

Revitalization of Language Learning Management through Mobile Learning

**Safriyani Novitri^{1*}, Sri Mulyani Rusli², Rahmatika Putri³, Havid Ardi⁴, Novia Juita⁵,
Linda Sari Bulan⁶**

¹⁻⁵Universitas Negeri Padang, ⁶International Islamic University Malaysia

*Corresponding Author, email: safriyaninovitri@edu.uir.ac.id

Received: April, 20, 2023

Revised: May, 19, 2023

Accepted: May, 30, 2023

Abstract

This article explores the potential of digital technology to revitalize the Islamic University of Riau in English learning facilities and improve student learning outcomes. This study applies descriptive and qualitative research techniques to activate the opportunities contained in mobile applications for the benefit of learning English. Participants in this study were second-semester law students studying English in an English for Specific Purposes context at the Islamic University of Riau. Data were collected in two stages taking-notes and a questionnaire to ascertain the extent of the study's outcomes and to explore Lecturer facilities and controls implemented in learning English through asynchronous learning with mobile learning. Findings show that reviving WhatsApp by offering student-planned activities improves students' English proficiency. In this study, 25 ESP students became the research sample. The result was to create activities that encourage students to take a positive role and encourage their courage to speak English because the WhatsApp application can support activities and prepare students to take an active role. It shows that the structured schedule and materials that support the learning activities by the Lecturer have produced very satisfactory results, designing the platform in a way that facilitates interaction between students and Lecturer.

Keywords: Learning Facilities, Mobile Learning, Management Practices

Introduction

To accommodate the changing needs of language learners, language learning facilities need to be modernized in today's rapidly evolving digital environment (Ningsih et al., 2022) and (Skills, 2009). A possible innovation to improve language learning program management and promote language development is the incorporation of mobile learning (Albogami & Algethami, 2022). The potential of mobile learning as a tool for reviving language learning facilities is examined in this article, with an emphasis on innovations and successful management techniques (Ortiz & Green, 2019). We can open up new avenues and develop dynamic language learning environments that meet the requirements and preferences of contemporary learners by utilizing the power of digital technology (Pogrebinskaya et al., 2021). This study seeks to explore how mobile learning affects language development and offer insight on the optimal management and implementation techniques for such cutting-edge strategies within language learning facilities while also examining the effects of mobile learning on language development (Nichter, 2021)

The traditional culture of face-to-face interaction with media, and the heterogeneous ideas of online interactivity instructional management through instructional management systems, have become increasingly important in recent years (Cash Carol S., 2021). Face-to-face learning in class is now assisted by online class media or virtual learning media which makes it easier for teachers and students to distribute material, announcements, and instructions, provide feedback, collect up to the assessment of assignments and quizzes to save time, and place without limitations (Ariffin et al., 2021). But on the one hand, according to (Saleh & Meccawy, 2022), the teacher must pay attention to

several things so that blended learning can run as expected, one of the teacher's tasks must be to be able to motivate students to be responsible and honest in carrying out the assignments given (Maharani & Fithriani, 2023).

Students' good communication in English depend on their language structure (Zaim, 2020). However (Westerlin & Vogt, 2022) stated the lack of time given in the classroom causes the learning process to be not optimal, so blended learning motivates students to develop themselves more creatively so that their fear of using English can be channeled more easily. For this reason, the teacher's hard work is expected to organize and provide more efficient learning facilities by using mixed learning (Suherman & Kertawijaya, 2023). This is the main reason for researching so that teachers can organize and provide facilities to students in learning English by empowering students' social media and cellular networks.

According to (Graham et al., 2018) stated that teachers move from traditional learning to online, because;

1. Learning activities are prioritized for digital systems because students currently get more experience and information online (Al Shlowiy, 2022).

2. In general, teachers and students now have their own social media accounts. So they can be in touch anytime and anywhere (Abdulaziz Al Fadda, 2020).

3. Internet speed makes it easier for students to connect via the web they have. It makes easier for students to communicate directly with native English speakers (Karacan et al., 2022)

4. With all the internet facilities owned by teachers and students, (Doğan & Gülbahar, 2018) stated that it will be easy to provide additional information about learning materials through their respective social media, for example, what's Up and Facebook or Instagram applications.

5. It will be easy for the teacher to manage students by giving assignments, exercises, and assessments as well as motivating students through the platform in the application itself (Chan, 2022).

Based on the explanation above, the Whatsapp group application can be an alternative used in asynchronous learning because all students already have the WhatsApp application. (Liu et al., 2022) defined that it making easier for lecturers to organize and facilitate student learning. Whatsapp makes it easy for lecturers to send messages, video image features, and other files. Lecturers must pay attention to at this time is how to manage to learn with WhatsApp more effectively. The management system must be handled by a lecturer to students can contribute to the group (Soparidah et al., 2021)

Directly limited time and media in class can hamper the teaching and learning process (Viriya, 2022) also (Kumi-Yeboah et al., 2020) identified some efforts are needed to revitalize learning facilities to be more innovative. One effort that can be done is asynchronous online learning, which means that learning activities can be done anywhere without being limited by time and place (Almoslamani, 2022). Online asynchronous can be via email, direct messages, files, video, audio, and images. According to (Sheet, 2020) easy and fast access is one of the advantages of asynchronous learning because students have plenty of time to think and understand the content of the material provided.

Without a doubt, synchronous and asynchronous communication has many benefits and drawbacks (Zeybek, 2022). To make up for the lack of additional communication channels and give students a better learning experience, a combination of two learning communication methods or two type of learning methods is suggested stated by (Li, 2021). A combination of synchronous and asynchronous learning modalities is used while using WhatsApp for asynchronous learning. Whatsapp enables students to do asynchronous tasks at their own pace and become more involved in synchronous lessons. The learning aim determines when synchronous or asynchronous learning should take place (Wannapiroon et al., 2022).

In the literature review, researchers conducted a study of the potential for using mobile learning in learning activities. There are several studies on mobile learning as an asynchronous communication tool to improve student's English skills, research from (Albogami & Algethami, 2022) explain about WhatsApp voice messages have been shown to significantly improve students' speaking skills. This makes it easier for lecturers to facilitate students so that the learning process can be carried out with their mobile. Mobile learning devices are more practical and friendly to students. The lecturer should create organize and facilitate students so they can take advantage of the technology they have for learning.

According to (Pogrebinskaya et al., 2021) confirm the same effect on student learning abilities, with current technological advances, every student already has access to technology in their hands. Like Facebook with the help of mobile learning. Learning is facilitated because Lecturer and students can easily exchange and discuss information and ideas.

Similarly with (Nichter, 2021) and (Chaka & Govender, 2020) The results show that students achieve good results applying chart and knowledge that support learning movement. Teachers build activities that confess students facing gate an active performance and start speaking English along certainty. This continue because the mobile learning application supports activities and prepares students into catch an active role on one platform directed through advance dialogue between students and teachers.

However, based on the previous research, several researchers have not elaborated the management of learning and it efforts to facilitate learning. Some studies describe the benefits of mobile learning but focus on specific skills that do not meet other needs such as how to manage learning and it procedure. Based on the previous studies result, most of sample from EFL students was conducted on students in English department. It has not been explained how about students from other department/faculty, especially ESP students in learning English with the specific aim to improving their language?

The situation and condition nowadays, students difficult to explore and practice their English continuously. Students did not have many time to learn English just at the classroom, they need additional time and support by the lecturer. Based on this situation the lecturer think what the innovation can build to motivated students. Hope students facilitated keep practice the speaking, reading and listening also writing, and students able to learn individually. Actually, lecture and students have the technology to engagement each other to communicate in learning. The problem is how the lecturer seriously in manage and control students learn at the additional time. This indicates that mobile learning needs to be revived to overcome these problems. Given the accessibility of WhatsApp and control management the synchronous learning between lecturer and students activity.

The purpose of this research is to focus on mobile learning and to complement the existing literature on the experiences and difficulties that future lecturers face while teaching English. This study aims to answer the following questions:

How do lecturers manage student activities using Whatsapp as a mobile learning facility?

Methods (Times New Roman 12, Bold)

1. The Population and Sample

The population and sample in this study were 25 students in English Specific Purpose at second-semester undergraduate in class D majoring in law at Islamic University of Riau for the 2022-2023 academic year. The research samples consisted of 16 men and 9 women. Each sample comes from a different family background, habits, and age. They use Indonesian as their first language and English as their foreign language.

Table 1. Research and Participants

Information Background	Category	Number of Participant
Gender	Male	16
	Female	9
Age Range (in Years)	20 - 23	6
	18 - 20	19
Status of internet Access	Fast	21
	Slow	4
Students Activity	Active	22
	Weak	3

--	--	--

(Akkaya et al., 2021)

2. Research Instruments

The instrument in this study used note-taking and a questionnaire which was designed to determine the extent to which the influence of mobile learning-based learning was acceptable to students (Albogami & Algethami, 2022) and ((Doğan & Gülbahar, 2018). The questionnaire consists of four sessions: affective, attitude, motivation, and anxiety. And using a five-point Likert scale, namely: 1. Strongly agree 2. Agree 3. Neither agrees 4. Disagree 5. Strongly disagree (Ally, 2022). Questionnaires were given to 25 students who took part in asynchronous online classes via Whatsapp mobile learning.

3. Data Collection and Analysis

Data were obtained in two stages, the first by taking notes made by lecturers and students. After each asynchronous meeting, each student will make a reflection report on learning outcomes, then send it to the group at a certain time, so that WhatsApp group activities do not take up time outside of the predetermined schedule (Muhammet & Okan, 2018) (Carter et al., 2019). Furthermore, the questionnaire was given to students at the end of the learning activity, which was completed for 10 meetings during which asynchronous learning was carried out. Questionnaires are given to students to conclude the effectiveness of learning using WhatsApp-based asynchronous mobile learning.

Table 2 Average of Questionnaire

No	Point	Option
1	5	Strongly Agree
2	4	Agree
3	3	Neither Agree
4	2	Disagree
5	1	Strongly Disagree

(Albogami & Algethami, 2022)

RESULTS AND DISCUSSION

How do lecturers manage student activities using Whatsapp as a mobile learning facility?

Based on the research question above, the researchers started to get the data from taking notes of lecturer-students' activity during the asynchronous learning-based mobile learning Whatsapp. The tables below explain the lecturer taking notes carried out to manage student activities in Whatsapp-based mobile learning. Six tables were describing taking notes.

Table 3. Mobile Learning Management 1

No	Item	Activity	Active	Weak
1	Rule I	1. Lecturers and students have access to join the Whatsapp group that has been designed.	√	
		2. Each student is required to use a formal profile photo and write down the name according to attendance.	√	
		3. Lecturers and students have 1 hour per day to hold discussions about learning materials.	√	
		4. The lecturer provides discussion material one day before the asynchronous lecture begins so that each student can prepare themselves to study the material.	√	

(Nichter, 2021)

Table 4. Mobile Learning Management 2

No	Item	Activity	Active	Weak
1	Rule II	1. The lecturer opens a discussion forum for 1 hour as agreed with the students.	√	
		2. The discussion uses English with the topics include Speaking, reading, writing and listening		√
		3. Each student is required to give an opinion during the discussion according to the topic that has been given by the lecturer.		√

(Ally, 2022)

In Table 3 and Table 4 above, the lecturer taking-notes about students' activities in Rule I and Rule II. The analysis of the data shows that students discipline with their schedule, it can be seen from students join immediately when the lecturer opens access to join the Whatsapp group. Students manage the time with more discussion in Whatsapp groups about the topic, lecturer became a facilitator and answers the question if students had difficulty knowing about the lesson.

Table 5. Mobile Learning Management 3

No	Item	Activity	Active	Weak
1	Rule III	1. The lecturer presents the Speaking material, both the lecturer and students send voice messages during the discussion	√	
		2. Reading, students read the given text and respond to it. For Writing, students are asked to write on the Whatsapp platform		√
		3. Writing, students are asked to write on the Whatsapp platform		√
		4. Listening activities, students are requested to provide their responses by sending voice messages.	√	

(Muhammet & Okan, 2018)

Table 6. Mobile Learning Management 4

No	Item	Activity	Active	Weak
1	Rule VI	1. The lecturer will record the students' attendance for every asynchronous class session. The attendance record will be evaluated during the face-to-face classes.	√	
		2. Students who actively provide additional material such as videos, pictures and articles will be given additional points	√	
		3. After each asynchronous class session, the lecturer will lock the Whatsapp group and reopen it at the next asynchronous session's scheduled time.	√	

Table 5 and Table 6 above describe that asynchronous learning activities motivate students to learn English. When the lecturer gives material one day before the asynchronous online class starts the enthusiasm of the students opens the material provided by the lecturer. This data was obtained from comments given by students a few minutes after the material was given.

Based on the results of data obtained by the lecturer shows that student's English skills in speaking and listening have increased. Activity rules III and rule IV have been evaluated and carried out by lecturers in class and when asynchronous online via mobile learning. Likewise, students' ability to read and write has increased because the guidance provided by the lecturer through the WhatsApp application provides opportunities for students to practice writing and reading in English directly.

Table 7. The Questionnaire and the percentage of the students' answers.

No	Category	Item	Strongly Agree	Agree	Dis-agree
1	Efficiency	English proficiency was improved, through the use of mobile learning on WhatsApp	n = 21 84%	n = 4 16%	n = 0 0%
2	Opinion	Mobile learning on Whatsapp proved to be user-friendly.	n = 23 92%	n = 2 8%	n = 0 0%
		Mobile learning on Whatsapp provided flexibility in learning English	n = 20 80%	n = 5 20%	n = 0 0%
		Mobile learning on Whatsapp offered an enjoyable learning experience	n = 25 100%	n = 0 0%	n = 0 0%
		Compared to traditional English classroom activities, I prefer using mobile learning on Whatsapp to learn English	n = 17 68%	n = 8 32%	n = 0 0%
3	Enthusiasm	I felt a sense of excitement when using mobile learning on Whatsapp to practice English speaking.	n = 24 96%	n = 1 4%	n = 0 0%
		The use of mobile learning on Whatsapp served as a motivation for me to study English.	n = 24 96%	n = 1 4%	n = 0 0%
4	Nervous	Mobile learning on Whatsapp boosted my confidence in speaking English.	n = 24 96%	n = 1 4%	n = 0 0%
		Mobile learning on Whatsapp helped me overcome the fear of making mistakes when speaking English.	n = 21 84%	n = 4 16%	n = 0 0%
		I felt comfortable and relaxed when required to speak English using mobile learning on Whatsapp.	n = 23 92%	n = 2 8%	n = 0 0%

From the data analysis of the questionnaire, it can be concluded that asynchronous learning using mobile learning has a positive influence on students' English skills. The material provided varies, and students become more active because the lecturer allows all students to participate and provide feedback in the Whatsapp group.

The results of data analysis on the effectiveness of students learning English using the Whatsapp platform amounted to 84% of 21 students experienced the benefits of asynchronous learning with the Whatsapp platform and were supported by activity management and structured material provided by the lecturer so that group discussion activities became more effective.

Communication that occurs between lecturers and students goes well. From the data, it can be seen that almost all students provide opinions and ideas when asynchronous online learning through mobile learning is carried out. The data shows that 100% of students enjoy learning using mobile applications, the reason is that with asynchronous learning students are not embarrassed when asked to speak and give opinions in English, which is different when studying directly in class.

From the results of data analysis of student enthusiasm for asynchronous learning through Whatsapp mobile learning, it shows that 96% of students are enthusiastic about learning with the guidance of the lecturer. The way the lecturer organizes activities causes students to feel happy with the additional features provided by the lecturer to students. Additional features provided by lecturers are usually in the form of pictures, videos, and songs related to the material being studied.

From the results of the last analysis, looking at the elements of student anxiety, it is known that asynchronous learning using Whatsapp mobile learning can increase student confidence in speaking English. 76% of students answered that they were very comfortable learning online asynchronously using Whatsapp mobile learning. The data shows that with good management and more controlled facilities, learning English can run well and students have the opportunity to directly practice their English skills.

Conclusion (Times New Roman 12, Bold)

The results of language learning revitalization using mobile learning can be concluded as effective for English Specific Purpose (ESP) students. Good management and scheduling cause learning to be more directed. Lecturers and students can interact in an orderly manner because the material used is more relaxed than in formal classes. This research only looks at the effectiveness of learning English using WhatsApp mobile learning for ESP students to the extent of their ability to understand the material and dare to try speaking and writing using simple English.

Lecturers who want to research more about the effectiveness of mobile learning were advised to research the level of student motivation using mobile learning because in mobile learning students must be more directed and motivated to make their mobile facilities a means of learning resources by maximizing time and place. We think that the same success will also be felt when turning your mobile device into an online learning facility.

Acknowledgments (Times New Roman 12, Bold)

We thank the Chancellor of the Islamic University of Riau and the deans of the Faculty of Law and FKIP who have provided facilities to researchers so that this research can be completed by the time that has been prepared. The researcher also did not forget to express his gratitude to the Law Students who agreed to be the research sample and answered several questions related to supporting matters for data collection in this study. This research will not be carried out properly if it is not supported by various related parties.

References

- Abdulaziz Al Fadda, H. (2020). Determining How Social Media Affects Learning English: An Investigation of Mobile Applications Instagram and Snap Chat in TESOL Classroom. *SSRN Electronic Journal*, 11(March), 3–11. <https://doi.org/10.2139/ssrn.3581296>
- Akkaya, S., Ciğerci, F. M., & Kapıdere, M. (2021). Investigation of the relationship between prospective teachers' attitudes towards mobile learning and their readiness for mobile learning. *International Online Journal of Education and Teaching*, 4(8), 2949–2965.
- Al Shlowiy, A. (2022). Teachers' Reflection of Students' Engagement in Online Language Learning: Multi-case Study. *International Journal of Educational Methodology*, 8(2), 285–295. <https://doi.org/10.12973/ijem.8.2.285>
- Albogami, A., & Algethami, G. (2022). Exploring the Use of WhatsApp for Teaching Speaking to English Language Learners: A Case Study. *Arab World English Journal*, 2, 183–201. <https://doi.org/10.24093/awej/covid2.12>
- Ally, S. (2022). Review of Online Examination Security for the Moodle Learning Management System. *International Journal of Education and Development Using Information and Communication Technology (IJEDICT)*, 18(1), 107–124.
- Almoslamani, Y. (2022). The relationship between self-regulation learning and online learning adoption. *Cypriot Journal of Educational Sciences*, 17(6), 2117–2126. <https://doi.org/10.18844/cjes.v17i6.7550>
- Ariffin, K., Halim, N. A., & Darus, N. A. (2021). Discovering Students' Strategies in Learning English Online. *Asian Journal of University Education*, 17(1), 261–268. <https://doi.org/10.24191/ajue.v17i1.12695>
- Carter, J. R., Delahanty, D. L., Strasser, J. E., Knoedler, A. J., Wilson, G., Davis, R. K., & Engel, D. (2019). Operational and Fiscal Management of Core Facilities: A Survey of Chief Research Officers. *Journal of Research Administration*, 50(3), 14–31. <https://login.buproxy.bastyr.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1237833&site=ehost-live>
- Cash Carol S., B. J. L. (2021). Times of Crisis Can Bring Opportunities: Educational Planning, Facilities Management, and Cares Funding. *Educational Planning*, 28(3), 31–37.
- Chaka, J. G., & Govender, I. (2020). Implementation of Mobile Learning Using a Social Network Platform: Facebook. *Problems of Education in the 21st Century*, 78(1), 24–47. <https://doi.org/10.33225/pec/20.78.24>
- Chan, T. A. K. C. (2022). *School facility i.q. inventory (sfiqi): an essential tool for school facility management tak cheung chan*. 29(3), 65–78.
- Doğan, D., & Gülbahar, Y. (2018). Using facebook as social learning environment. *Informatics in Education*, 17(2), 207–228. <https://doi.org/10.15388/infedu.2018.11>

-
- Graham, C., Dziuban, C., Moskal, P., Ubell, R., Ko, S., Pacanksy-Brock, M., Cavanaugh, T., & Picciano, T. (2018). *Online & Blended Learning: Selections From the Field*. 133. https://www.routledge.com/rsc/downloads/OLC_FreeBook_Online__Blended_Learning.pdf
- Karacan, C. G., Yildiz, M., & Atay, D. (2022). The Relationship between Self-Regulated Learning and EFL Achievement in Synchronous Online Language Education. *Mextesol Journal*, 46(3), 0–2.
- Kumi-Yeboah, A., Kim, Y., Sallar, A. M., & Kiramba, L. K. (2020). Exploring the use of digital technologies from the perspective of diverse learners in online learning environments. *Online Learning Journal*, 24(4), 42–63. <https://doi.org/10.24059/olj.v24i4.2323>
- Li, L. (2021). Learning Together Online: Insights into Knowledge Construction of Language Teachers in a CSCL Environment. *Iranian Journal of Language Teaching Research*, 9(June), 39–62. <https://doi.org/10.30466/ijltr.2021.121075>
- Liu, C. Y., Jiao, Y., & Qiu, W. T. (2022). The Roles of Language Aptitude and Online Self-regulated Learning in Foreign Language Achievements. *Language Teaching Research Quarterly*, 31, 83–100. <https://doi.org/10.32038/LTRQ.2022.31.07>
- Maharani, F., & Fithriani, R. (2023). *Exploring Challenges EFL Pre-Service Teachers Experience in Teaching Practicum: A Transformative Learning Perspective*. 02, 173–180.
- Muhammet, B., & Okan, S. (2018). Determining the readiness levels of pre-service teachers towards mobile learning in classroom management. *Educational Research and Reviews*, 13(10), 382–390. <https://doi.org/10.5897/err2018.3523>
- Nichter, S. (2021). Does mode of access make a difference? Mobile learning and online student engagement. *Online Learning Journal*, 25(3), 5–17. <https://doi.org/10.24059/olj.v25i3.2848>
- Ningsih, S. K., Suherdi, D., & Purnawarman, P. (2022). Secondary School Teachers' Perceptions of Mobile Technology Adoption in English As a Foreign Language Learning: Trends and Practices. *International Journal of Education and Practice*, 10(2), 160–170. <https://doi.org/10.18488/61.v10i2.3004>
- Ortiz, S., & Green, M. (2019). Trends and patterns of mobile learning: A study of mobile Learning Management System access. *Turkish Online Journal of Distance Education*, 20(1), 161–176. <https://doi.org/10.17718/tojde.522464>
- Pogrebinskaya, E. A., Fursova, P. V., & Akhyadov, E. S.-M. (2021). Leadership Competency Formation in Management Students Using Mobile Learning Technologies. *Propósitos y Representaciones*, 9(SPE3). <https://doi.org/10.20511/pyr2021.v9nspe3.1269>
- Saleh, A. M., & Meccawy, Z. (2022). Teaching in Tough Times: Examining EFL Teachers' Perceptions of Online Learning Challenges in the Context of Higher Education in Saudi
-

Arabia. *Journal of Education and Learning*, 11(3), 47.
<https://doi.org/10.5539/jel.v11n3p47>

Sheet, F. (2020). *Charter Schools : Emergency Management Planning for All Settings*. 855.

Skills, S. E. (2009). **.Ir,---, /n.*

Soparidah, Madhakomala, R., & Hanafi, I. (2021). Productive teacher job satisfaction: Disentangling organizational climate, facility management, and organizational citizenship behavior. *International Journal of Evaluation and Research in Education*, 10(4), 1352–1358. <https://doi.org/10.11591/IJERE.V10I4.21299>

Suherman, A., & Kertawijaya, L. (2023). *Journal of English Language Teaching Challenges Perceived by Indonesian ESP Teachers in Post - Pandemic Era : A Survey from a Higher Education Institution*. 02(2022), 129–136.

Viriya, C. (2022). Exploring the Impact of Synchronous, Asynchronous, and Bichronous Online Learning Modes on EFL Students' Self-Regulated and Perceived English Language Learning. *REFlections*, 29(1), 88–111.

Wannapiroon, P., Nilsook, P., Jitsupa, J., & Chaiyarak, S. (2022). Digital competences of vocational instructors with synchronous online learning in next normal education. *International Journal of Instruction*, 15(1), 293–310. <https://doi.org/10.29333/iji.2022.15117a>

Westerlin, S., & Vogt, S. (2022). Transformative technology in the PK-12 classroom. *Educational Research: Theory and Practice*, 33(1), 68–72.

Zaim, M. (2020). Media Pembelajaran Agama Islam Di Era Milenial 4.0 Learning Media of Islamic Religion in the Milenial Era 4.0. *Jurnal Kependidikan Islam*, 6(1), 1–17.

Zeybek, G. (2022). Investigation of Pre-service Teachers' Readiness Levels for Online Learning and Engagement Levels in the Online Environment. *Journal of Learning for Development*, 9(2), 190–208. <https://doi.org/10.56059/jl4d.v9i2.538>