

WhatsApp Group for Teaching and Learning in Indonesian Higher Education

What's Up?

<https://doi.org/10.3991/ijim.v14i13.14121>

Imam Fitri Rahmadi

Universitas Pamulang, Tangerang Selatan, Indonesia

imamrahmadi@unpam.ac.id

Abstract—Technology plays a pivotal role in today's teaching and learning process in terms of facilitating learning and improving student's performances. Exploring an avant-garde technology to be integrated into the classroom is critical for finding new ways of learning. This study aimed at investigating university students' usage, perception, attitude, and readiness towards the WhatsApp group as a teaching and learning platform. This is an exploratory study engaged in one class of university students after joining a course conducted by integrating a WhatsApp group for teaching and learning platform. The result revealed that students actively use WhatsApp in daily life, but unfortunately passively use it for learning in a group. Students recognise that the WhatsApp group has potential for ubiquitous learning, and they have a good attitude to this app as a teaching and learning platform. However, it was found that students are not ready yet to learn actively, collaboratively, and independently through the WhatsApp group. The academic and practical implications of these findings are discussed, and avenues for future research outlined.

Keywords—Teaching and learning platform, technology integration, WhatsApp group.

1 Introduction

Integrating WhatsApp application into the instructional processes in higher education has been a trend in the last decades. The use of this application is aimed at facilitating learning and improving student's performances in particular subjects or courses including English [1], [2], [3], [4], [5], [6], [7], physics [8] and education [9], managing teacher-students interaction [10] as well as working on collaborative learning [11] and research projects [12]. In short, it is obvious that the application has potential pedagogical, social and technological benefits.

WhatsApp is a free mobile instant messaging application founded by Jan Koum and Brian Acton in 2009. Today, this application has been using by 1 billion people around the globe in over 180 countries. WhatsApp was developed as a communication application to get in touch with friends, families, and colleagues anytime and anywhere in

the world without barriers. The main features of WhatsApp are sending and receiving a variety of media: text, photos, videos, documents, and location, as well as voice and video calls [13]. With those features and advantages, it appears that the WhatsApp application is promising for ubiquitous learning.

Ubiquitous learning or u-learning is a new learning paradigm based on ubiquitous computing technologies. Although there are different views in defining u-learning, the existing definitions have been synthesized by Yahya, Ahmad, and Jamil [14] as “a learning paradigm which takes place in a ubiquitous computing environment that enables learning the right thing at the right place and time in the right way.” This kind of learning gives a possibility for learners to learn anywhere and anything they want.

Exploration of avant-garde technology like WhatsApp to be integrated into the classroom is critical for finding new ways of learning. Some studies have investigated the WhatsApp integration for teaching and learning in a variety of issues. The study about students’ perception of M-learning through WhatsApp application revealed that this method is favorable to the students [15]. Students recognised that the WhatsApp application has a positive effect on studies [16]. A more comprehensive study conducted by Bansal & Jhosi [17] showed that WhatsApp has a potential for ubiquitous and collaborative learning, increases students’ social interactivity, and is favorable for learning.

This study confirms the results of previous studies and investigates further the university students’ usage, perception, attitude, and readiness towards the WhatsApp group as a teaching and learning platform for learning in active, collaborative, and independent ways. The results of the study could be beneficial for improving the practice of technology integration facilitated by the WhatsApp group in the higher education context.

2 Methods

The study is an exploratory study participated by one-class university students after joining a course conducting by integrating a WhatsApp group for teaching and learning platform inside and outside the classroom. There were 25 first-year students in the class voluntarily participating in the study. It was declared in advance that their engagement in this study would not affect their course grade and all collected data is used merely for research purposes. This study was conducted in the Department of Civics Education, Faculty of Teacher Training and Education, Universitas Pamulang, Indonesia from September to December 2018.

An online questionnaire in Google Form was developed for gathering the primary data about university students’ usage, perception, attitude, and readiness towards WhatsApp group as a teaching and learning platform. The Google Form link (<https://forms.gle/2oRKVmAZawYN7Ehb6>) was shared to the WhatsApp group in order to be filled by students. The questionnaire is a four-level Likert scale: 1) 1 = strongly disagree; 2) 2 = disagree; 3) 3 = agree; and 4) 4 = strongly agree. Particularly on the readiness issue, the scale includes: 1) 1 = never; 2) 2 = sometimes; 3) 3 = often; and 4) 4 = always.

All data from the questionnaire was analysed by a descriptive statistics technique to simplify, analyse, and describe the key features of the data [18]. The first step was to tabulate the data in Microsoft Excel software, adding percentage score on the data and measuring the central tendency with focus on the mean. The analysed data is presented in summary tables. In addition to the data collection method, the activities on the WhatsApp group were retrieved, analysed and visualised by using Chatvisualizer. It is an application for generating data visualisations from WhatsApp chats with ease [19]. No prior coding skill or advance technical knowledge is required to visualise the data.

3 Results and Discussions

The primary data of this study have been gathered by questionnaire. It asked for general profile data, specific information related to the WhatsApp usage, and particular issues regarding students' perception, attitude, and readiness to learn by using WhatsApp group in active, collaborative, and independent ways. The study findings are presented in the following sections starting by portraying the profile of respondents, describing data of the investigated issues, and finally discussing the key findings.

Table 1. The profile of respondents related to gender, age, and marital status

Gender	Respondents	Percentage
Male	13	52%
Female	12	48%
Total	25	100%
Age	Respondents	Percentage
< 20 years	21	84%
20 – 22 years	3	12%
23 – 25 years	1	4%
> 25 years	0	0%
Total	25	100%
Marital status	Respondents	Percentage
Single	24	96%
Married	1	4%
Total	25	100%

Table 1 describes the gender, age, and marital status of respondents. There are almost an equal number of male and female respondents. The vast majority of respondents are aged less than 20 years while no respondents are aged over 25 years. Only one of the respondents is married.

3.1 Students' usage of whatsapp in daily life and for learning in group

The students' WhatsApp usages are related to the use of WhatsApp in daily life and WhatsApp group for learning. In the context of everyday life, it addresses their familiarity, experience, and frequency of using the WhatsApp. The data of users' statistics,

activities time and users' activities on the WhatsApp group for learning were retrieved from the Chatvisualizer.

Table 2. The profile of respondents related to the WhatsApp usages

Familiarity with WhatsApp	Respondents	Percentage
Not Familiar	2	8%
Familiar	13	52%
Very Familiar	10	40%
Total	25	100%
Experience of WhatsApp use	Respondents	Percentage
< 1 year	9	36%
1 – 2 years	11	44%
3 – 4 years	2	8%
> 4 years	3	12%
Total	25	100%
Frequency of WhatsApp use	Respondents	Percentage
1 – 2 hours	6	24%
3 – 4 hours	8	32%
5 – 6 hours	4	16%
7 – 8 hours	3	12%
> 8 hours	4	16%
Total	25	100%

Table 2 describes the profile of respondents related to the WhatsApp usages. The majority of respondents were familiar and only two or 8% of respondents were not familiar with WhatsApp. However, merely 20% of them experience using WhatsApp over than 2 years. More than half of respondents use the WhatsApp around 1 to 4 hours on a daily bases while only 16% of them using the WhatsApp over than 8 hours.

Table 3. The WhatsApp group uses statistics

Duration			
13 September – 13 December 2018 (3 months)			
Total			
Days	Messages	Words	Characters
92	416	7.897	50.233
Mean			
Words per message	Characters per message	Messages per day	Characters per day
18.98	120.75	5	546

Table 3 describes the statistics of the WhatsApp group uses. The WhatsApp group has been used for delivering the instruction inside and outside the classroom over three months, starting from the middle of September to the middle of December 2018. There are 92 days with over than 400 messages consisting of 7.897 words and 50.233

characters. In average, there are 18.98 words and 120.75 characters per message as well as 5 messages and 546 characters per day.



Fig. 1. The activities time on the WhatsApp group

Figure 1 describes the activities time on the WhatsApp group. The most active time is at 9 AM which is the course starting time. Texts dominated the activities at that time illustrated by the blue color. Outside the classroom, the group members starting to communicate in the WhatsApp group from 3 to 7 PM. File sharing activities, which are illustrated by the gold color, usually started between 8 and 10 PM. Through this figure, it can be seen that after the course students tend to communicate in the afternoon while sharing files commonly happen at night. It was not surprising that most activities were happening during the course time.

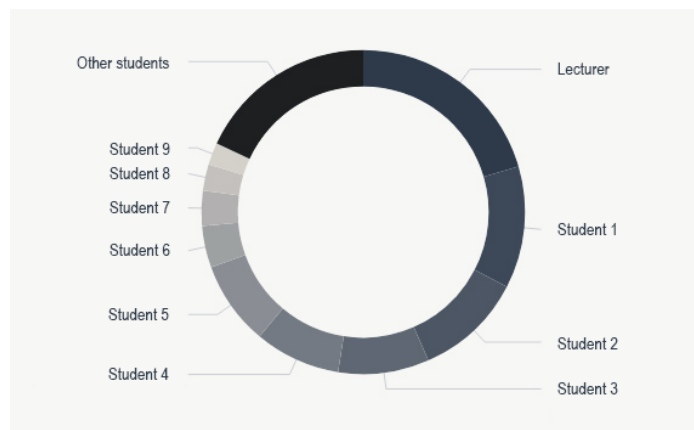


Fig. 2. The users' activities on WhatsApp group

Figure 2 describes the users' activities on the WhatsApp group. Each member has a different portion of activities. Almost one-fourth of activities were dominated by the lecturer. Only five students recorded actively engaged in the WhatsApp group. Other students can be categorised as a passive member of the group.

3.2 Students' perception of whatsapp group as a ubiquitous teaching and learning platform

The ubiquitous teaching and learning are viewed from the aspects of concept, immediacy, and interactivity. The concept is related to the ability to learn whatever, wherever, and whenever they wish through the WhatsApp group. Additionally, immediacy and interactivity aspects concern about the ability to obtain information immediately and communicate with lecturers and peers effectively through the WhatsApp group.

Table 4. Students' perception of WhatsApp group as a ubiquitous teaching and learning platform

Aspects	Items	1	2	3	4	Total
Concept	Be able to learn whatever you wish through the WhatsApp group	0 (0%)	3 (12%)	17 (68%)	5 (20%)	25 (100%)
	Be able to learn wherever you wish through the WhatsApp group	0 (0%)	4 (16%)	15 (60%)	6 (24%)	25 (100%)
	Be able to learn whenever you wish through the WhatsApp group	0 (0%)	4 (16%)	16 (64%)	5 (20%)	25 (100%)
	Be able to learn in your own learning styles through the WhatsApp group	0 (0%)	5 (20%)	17 (68%)	3 (12%)	25 (100%)
Immediacy	Be able to obtain information you wish immediately through the WhatsApp group	0 (0%)	2 (8%)	16 (64%)	7 (28%)	25 (100%)
Interactivity	Be able to communicate with lecturers and peers effectively through the WhatsApp group	0 (0%)	1 (4%)	16 (64%)	8 (32%)	25 (100%)
Mean		0 (0%)	3.17 (12.68%)	16.16 (64.64%)	5.67 (22.68%)	25 (100%)

Note: 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree.

Table 4 reveals the view of students regarding the WhatsApp group as a ubiquitous teaching and learning platform. Overall, it is clear that by far students recognized that the WhatsApp group is potential for ubiquitous learning. Over 60% of students agreed that facilitated by the WhatsApp group they are able to learn whatever, wherever, and whenever they wish as well as are able to learn in their own learning styles. Further, 64% of them agreed that by using the WhatsApp group information could be obtained immediately and communication with lecturers and peers could be conducted effectively.

3.3 Students' attitude towards whatsapp group as a teaching and learning platform

The students' attitude addresses value, favor, and inspiration for using the WhatsApp group as a teaching and learning platform. The value is about the idea and benefit while the favor is regarding the likes and preferences of using the WhatsApp for learning. Inspiration relates to their willingness to recommend and use the WhatsApp group as a teaching and learning platform in the future.

Table 5. Students' attitude towards WhatsApp group as a teaching and learning platform

Aspects	Items	1	2	3	4	Total
Value	Using WhatsApp group for learning is a positive idea	0 (0%)	1 (4%)	21 (84%)	3 (12%)	25 (100%)
	WhatsApp group is very beneficial for learning inside and outside the classroom	0 (0%)	0 (0%)	21 (84%)	4 (16%)	25 (100%)
Favor	Like to learn using WhatsApp group	1 (4%)	6 (24%)	16 (64%)	2 (8%)	25 (100%)
	Preferring WhatsApp group than LCD projector as instructional media in the classroom	1 (4%)	12 (48%)	11 (44%)	1 (4%)	25 (100%)
Inspiration	The desire to propose to other lecturers to use the WhatsApp group as a learning platform	0 (0%)	8 (32%)	13 (52%)	4 (16%)	25 (100%)
	Using the WhatsApp group when teaching as a teacher in the future	0 (0%)	2 (8%)	20 (80%)	3 (12%)	25 (100%)
Mean		0.33 (1.32%)	4.84 (19.36%)	17 (68.00%)	2.83 (11.32%)	25 (100%)

Note: 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree.

Table 5 reveals the attitude of students towards WhatsApp group as a teaching and learning platform. All in all, students have a good attitude to the WhatsApp group as an instructional platform. Over 80% of students believe that using WhatsApp group for learning is a positive idea and has advantageous for learning inside or outside the classroom. Almost 65% of students have a good favor on learning by using WhatsApp group, however, the number of students who prefer WhatsApp group than LCD projector for learning in the classroom is only 48%. Moreover, 65% of students have a desire to propose to other lecturers to use the WhatsApp group as a learning platform, and almost all of the students would use the WhatsApp group for teaching when they become a teacher in the future.

3.4 Students' readiness to learn actively, collaboratively, and independently through the whatsapp group

The students' readiness addresses the ability of students to learn through the WhatsApp group in active, collaborative, and independent ways. Students' active and independent learning activities related to their initiative in searching, reading, and

rereading learning materials. In addition, the collaboration is about their willingness for asking and answering questions among peers as well as sharing learning materials.

Table 6. Students’ readiness to learn actively, collaboratively, and independently through the WhatsApp group

Aspects	Items	1	2	3	4	Total
A	Reading learning materials given by lecturer through the WhatsApp group before attending the class	0 (0%)	21 (84%)	3 (12%)	1 (4%)	25 (100%)
A+I	Searching and reading learning materials related to the next course topic given by lecturer through the WhatsApp group from a variety of resources before attending the class	1 (4%)	17 (68%)	1 (4%)	6 (24%)	25 (100%)
A+I	Rereading learning materials given by lecturer at the course in the WhatsApp group after attending the class	3 (12%)	19 (76%)	1 (4%)	2 (8%)	25 (100%)
A+C	Answering peers’ question in the WhatsApp group	4 (16%)	16 (64%)	4 (16%)	1 (4%)	25 (100%)
A+C+I	Asking the WhatsApp group should there is a learning topic that has not been understood	8 (32%)	9 (36%)	3 (12%)	5 (20%)	25 (100%)
A+C+I	Sharing texts, photos, graphics, videos, and files related to the learning materials in WhatsApp group	2 (8%)	12 (48%)	4 (16%)	7 (28%)	25 (100%)
Mean		3 (12.00%)	15.66 (62.64%)	2.67 (10.68%)	3.67 (14.68%)	25 (100%)

Note: A = active, I = independent, C = collaborative | 1 = never, 2 = sometimes, 3 = often, 4 = always.

Table 6 reveals the readiness of students to learn through the WhatsApp group in active, collaborative, and independent ways. It is clear that students are not ready yet to learn actively, collaboratively, and independently through the WhatsApp group. Over 70% of students were merely occasionally engaged in active, collaborative, and independent learning activities facilitated by the WhatsApp group. Further, there are only 16% of students reading learning materials before attending the class and 12% of students rereading learning materials after attending the class. In addition, 68% of students are rarely searching and reading the learning materials related to the next course topic. Asking and answering a question from the peers as well as sharing learning materials were also uncommon students’ activities in the WhatsApp group.

The results of this study confirmed the study of Bansal & Jhosi [17] and MI & Meerasa [15], confirming that WhatsApp group has potential for ubiquitous learning and students have a good attitude to this app as a teaching and learning platform. Meanwhile, this study revealed that students are not ready yet to learn actively, collaboratively, and independently through the WhatsApp group.

The study has also revealed that even though students actively use WhatsApp in daily life, unfortunately they use it only passively for learning in the group. This finding

contradicts the study of Loksha [16] in which found that the majority of their research respondents use the WhatsApp application for learning purposes. Hence, this issue should be investigated further in different contexts.

In the higher education context, the WhatsApp integration for teaching and learning inside and outside the classroom should be taken into account. The integration has some educational benefits and is recognised as a positive idea by the students. WhatsApp has the potential for ubiquitous learning due to the features that enable teachers to deliver instructions remotely beyond the classroom. WhatsApp could be used as an effective tool for multiple purposes like sharing information, discussions, assessment, and feedback outside the classroom [20].

Looking in more detail into the Indonesian context, this country is a developing country in the Southeast Asia region with a population of more than 265 million. According to Kemp [21], it was quite surprising that 91% of the adult population in Indonesia owned at least a mobile device, and mostly a smartphone (60%). More than 8 hours and 30 minutes daily on average were spent on accessing the Internet through the mobile devices. Similarly, to the finding of Alkhunzain study in Saudi Arabia, university students spend more than 8 hours in a day on their smartphones [22]. Further, smartphones have addiction effects to university students in that country [23]. Thus, from the other perspective, it seems that learning based on mobile devices has high potential.

Mobile devices are an emerging tool for teaching and learning in the last couple of decades. The devices have influenced teaching and learning processes, particularly in higher education level. It is common nowadays in Indonesian university to have blended or distance learning facilitated by latest technologies. Likewise, university students' learning methods, styles, and preferences are turning to digital ways. Reading a digital textbook through mobile devices, for instance, is now more preferable than reading it in the printed version. Therefore, initiatives to utilise mobile devices including social applications inside for learning, such as WhatsApp and the others, should be further explored continuously [24].

4 Conclusion

Students actively use WhatsApp in daily life, but unfortunately passively use it for learning in groups. University students should be encouraged to change their habits in terms of using WhatsApp in daily life for more active learning. Students recognize that WhatsApp has group potential for ubiquitous learning, and they have a good attitude to this app as a teaching and learning platform. Hence, it is a good idea to integrate WhatsApp group into a variety courses in higher education.

On the other hand, however, students are not ready yet to learn actively, collaboratively, and independently through the WhatsApp group. Therefore, before integrating the WhatsApp group into the classroom, lecturers should consider the competencies of students on learning in active, collaborative, and independent ways. It also implies that lecturers should not only solely teach the course contents, but they have to teach students regarding active, collaborative, and independent learning skills as well.

This study is limited to one classroom of students so that the results may not be generalised. As an exploratory study in the case of a group student, the results of the study are valuable to the starting points for further studies. Conducting a wider study with more participants is suggested to gain more comprehensive findings. In addition, the forthcoming study should not only exploring WhatsApp but also investigating other social media applications used among university students in Indonesia and around the world. Since technology plays a more and more pivotal role in today's learning and instruction, harnessing the technologies are essential as pedagogical innovations in teaching and learning practices.

5 Acknowledgement

The author would like to acknowledge Tony Houghton, a visiting professor at the Department of STEM Education, Linz School of Education, Johannes Kepler Universität Linz Austria, for proofreading and further taking concern about the academic writing issues in this article.

6 References

- [1] Susilo, A. (2014). Exploring Facebook and WhatsApp as supporting social network applications for English learning in higher education.
- [2] Allagui, B. (2014). Writing through WhatsApp: an evaluation of students writing performance. *International Journal of Mobile Learning and Organisation*, 8(3-4), 216-231. <https://doi.org/10.1504/ijmlo.2014.067022>
- [3] Ashiyan, Z., & Salehi, H. (2016). Impact of WhatsApp on learning and retention of collocation knowledge among Iranian EFL learners. *Advances in Language and Literary Studies*, 7(5), 112-127. <https://doi.org/10.7575/aiac.all.v.7n.5p.112>
- [4] Mistar, I., & Embi, M. A. (2016). Students 'perception on the use of WhatsApp as a learning tool in ESL classroom. *Journal of Education and Social Sciences*, 4, 96-104.
- [5] Awada, G. (2016). Effect of WhatsApp on critique writing proficiency and perceptions toward learning. *Cogent Education*, 3(1), 1264173. <https://doi.org/10.1080/2331186x.2016.1264173>
- [6] Hamad, M. M. (2017). Using WhatsApp to Enhance Students' Learning of English Language" Experience to Share". *Higher Education Studies*, 7(4), 74-87. <https://doi.org/10.5539/hes.v7n4p74>
- [7] Bensalem, E. (2018). The impact of WhatsApp on EFL students' vocabulary learning. *Arab World English Journal (AWEJ) Volume*, 9. <https://doi.org/10.24093/awej/vol9no1.2>
- [8] Khusaini, K., Suyudi, A., Winarto, W., & Sugiyanto, S. (2017). Optimalisasi Penggunaan WhatsApp dalam Perkuliahan Penilaian Pendidikan Fisika. *Jurnal Riset Dan Kajian Pendidikan Fisika*, 4(1), 1. <https://doi.org/10.12928/jrkpf.v4i1.6462>
- [9] Amry, A. B. (2014). The impact of WhatsApp mobile social learning on the achievement and attitudes of female students compared with face to face learning in the classroom.
- [10] Trenkov, L. (2014). Managing teacher-student interaction via WhatsApp platform. *EDULEARN14 Proceedings*, 6596-6600.
- [11] Lam, J. (2015, July). Collaborative learning using social media tools in a blended learning course. In *International Conference on Hybrid Learning and Continuing Education* (pp. 187-198). Springer, Cham. https://doi.org/10.1007/978-3-319-20621-9_15

- [12] Ngaleka, A., & Uys, W. (2013, June). M-learning with whatsapp: A conversation analysis. In *International Conference on e-Learning* (p. 282). Academic Conferences International Limited.
- [13] About WhatsApp. (n.d.). Retrieved 8 September 2019, from WhatsApp.com website: <https://www.whatsapp.com/about/>
- [14] Yahya, S., Ahmad, E., & Jalil, K. A. (2010). The definition and characteristics of ubiquitous learning: A discussion. *International Journal of Education and Development using ICT*, 6(1).
- [15] MI, G. M., & Meerasa, S. S. (2016). Perceptions on M-Learning through WhatsApp application. *Journal of Education Technology in Health Sciences*, 3(2), 57-60.
- [16] Lokesha, M. (2009). The Effect of Whatsapp Messenger Usage among Students in Mangalore University: A Case Study.
- [17] Bansal, T., & Joshi, D. (2014). A study of students' experiences of mobile learning. *Global Journal of Human-Social Science*, 14(4), 26-33.
- [18] Holcomb, Z. C. (2016). *Fundamentals of descriptive statistics*. Routledge.
- [19] *WhatsApp Chatvisualiser*. (n.d.). Chatvisualiser. Retrieved 1 March 2020, from <http://chat-visualizer.com>
- [20] Nirgude, M., & Naik, A. (2017). WhatsApp application: An effective tool for out-of-class activity. *Journal of Engineering Education Transformations*.
- [21] Kemp, S., (2019). Digital 2019: Indonesia [WWW Document]. DataReportal – Global Digital Insights. URL <https://datareportal.com/reports/digital-2019-indonesia> (accessed 2.11.20).
- [22] Alkhunzain, A. S. (2019). An Empirical Study on Smartphone Addiction of the University Students. *International Journal of Interactive Mobile Technologies (IJIM)*, 13(12), 184–195. <https://doi.org/10.3991/ijim.v13i12.11120>
- [23] Alfawareh, H. M., & Jusoh, S. (2017). The Use and Effects of Smartphones in Higher Education. *International Journal of Interactive Mobile Technologies (IJIM)*, 11(6), 103–111. <https://doi.org/10.3991/ijim.v11i6.7453>
- [24] Hashim, K. F., Rashid, A., & Atalla, S. (2018). Social Media for Teaching and Learning within Higher Education Institution: A Bibliometric Analysis of the Literature (2008-2018). *International Journal of Interactive Mobile Technologies (IJIM)*, 12(7), 4–19. <https://doi.org/10.3991/ijim.v12i7.9634>

7 Author

Imam Fitri Rahmadi is a lecturer at Universitas Pamulang Indonesia and currently a PhD student at the Department of STEM Education, Linz School of Education, Johannes Kepler Universität Linz Austria that interested in exploring mobile microgames for STEAM education. He is an awardee of the Indonesia-Austria Scholarship Programme (IASP) for his PhD study. It is a joint scholarship programme between the Ministry of Research, Technology, and Higher Education (RISTEKDIKTI) of Indonesia and the Austrian Agency for International Cooperation in Education and Research (OeAD-GmbH) in cooperation with ASEAN-European Academic University Network (ASEA-UNINET).

Article submitted 2020-03-06. Resubmitted 2020-04-27. Final acceptance 2020-04-27. Final version published as submitted by the authors.