the most ineffective lecture designs to be carried out because in practice in one group only a few students or even just one person had a large role while others did not have a contribution that significant.

With regard to these matters, this study aims to describe and explore the achievement of information literacy competence and collaboration skills as part of 21st century competency in prospective accounting teacher students in the UMS accounting education study program. Therefore, this study will describe literacy competencies and student collaboration and explore trends from various groups of students regarding the phenomena encountered.

METHODS

This research is a mixed method approach where this method is a procedure for collecting, analyzing, and "mixing" both quantitative and qualitative methods in a single study or a series of studies to understand a research problem (Creswell, 2012). There are several research designs using mixed method including convergent parallel design with the aim of gathering quantitative and qualitative data, then combining and checking data, and analyzing results to solve research problems. This design is done by collecting qualitative and quantitative data then the results are compared and confirm each other.

In this study, this design was used with qualitative and quantitative data then the results of the analysis of the two data were compared and interpreted. Interviews were conducted for students who participated in student organizations and students who had outstanding academic abilities compared to others with a total of 15 people. While the quantitative data involved respondents of 192

UMS accounting education students. The validity of the data used triangulation with data reduction, display data, and conclusion drawing/ confirmation as the analytical step used. The following is the design of the research carried out as shown in Figure 1.

RESULT AND DISCUSSION

Information Literacy Competency

As human of generation Y, where they are born when information and communication technology has grown massively, the resource person has used the latest technology in various activities. For example, all respondents who in fact have the best academic ability are able to use various technological devices such as laptops, smartphones and supporting devices. They are able to use email, chat applications, and find information sources using Google, and others by using internet.

However, the informant explicitly indicated that the mastery of the technology had not been maximized to support the teacher competency of 21st century. This was indicated by a statement from several speakers that in teaching training (microteaching), most students used textbooks and the internet. In terms of internet usage, resource persons do not use relevant online sources such as sources from online journals that provide new information. The entire resource person uses Google facilities in general without filtering out learning resources with good source validity.

The resource person in the source search stated "I usually use textbooks," "of course, for the first time I use internet, but not only about the internet. So I combined it with the library book. "In a statement from the respondent, this shows that the search for learning resources starts using the internet and is integrated with offline media (books, student worksheets, and handouts). The use of the internet here has not shown the maximum use of technological development. Respondents did not show the use of the internet in depth, they tend to use the internet with the easiest reason to do it. This is reinforced by a statement regarding the use of handouts "yes, at the school there is also a textbook that I use for internship guidelines". The statement shows that the use of textbooks is still a guideline for students to practice teaching.

The results of the interviews are then

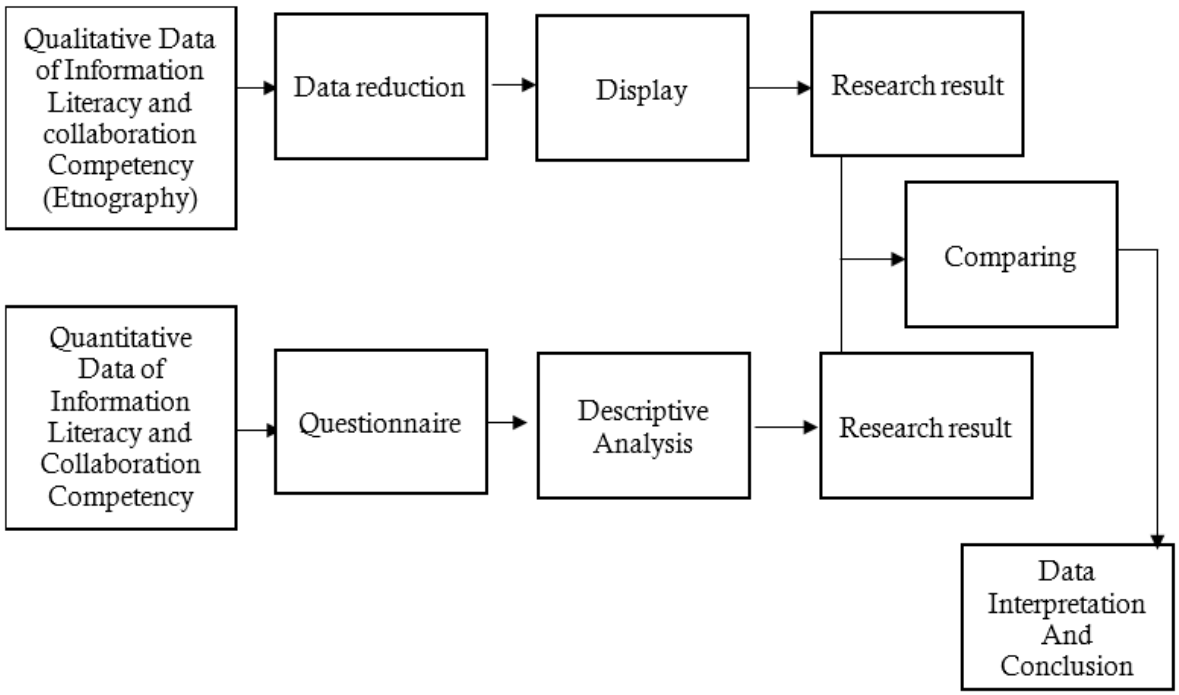

Figure 1. Research Design

compared by giving questionnaires with open and closed statements. The results of the analysis to keep up with technological developments are presented in Figure 2.

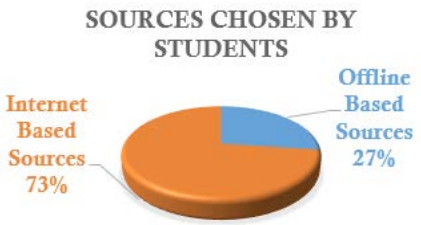

Figure 2. The main source from students
Sourcer: Processed Primary Data (2018)

These results indicate that 73% of UMS accounting education students will first find learning resources over the internet compared to using other sources. While 27% prefer other sources to look for references such as books, handbooks, modules, and so on. Students who use the internet as the main source assume that the internet makes it easy to find references. In addition, up-to-date information can be obtained through internet facilities. This can be seen from the statement of respondents "making it easier to find references"; "Everything on the internet is complete" and other similar statements.

Whereas students who claim the internet are not the main source reason that books are the most relevant source. They also stated that internet use was carried out if the material needed was not found in the book. In addition, the factor of lecturers who still use books in their lectures has resulted in students only relying on the book. This can be seen from the statement "Because the internet is a supporting source to look for references and the main source is books" "There are still many conventional lecturers who use books" "Because the internet is only a book companion".

However, although 72.8% of students use the internet as their main source of learning, they tend not to have special websites or do not know which sources are credible. This can be seen from the results of a questionnaire that shows that 70% of students have not been able to sort credible information on the internet. The following is a graph of the results of the questionnaire presented in Figure 3.

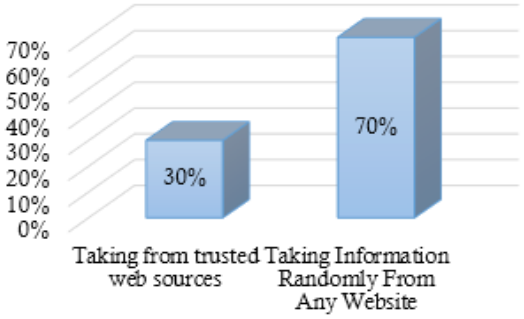

Figure 3. Percentage of source usage from trusted/ valid website information
Source: Processed Primary Data (2018)

Of the 30% of students who claimed to have a referral web, researchers then searched for information about any web that was used as a reference for students to find information. The following are the results of the analysis presented in Table 1.

Table 1. List of Student Referral Webs

Sumber	Presentase
National and International Journals	5,2%
Google Scholar	15,5%
Wikipedia	19%
Others	60,3%

Source: Processed Primary Data (2018)

The results above show that although the internet is the main source, the students have not been able to sort and choose information to be used as a reference. Of the total students, only 5.2% of information stores from journals, while the rest Google scholar 15.5%. Both sources are still quite reliable to be used as references. While wikipedia is a web that contains free writing from anyone related to particular information without prior validation. Therefore, this web cannot be used as a reference. Most students 60.3% take informati-

on from very weak websites such as blogspot, wordpress, or retrieve any information that appears with keywords entered into Google.

Further information is extracted regarding the amount of information on the internet that must be confirmed. To see this, the researchers tried asking the respondents whether they confirmed the information they received from the internet. The results of the analysis are presented in Figure 4.

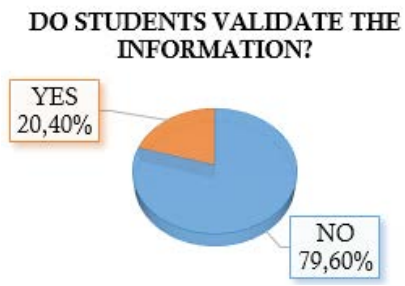

Figure 4. Percentage of information validation by students
Source: Processed Primary Data (2018)

These results indicate that 79.6% of students did not validate the information they obtained from a source with other sources as a comparison. Students tend to copy or directly refer to the information as a basis for making assignments, analysis and even in making a thesis. While most students doing information validation will see the reference books they have. In addition, students will ask their friends to confirm the truth. This can be seen from answers such as "Match the book, if there is a book, if confused, ask the lecturer" and "Usually I find out the answers of friends whether the essence is the same or not".

Collaboration Competency

Working with a team is something that must be owned by prospective teachers, because in the future when they become teachers, of course, they must be able to work with fellow teachers as a team. Working in teams affects the level of productivity of prospective teachers/ teachers and also to support learning in the context of developing students.

The interview results showed that most of the speakers had not been able to work well with the team; this was shown by several speakers who preferred individual tasks over group assignments. The resource person prefers "individual assignments, if the group work, sometimes only a few works". But both are good. "Actually the same, if individuals grow their responsibility. But the group is good, for example, I can't work on that part, I can ask others for help". From the statement, it can be seen that respondents still lack trust in other group members and prefer individual tasks. Respondents did not show good teamwork, some felt that group assignments were a burden and some used group assignments to reduce the burden. Strengthened by the statement of teamwork in the task of the group "individual assignments, there are usually groups that only have names but they do nothing". The statement shows that group assignments are only done by a few individuals, which means that the team's work ability is lacking.

In a further analysis, researchers collected data from 98 accounting education study program students with the following distribution.

Table 2. Student Organization Activities

No	Organization Activities	%
1.	Study Program Student Association (HMP)	24,7
2.	Student Executie Board (BEM)	1,1
3.	Student Representative Council (DPM)	4,3
4.	Muhammadiyah Student Association (IMM)	1,1
5.	Muslim Student Assocition (HMI)	1,1
6.	Other Intra Campus Organizations	11,8
7.	Non-campus Organizations	16,1
8.	Not following any Organization	54,8

Source: Processed Primary Data (2018)

Table 2 shows 54.8% of students do not participate in organizations while 45.2% of students follow both inside and outside campus. The next analysis is about how the collaboration of student teams that follow the organization and those who do not follow.

First, the collective aspects of responsibility consist of: (a) students who are not active in the organization, (b) Students who are active in the organization. Students who are not active in the organization, at this stage, students are asked to answer whether a team's work is a joint responsibility. The results of the analysis show students in this group think that if a work is done together it will be completed quickly and easier to implement. This can be seen from the general answer that they are "Because it can simplify the work"; "In order to finish quickly". Both of these factors (quickly completed and easy) are the factors that cause them to think that cooperation is a key in completing teamwork.

Students active in the organization, the same questions are asked to students who are active in the organization. In general, students of this group have the same thoughts, namely the work carried out together will be faster and easier to do. However, this group underlines the teamwork and responsibility that must be taken in carrying out the work. Fast and easy work is not the main point in completing a job. In addition, this group of students saw the goals that the organization wanted to achieve so that they would see the existing resource potential to be used responsibly. This can be seen from the respondent's answers such as "Because the thing that gets from the organization is being able to be responsible for everything that is carried out with any risk together. But the most important thing is to be organized primarily to form those responsibilities for each person."

Second, the contribution aspect in the group. In general, students who do not participate in organizations both inside and outside the campus have the awareness to contribute to the group. It's just that there are some students who say it depends on the situation and conditions that require it to contribute. There must be a driving factor that makes some students make maximum contributions in groups. This can be seen from the statement "If giving energy and mind is not appropriate for the time it will be considered too excessive and may be underappreciated" and "because not all work can I do".

Active student organizations, students in this group assume that contributions to groups are very important. All students stated that contributions to groups are part of the responsibility that shows their commitment to the organization they follow.

Third, the courageous aspect of accepting responsibility. In this analysis, researchers are interested in seeing those who choose to answer depending on the situation and conditions. Respondents were asked to give a response if he was given a responsibility for certain tasks that he had never handled before. This competency is very important to be mastered in the 21st century because conditions around the workplace can change at any time. The results of the analysis show that most students who are active organizations on campus and outside the campus show the courage to take on the challenges given.

However, not all students said firmly that they would accept this responsibility. Some students both active and inactive in the organization seemed hesitant to take on new responsibilities. Although it seems that the reasons for rejection or hesitation from students who are active in organizations are more rational than students who are not active in the organization. Based on the analysis above, the following is an outline of the reasons students who answered hesitation in accepting a new responsibility whether active in organizations inside or outside the campus or those who did not follow any organization

Table 3. Reasons for Students to Hesitate to Accept Responsibility Based on Participation in Organizations

Types of Organizations	Frequency	Reasons to Hesitate
Study Program Student Association (HMP)	3	(1) Because of the principle of the right man on the right place. If we are leaders, placing the wrong people will have a negative impact on the work (2) We try our best to carry out our duties and responsibilities, even if they look difficult (3) Because the leader believes that I am able to do and complete the task, but I consider my abilities
Other Intra Campus Organizations	1	(1) Depending on the type of work that will be given to me
Non-campus organizations	5	(1) All depends on their respective duties, not everything I can do (2) Sometimes we are entrusted with the task because we are able to do well but sometimes because of replacing other people who do not want to do the work. No more choice
Not Following Organization	7	(1) Because of adjusting my own abilities (2) Because in a new group, many are not convinced by the abilities we have (3) Because I am not great at everything (4) I can complete an assignment if the task is in accordance with the abilities that I have and my condition at that time (5) Because every human being has limits (6) The leadership must also understand the capabilities of members, if the task is in accordance with the abilities that I have had so far, God willing, it can finish

Source: Processed Primary Data (2018)

Based on Table 3, there was a group of students who participated in the organization within the campus having optimism even though they were still considering accepting the assignment given by the leader to him. This can be seen from the reason students who follow the Study Program Student Association (HMP) where they believe that the leader has carefully considered in choosing people in a particular position. Different impressions arise in students who follow organizations outside the campus. The task given to him is considered to be the burden of another person where the person who is supposed to do the work cannot carry it out or in the sense that there is another work to be done.

Very different answers to tendencies were shown by groups of students who did not follow any organization. All students who choose to "think" in accepting responsibility given by the leader assume that the assignment given to him must be in accordance with his abilities and competence. They tend not to accept new challenges and do not believe that something can be learned. The impression was that the students were not confident that they were able to carry out the task. The impact may be that they do not accept these responsibilities and choose to avoid and surrender to others.

The results of previous studies showed that students basically had basic skills to be able to achieve information literacy competencies even though they still had a low ability to utilize information for research purposes (Dalgleish et al., 2007; Lanning & Mallek, 2017; Porat, Blau, & Barak, 2018). This can be seen from the results of research on Muhammadiyah University students in Surakarta where all respondents had sufficient access to internet access but further analysis showed that most students did not use valid references such as reputable national and international journals. In fact, most of them take information randomly without validating the information obtained. In fact, other studies show information literacy has a profound effect on students' writing skills and the use of that information for work purposes (Baxter, Hastings, Law, & Glass, 2008; Shao & Purpur, 2016).

In the object of this research, all resources to obtain information literacy competencies have been owned such as the existence of laptops, smartphones, internet access, and the availability of digital libraries that have been subscribed to journal management institutions such as Proquest and Ebsco. However, this seems not to be fully utilized by students. This can be seen from the absence of answers from respondents who chose to use access from the library to find information. Of course this is an interesting thing considering that information literacy skills are very important to have (Lanning & Mallek, 2017), As done in English speaking countries such as the United States, Australia, the United Kingdom and New Zealand where these countries are very massive in encouraging their communities to improve information literacy (Folk, 2016).

Despite the availability of sufficient resources for digital information literacy, in the context of respondents in this study, more than 70% of respondents still use offline sources such as textbooks or handouts given by lecturers as the main sources. This condition results in the vastness of student knowledge compartmentalized in what is delivered by the handbook and / or delivered by the lecturer. Seeing this, a tool is needed to diagnose literacy competencies for all prospective teacher students to be able to determine the right strategy to improve these competencies.

Information literacy competencies are very important in the 21st century era. At this time, one of the main focus of the workforce is the broad knowledge of prospective workers to be able to produce the right decisions. Basically the ability of someone to make a decision is very dependent on the knowledge they have which is one of the important factors is literacy competency that can be obtained by sorting the information obtained. It should be noted that in the current digital era the information available is very abundant. The inability of students or workers to sort information can have a negative impact on the decisions taken. This is in accordance with the results of a study by Widjajati (2016) which suggests that in this era of globalization, improving the quality of educational needs must be done. Changes and challenges that occur in society in this era occur very quickly and heavily. This condition requires education to anticipate it, because they will bring competition.

In the context of this study where respondents are prospective teachers, the results shown are quite alarming. Teachers as student role models should naturally have maximum literacy competence. This is needed to be able to encourage students to have higher literacy competencies because global competition is inevitable. The results of this study also indicate the possibility of weak teacher education processes that lead to mastery of information literacy. It should be suspected that there is something wrong in the lecture system either in face to face or on giving projects to students.

Prospective teachers must have more ability in various ways along with the improvement of teacher competencies which is very important to do (Ivanova & Skara-Mincane, 2016; Woodcock & Hardy, 2017). In the current era, increasing teacher competency must begin with increasing information literacy in teacher candidates. Changes need to be made both in terms of government, educational in-

stitutions and ways of learning prospective student teachers.

In terms of collaborative competence, this study shows that in general students who are active in intra-campus and non-campus organizations have the potential to more easily work with other people than those who do not follow any organization. The results of this study support previous research, namely activities outside of academics foster an attitude of being able to work together in teams in Hong Kong (Sciarra, Seirup, & Sposato, 2016). Respondents in this study who were active in intra-campus organizations and those who were not active in the organization seemed to have good soft skills, this result was in accordance with soft skill comparative research between Indonesian and Malaysian students which showed that Indonesian student skills were better (Sobri, Hanum, Zulnaidi, Ahmad, & Alfitri, 2018).

Previous studies stated that all extracurricular activities will improve relations between students and ultimately will increase collaboration (Sabo & Muresianu, 2015), but this research shows different things. Students who are active outside campus do not have the same ability as those active in organizations on campus. This can be seen from the statement that some students who are active outside the campus consider that the task assigned to him in a mandatory manner is a burden. Unlike students who are active in campus organizations, they tend to carry out whatever tasks are given both appointed and volunteered. These results support research that shows that not all extracurricular activities have a positive impact on students (Shulruf, Tumen, & Tolley, 2008).

Enhancing student collaboration skills can be done through social media, which is currently growing rapidly like Facebook (Khan, Wohn, & Ellison, 2014). For students who choose to discuss and collaborate with their partners without having to leave home, it seems that social media can be developed as a means to improve students' cooperative ability. This can be done because none of the students today is not connected to a smartphone connected to the internet. This alternative can be used as another option for increasing 21st century competency. In addition, increased collaboration can be done through short courses that have a clear curriculum which will ultimately improve achievement in certain fields (Gibert, Tozer, & Westoby, 2017; S.-C. Kong, Chiu, & Lai, 2018).

CONCLUSION

The results showed that the achievement of student information literacy competencies was low. Although 73% of students have used the internet as the main source of reference search, the ability to sort and select and confirm the information obtained was low. However, from 73% of students who used internet as a learning resource, most did not validate the information obtained. This is indicated by 70% of the students not taking from trusted sources. While the rest (30%) felt they were using the right reference.

Unfortunately, further search shows that 30% of these students did not use valid sources for information. A small portion of 5.2% and 15.5% of students took from research journals and google scholar, the rest (60.3%) quoted from weaker sources such as wikipedia, news websites, even blogs such as blogspot and wordpress. In addition, only 20.4% of students sorted their reference sources to validate information obtained by looking for comparative information from other sources, while the rest directly trusted one source.

From the aspect of collaboration, achieving this competency is quite varied for students who were active in intra-campus organizations, non-campus, and who did not participate in any organization. In proportion, 54.8% of students who did not join the organization and 45.2% who participated in organizations both inside and outside the campus had different tendencies in certain aspects. Especially for collective responsibility, between active students and non-active students had the same thoughts where work must be done

collaboratively by paying attention to the objectives to be achieved. In contrast to aspects of involvement in groups, students who were active in organizations consciously wanted to contribute to groups without having to have certain external stimulants. Different things are shown by students who were not active in organization; they needed the right reasons to want to work in groups. They felt there must be strong reasons why they should do the work, and why not others. In the aspect of accepting responsibility, students who were active in intra-campus organizations had high optimism regarding any responsibility given to them, while students who were active in non-campus organizations considered the responsibility given by the leader directly in a mandatory way to be less favored. Different results are shown from students who were not active in the organization; students tended to reject the responsibility given to them because they felt that their abilities were not in accordance with what was mandated to him. Group students will only do work that is in accordance with their abilities

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