

TECHNOLOGY-INTEGRATED BLENDED CLASS: STUDENT REFLECTIONS ON THE USE OF MOODLE-BASED DIGITAL INTERACTIVE BOOK

Lungguh Halira Vonti (corresponding author)

*English Language Education Study Program,
Faculty of Teacher Training and Educational Sciences, Universitas Pakuan*
Email: lungguh@unpak.ac.id

Abdul Rosyid

*English Language Education Study Program,
Faculty of Teacher Training and Educational Sciences, Universitas Pakuan*
Email: abdulrosyid@unpak.ac.id

Poppy Sofia Hidayati

*English Language Education Study Program,
Faculty of Teacher Training and Educational Sciences, Universitas Pakuan*
Email: popysofia@unpak.ac.id

APA Citation: Vonti, L. H., Rosyid, A., Hidayati, P. S. (2023). Technology-integrated blended class: Student reflections on the use of Moodle-based digital interactive book. *English Review: Journal of English Education*, 11(1), 53-62. <https://doi.org/10.25134/erjee.v11i1.6932>

Received: 19-10-2022

Accepted: 17-12-2022

Published: 28-02-2023

Abstract: Online learning has been going on for almost 2 years now since pandemic and caused a dramatic change of education, with the rise of e-learning, where teaching takes place remotely and using a variety of digital platforms. One of the challenges is access internet and technology used in digital learning that forced the lecturers to innovate in providing a learning approach or using innovative teaching media as well as teaching material to facilitate students in the learning process independently wherever they are. The shift away from the education system caused by the COVID-19 pandemic raises the question of whether the adoption of online learning will continue post-pandemic, and how such a shift will impact education systems around the world. This study proposed some of the objective due to the recent condition of the education field. One of the objectives is to describe the students-teacher reflection toward the implementation of digital interactive book in their class. The study employed a descriptive analysis research design and gained the data from semi structured interview and questionnaire. The participant of this study was a class studying Grammar subject in a blended class of a second year at a higher educational institution (FKIP) in Universitas Pakuan. The result of the study showed that somehow, the students have positive reflections toward the use of digital interactive book designed by the researchers.

Keywords: *blended learning, digital interactive book; grammar teaching; moodle; students' reflection.*

INTRODUCTION

During the pandemic, education field has changed in many factors related to teaching method as well as teaching media. Innovation in both learning approaches and teaching media, of course, cannot be separated from the role of technology. Ghory & Ghafory (2021) state that the advantage of technology in education is that its simplicity and accessibility impact and benefit both learners and trainers. However, both the students and teachers or educators face some pitfalls and drawbacks regarding the online teaching and learning process. The implementation of online learning seemed to arise numerous complex issues which are not simple to illuminate. Some students and

also educators experienced issues related to amid online learning such as internet accessibility, the trouble to understand the material, the need of interaction with educators, and also trouble with assignment given (Setiyono *et al.*, 2021). This pandemic is likely to accelerate some changes in educational models based on the strengths and weaknesses of the technology used for learning. The role of an integrated learning approach and media with technology will be very important to them, especially technology that indeed can be used by students anywhere effectively. Digital learning actually contributes quantitatively to the interaction of teaching and learning. Although only between teachers and learners, digital

learning allows for a wider range of learning interactions (Fansury *et al.*, 2020). Yet, the integration of technology and foreign language classrooms is a demanding task, and teachers need support and training (Koç *et al.*, 2021).

Considering categories and barriers, the challenges faced by higher education institutions can be divided into technical challenges, educational challenges, and social challenges (Gurajena *et al.*, 2021). For some cases, the researchers have identified several problems that have become the background of the research. Drawing on Thomas & Rogers (2020) experience with online learning during the pandemic emergency, it was observed that school IT systems are often overly expensive, cumbersome, and quickly obsolete. They suggest moving to personal devices built into schools. This technical problem is also commonly found in higher educational institutions in Indonesia. Some students also struggle with the shift of learning process, and some teachers also struggle with the requirement of handling and using technology both in preparing and also presenting teaching materials.

For social challenges, the researchers found out that there is the limitation of teacher-students' interaction in teaching and learning process somehow arouse new problems in improving students' outcome during their learning process. This issue became the experts' concern and thus they have suggested some overcomes. The presence of online learning, when needed, allows students to stay in touch with teachers and other students. In some cases, however, they are building a sense of community between learners and teachers and creating interactive and engaging lessons in which all students know each other (Ferri *et al.*, 2020).

As one of learning management system provided as an online learning tool, Moodle provides one feature that can be used as a solution to giving the students with optimal digital learning materials. The potential of using Moodle as one of online learning platform provides many free and accessible features that can be used by teachers and students. Teachers are also able to provide digital content as learning materials to be used by the students independently. As commonly known by teachers, digital content is material from a variety of sources and was not originally intended for classroom use. However, digital content is widely provided in the Internet such as YouTube, digital content and Facebook. Therefore, by leveraging digital content, teachers

have many sources of new teaching materials that can be updated at any time. The use of digital content as an educational medium has been of great help to the teacher, especially during her COVID-19 pandemic (Fansury *et al.*, 2020).

Since 2013, Pakuan University is one of private universities in Indonesia that has implemented blended learning using Moodle. According to a recent systematic review of LMS usage trends, Moodle is the most popular and preferred open source LMS. Moodle has a high level of community and institution acceptance, with a range of active courses available in many languages (Sergis *et al.*, 2017). An activity, which is a generic term for a group of Moodle features, is where students typically engage and interact with other students and teachers. Mostly used activities identified in Moodle are among others quizzes, forums, workshops, lessons, wikis and polls. Of these, Moodle quizzes and workshops were the most popular. Activities such as videos, virtual tours and e-Portfolios are external tools that can be easily incorporated into Moodle system (Gamage *et al.*, 2022).

LMS Moodle is useful for higher education institutions as it can be integrated with academic resources, libraries and curricula. In addition, the LMS Moodle-based university e-learning system enables the integration of mobile technology into the educational process and the implementation of the mobile learning management system or commonly known as MLMS (Zabolotniaia *et al.*, 2020). Previously, an advanced research into the use of LMS Moodle's technical capabilities in the higher education process proves that the LMS Moodle distance learning system fosters student thinking and innovation (Chootongchai & Songkram, 2018). Two years later, in recent research, Noermanzah & Suryadi (2020) added that the students become dynamic, persuaded, and they can also develop their autonomous learning through the utilizing of Moodle-based Blended Learning in teaching and learning process.

Back in the previous years, dealing with the implementation of using Moodle as LMS in higher education, as one of the pitfalls, a study revealed that Moodle system was not working well at the time of the study although students generally felt satisfied with the Moodle system and teachers also found it timely and beneficial in the long term (Gundu & Ozcan, 2017). It means that some of the features probably are not used well and optimally in the teaching and learning process. In 2022, Makruf *et al.* (2022) published their research regarding the implementation of

Moodle in teaching learning process and resulted to the conclusion that many users of Moodle were found still use any other applications beside Moodle such as Zoom, Google classroom, and others. These choices can be attributed to three main factors; system quality, support facilities and user skills. Along with this, Makruf and friends highlighted on the optimum of the use of applications that can be used for e-learning and to enhance various support functions.

As reflected in the above conditions of the users of Moodle, the researchers also found the same problems in the research site. As one of the users of Moodle, Pakuan University has been using customized Moodle version which includes 12 different types of activities like assignment, choice, database, feedback, forum, glossary, lesson, quiz, scorm package, survey, wiki and workshop for years. However, only a few lecturers were actually able to optimize the features in the platform as one of digital learning materials. To meet these challenges, universities need to position themselves as producers of future educators/teachers to enable teachers and trainee teachers to use technology, especially her ICT, for her ICT-related assignments of future teachers. Teachers must be equipped with pedagogical skills, techniques and mastery of materials in the learning process. This condition is one of reasons why this study is important to conduct.

As one of Moodle best features, digital book is an integration of digital content that can be accessed easily by the students in any devices. The prevalence of web-based learning environments provides neither an effective way to achieve ubiquitous learning nor a seamless way to interact with educational media (Yugo *et al.*, 2022). Typically, students tend to print or create paper handouts to access more accessible materials. However, there has been a paradigm shift in the development of e-learning standards, and the educational process is no longer web-centric but diversified into multiple technologies, including e-books. While in Moodle, this kind of technology is provided in scorm. Scorm package modules are useful for displaying animations and multimedia content. It's a collection of files packaged according to an agreed standard, including interactive digital book. In the scorm, interaction is supported by a runtime environment with a strong server-side implementation. Scorm has been widely used for years and it is said to have local tracking and is not semantically interoperable with other educational systems (Takev *et al.*, 2019). In the same year, some

educators and experts has gained more information and explored the content of this feature. This Moodle learning feature contains material that also provides example questions and display animations that correspond to the question material (Khairani & Rajagukguk, 2019). The latest study about technology based teaching media also revealed that teachers can provide classroom activities that spark student interest, motivate students, and lead them to become technology-supported, autonomous learners in their EFL practice (Mandasari & Aminatun, 2022).

Considering the importance of providing the students with an interactive and interesting learning materials as well as improving teachers or educator's competence in creating interactive and interesting digital teaching media, it is very crucial for the researchers to conduct a research on the topic mentioned. As one of digital teaching media, digital book, a type of learning resource, is a digital educational application that integrates resources such as printed textbooks, teaching materials, learning support services, virtual reality, and terminals to form a learning support application (Ran & Jinglu, 2020). Further explained, digital books are also a kind of knowledge media management. The knowledge is expressed through multimedia such as text, images, audio, video, animation, and virtual reality (VR) with course content, multimedia, software, and learning devices as the core elements of digital books.

Currently, there are three main aspects of digital book classification and definition: the first definition is that a digital book is a digitized book that is distributed over the Internet and searchable by specialized readers or software that treats the digital book as a digitized version of traditional teaching materials. A second definition is that a digital book is a portable reading device with storage and display capabilities that digitizes the text, images, audio, and video of traditional educational materials. A third definition refers to a digital book as an integration of digital content and a portable reader that contains a device, connects content information, and supports reading over the Internet.

Adjusting to the latest education system in which the technology plays an important role, and the condition that require the educators to be able to switch between online and offline learning, blended learning is still a fairly new concept in many educational institutions. However, even the previous research which was conducted before it

was necessary to do online learning, its seems to indicate that blended learning, when it is done "right", can significantly improve the student experience (Hashemi & Daneshfar, 2018). Two years later, when almost the entire world dealt with the pandemic, Anthony *et al.* (2020) propose that the Blended Learning practices should be conducted and should be included face-to-face events, activities, information, resources, assessment and feedback for students, and technology, pedagogy, content, and knowledge for faculty. In 2021, a research resulted to the conclusion that blended learning improves learning outcomes more effectively than conducting online and face-to-face learning separately (Bahri *et al.*, 2021).

From the conditions and background described, not many of the previous researches talked about the implementation and exploration of features in Moodle and see the result on the students' achievement especially digital interactive book as one of alternative digital teaching media. Most of the teachers or educators, as well as the researchers focused only on using ready to use teaching media and neglecting some features in Moodle that is actually cheap and easy to use. During the pandemic, students also struggled to understand teaching materials provided in conventional ways, therefore, this research was a breakthrough of the common habits and was expected to increase teachers' creativity as well as boosted the students' achievement by providing interesting teaching materials in interactive teaching media. After implementing new teaching media, as educators, it is very important to see how it was accepted by the students. Therefore, the idea of finding out the students' reflection toward the use of certain teaching media was also important.

The idea of learning from the past and especially avoiding repeating mistakes is widespread since many years ago. Reflection means evaluating, synthesizing, and abstracting shared concrete examples. It reveals important functions and relationships that are ignored by abstract and formal knowledge. Larsen *et al.* (2016) argue that introspection not only serves a social purpose, but also influences students' learning from their experiences, increases their awareness of their thoughts and actions, and increases the perception of their experiences. It can also be used to "increase memory". Their study also shows that during the process of reflection, learners can exchange perspectives among group members and re-evaluate their

original perspectives (Brownhill, 2022). This interactive deliberation process generates different perspectives and alternative solutions. Reflective practice can be viewed as a form of active, experiential learning (Heymann *et al.*, 2022).

This research then aimed to encounter the issue with teaching material by integrating interactive teaching material to a blended learning class, and found out the students' reflection toward the implementation of the designed teaching material as well as teaching media. The study also aims is to answer the challenges in the shift in the learning system. The objective of implementing this research is to describe the students-teacher reflection toward the implementation of digital interactive book in their class. This major aim is related to the third problems encountered in integrating technology to teaching which is educational or pedagogical problems. Teachers must be trained to improve their digital and other specific skills in online education in order to properly plan and implement innovative educational programs (Rashidov, 2022). Due to the lack of suitable digital devices, some students are forced to use smartphones to view lessons without optimized digital content. For this issue, educators need to find ways to optimize the learning materials that can meet their necessity and need.

METHOD

As noted above, the study was conducted as part of the third year of English Language Education Study Program at an Indonesian university (Pakuan University) which required the unit to scale and continually update e-learning (and other) technology to effectively manage an equitable learning experience for students. The specific class were taken into the study was a second-year class who took grammar class.

The student teacher's reflections were explored using an exploratory case study. The exploratory case study looks into the actions taken in a case and its environment. The case study design is chosen, as this study investigates reflective practice in a real-life context. It is exploratory research as an 'in-depth' study is needed to be carried out on the phenomenon of the implementation of digital interactive book in blended learning class. This approach to research is applicable because of its ability to use multiple data points (quantitative and qualitative) to answer research questions and to provide an in-depth investigation of phenomena in context (Steinert *et al.*, 2016).

Questionnaires were selected to explore the students' experiences during the use of Moodle-based digital interactive books and changes in attitudes, beliefs and perceptions during the semester as a result of classroom experience and professional development. The questionnaire will also enable the researcher to examine the student teacher's "reflections". Semi-structured interviews will be used to collect information for the case study. Quantitative data collected through yes/no responses to self-report questionnaire statements were used to answer research questions about reflection on students' experiences with English grammar using a digital interactive book during a synchronous session. It was subjected to analysis, and the qualitative data collected at the public explanation corner was aggregated and analysed for content. The interview and questionnaire permit for an investigation into students' reflection, which included reflection on the use of the media, and reflection on the use of the media during blended learning. The student teachers will recognize their lesson's strengths and weaknesses regarding the use of the digital interactive book. In addition, semi structured case study interviews will be conducted with open ended questions. The researcher will be able to analyse and emphasize any behaviours that arises in the implementation of digital interactive book in blended class. The semi-structured interview constructs an altercation of conversation and dialogue between the interviewer and participants. By doing this, the researcher will focus on the participant's experience' in their own words.

The interviews will give plentiful data about the student's understanding of the material given by using digital media and will allow the researchers to trace the students critical thinking progress. One of the primary goals of qualitative interviewing is to comprehend complex behavior, opinions, and thoughts that are incomprehensible through direct observation or during interviews. In this case, the sample is students studying Grammar subject in a blended class at a higher educational institution (FKIP) in Universitas Pakuan. The sample size needed to be small enough to locate the individual's voice because of the nature of the research into reflective.

At this stage, there are two main sampling strategies that can be used: random/convenience sampling and purposive sampling. Purposive sampling was used as it can take several forms, including extreme sampling, which selects 'illuminating cases,' and intensity sampling, which selects 'rich samples' relevant to the research

question. The size and nature of the course forced participants to learn throughout the semester. Initially there were 27 respondents, but because not all respondents had the complete data set, the participation in the study included 25 the third-year students. The class consisted of 19 female students and 8 male students. Of the 25 participants, 15 participated in semi-structured interviews and another 10 in focus group sessions.

RESULTS AND DISCUSSION

Analysis of participants data reveals several themes related to student and teacher considerations regarding the use of Moodle-based digital interactive books, among indicators of efficiency, control, impact, usefulness and learning ability.

Pattern of technological use

Items related to the pattern of use of technology developed for the purpose of this study are in the form of digital interactive books. Participants were given learning materials in the form of interactive content contained in the H5P Interactive content feature in Moodle. The lecturers involved in this study added an interactive activity in their courses in LMS, and the learning materials given were included in the Digital Interactive Book (H5P). H5P, called Interactive Content in the new Moodle activity picker, offers a wide range of learning and assessment-based activities including interactive videos, branching scenarios, essay questions, drag and drop questions, multiple choice questions and presentations.

The goal of the H5P project is to enable everyone to create, share and reuse interactive content. The plugins developed for existing publishing systems are Drupal, WordPress and Moodle. It allows users to create simple yet powerful interactive content without her writing a single line of code. The most popular content types are interactive videos and course presentations. At this point, there are many types of content such as course presentations, interactive videos, graphs, dialog cards, math quizzes, drag and drop, multiple choice, memory games, and more. Here is an example of H5P interface in LMS:

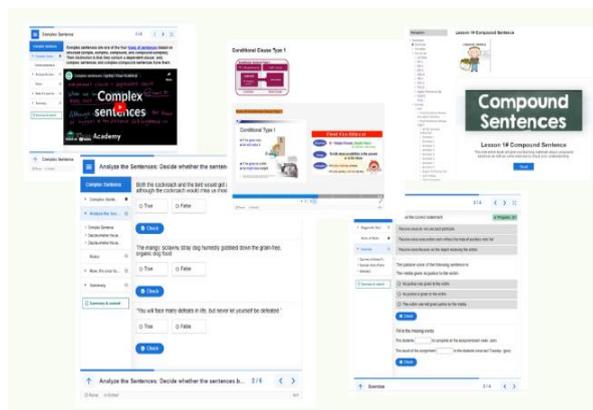


Figure 1. Digital interactive book's interface

Students' reflection

Reflection is based on awareness. Though there are various definitions of reflection, reflection involves the use of one's own experiences and critical thinking to examine the information presented, reflect on experiences, question their validity, and draw critical conclusions (Triana *et al.*, 2017).

Quantitative data collected by students' responses to three scales questionnaire statements which were subjected to frequency analysis and qualitative data to answer survey questions about students' reflection on the implementation of Moodle-based digital interactive book. A content analysis of qualitative data was performed as follows: (1) organize the data, (2) explore and code the data, and (3) build explanations and themes. (4) identify qualitative findings; (5) interpret; and (6) verify the accuracy of the results (Creswell & Creswell, 2017). For data analysis, responses were read individually and grouped based on the item considered. At the same time, researchers analysed and generated questions to identify common themes. All three researchers compared and discussed content analysis, categorizing data and concluding themes based on similarities and differences in views. The explanation was based on these findings. Results were presented without comment to show the actual data, after which the results were interpreted.

The researchers sought to approach the study by examining how students describe their learning experience with digital interactive books, particularly in relation to three different frameworks of motivation and engagement. Because the survey was so short, we focused on the impact of the intervention on students' experiences especially motivation to learn English grammar rather than trying to measure changes in knowledge of the subject content.

Students' reflection of the use of Moodle-based Digital Interactive Book (DIB)

A frequency analysis of students' yes/no responses to self-reported questionnaire items/statements that reflect students' views and feelings about their learning experience with Moodle-based digital interactive books, and a description of the results of each content analysis, are provided below. Of her 25 students who participated in the study, most had positive thoughts and feelings about her DIB use, but some indicated limitations that should be considered for future use.

More specifically, based on frequency analysis in the table, we found that 76% of 25 students have positive learning experiences using Moodle-based digital interactive book especially. The learning experience they had refers to the whole semester where they were given materials through digital interactive book embedded in Moodle (LMS). The learning materials that they accessed were among others in form of interactive video, image hotspot, single choice exercise and multiple choices exercise. When the samples were interviewed, the information was gained about the activities they liked the most in digital interactive book which is interactive video and some exercises. The students highlighted that when they watched interactive video, it was challenging since they could interact to the content of the video through the questions provided during the video played. As for the exercise's activities, 6 out of 10 students who were interviewed, or 60% stated that the exercises were better displayed in form of summary or true or false questions. Regarding the feedback, they all agreed that they liked it the most when they could see the result of their answers directly right after they answered the questions.

For the navigation or control aspect, moreover, 100% of the participants said that using DIB in learning process was easy. 20 participants out of 25 answered yes to the statement that DIB has meet their needs of the learning materials. Moodle-based digital interactive book, apparently, provides many features to present learning materials in interactive and attractive way. This result is in line with the result of previous research conducted by Košir *et al.* (2022) who highlighted that interactive interface of learning material in form of digital interactive book can provide great amount of information needed by the students. The most positive responses were obtained for the point of learning experiences like the benefits and meaningful content, the interface and features in DIB that are interesting and

pleasant, the convenience of accessibility of DIB for the participants as well as the autonomy increased during the learning process. In interview session, it was found out that the students were interested to the learning material and they were more engaged when the learning materials were presented in various type like in a form of video animation, audio, combined with the text explanation. Jeong (2022) in his study also mentioned the benefits of digital teaching media and its significant impact on students' autonomous learning and self-directed learning. Regarding the exercises, the students also said that the exercise or practices in DIB were not intimidating like conventional practices or quizzes in class. On the other hand, the most of 'no' responses were from the statement related the certainty and optimism of getting good score in the subject learned. More than 50% of the students was not sure that using DIB during their blended learning sessions would increase their score. The negative response was also found out in the topic chosen presented in DIB. The reasons of the participants chose negative responses were obtained during the interview session in which they said that it would be better if the topic presented in DIB was the easy one since they had to learn independently during asynchronous sessions. The figure below shows the comparison between negative and positive responses given by the students.

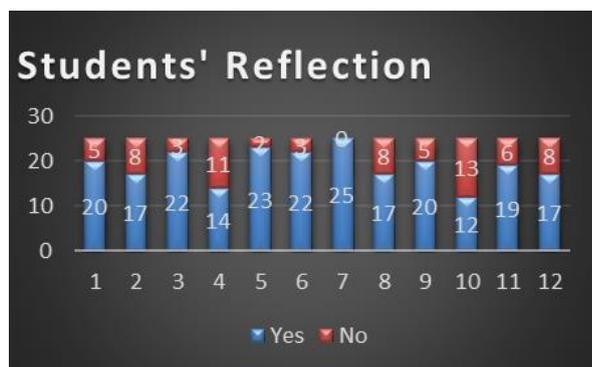


Figure 2. Diagram of students' reflection of the use of DIB

Table 1. Students' reflection towards the use of DIB

Items	Yes' freq	'No' freq
I like learning through digital interactive book in LMS	20	5
I find grammar learning through DIB beneficial and meaningful.	17	8
I like it when the DIB	22	3

contains video animation, audio and different types of practices (e.g. quiz, matching game etc).		
I like it when DIB contains interesting topics.	14	11
I like playing games (quizzes) in DIB	23	2
I like the materials of the subject presented in DIB.	22	3
I find the navigation in using DIB is easy.	25	0
I enjoy the time I spend in learning using DIB.	17	8
DIB provides my learning materials needs.	20	5
I believe I could get good score when I learn the materials using DIB.	12	13
The content provided in DIB was clear.	19	6
The interface of the DIB was pleasant.	17	8

Students' reflection of the use of Moodle-based digital interactive book during blended class

During the asynchronous session in their blended learning class, the participants were required to access the LMS provided by the University completed with some interesting features like digital interactive book or content. In this feature, the lecturers were able to present the learning or teaching materials in interactive and attractive ways. The result of the questionnaire was presented in the following table followed by the description of the interview session's result.

Table 2. Students' reflection of the use of Moodle-based DIB during blended class

Items	'Yes' frequency	'No' frequency
I like it when I can access the learning material presented in DIB anywhere.	21	4
The asynchronous session during the blended class became interesting using DIB.	16	9
I can learn independently using DIB.	21	4
The interface of the DIB was pleasant.	17	8
Although it was used in asynchronous session, the instructions in DIB were clear.	19	6

In this point, there is 76% of the participants responded positively to the use of DIB during their asynchronous session of their blended learning class. The points of this aspect were among others; the accessibility (76% of the participants said it was pleasant for them to be able to access the learning material easily anywhere), the autonomous learning increased during the lesson (21 out of 25 participants said that they were able to learn more independently using DIB), and the learning instructions (74% said yes about the instructions given in DIB being clear and pleasant).

The results of the self-assessment questionnaire showed that they rated the use of the digital interactive book positively in most respects, but also identified some limitations that should be considered as suggestions for improvement. Regarding the materials and features of the DIB, they seem to enjoy and benefit greatly from elements such as audio, video and animation, as well as various types of practices, interaction, learning autonomy and accessibility. It looked like It helps the students stay focused by capturing and engaging the learner's attention. The result of the study echoes what the previous study discussed. A learning environment based on digital interactive books is a natural environment for students who are considered 'digital natives' (Weiss & Bitan, 2018). The interface and content of the digital interactive book somehow also plays an important role as it gained so much attention from the participants of the study. Most of the participants' attention were drawn through the interactive activities and features as well as the interesting contents such as video, audio, text, and animation. The digital content attached in the interactive book seemed to accomplish the majority of students' need who found fractals particularly enjoyable. The students are more likely to generate contextual interest only if they find it surprising, personally relevant, or particularly enjoyable (Nengsih *et al.*, 2022).

As for the students' autonomous learning improved during the synchronous sessions in their blended learning class, it was surprisingly found out they felt independent and confident of understanding the material in spite of their uncertainty of getting good scores in the subject as it was also stated by Khan *et al.* (2017). It can be said that interactive digital-based learning resources can be used by students for self-directed learning without instructor supervision (Nafi'ah *et al.*, 2019). Developing students' autonomous learning could be facilitated by technologies. As it

was stated by Yot-Domínguez & Marcelo, (2017), 4.0 Social software technologies (communication tools, resource and experience sharing tools, social networking tools) have great potential to facilitate self-regulation.

CONCLUSION

This study, which included a group of intermediate-level English learners in the Department of English Languages Education Study Program at Pakuan University, used Moodle-based digital interactive book as a learning media and material provided in LMS during blended class. It was aimed to explore the students' reflection during their asynchronous grammar class specifically their learning experiences and perceptions of the use of DIB. Therefore, we examined their reflections on grammar learning experiences using digital interactive book during their asynchronous activities using a 16-item self-report questionnaire asking students to answer yes/no. The study initially involved 27 participants, yet due to the limitation of the research duration, there were only 25 data gained through the research instruments.

As demonstrated in current research, learning environments that foster positive engagement and motivation can be achieved, and students are associated with positive cognitive, emotional and social outcomes as it may be provided in digital interactive book's features. Based on current research, future research may investigate the impact of digital interactive book on student performance and outcomes in other subject, or the conditions that improve student performance, and ways to improve the digital interactive book content.

REFERENCES

- Anthony, B., Kamaludin, A., Romli, A., Raffei, A. F. M., Phon, D. N. A. L., Abdullah, A., & Ming, G. L. (2020). Blended learning adoption and implementation in higher education: A theoretical and systematic review. *Technology, Knowledge and Learning*, 1–48.
- Bahri, A., Idris, I. S., & Hasmunarti, M. (2021). Blended learning integrated with innovative learning strategy to improve self-regulated learning. *International Journal of Instruction*, 14(1), 779–794.
- Brownhill, S. (2022). Asking more key questions of self-reflection. *Reflective Practice*, 23(2), 279–290.
- Chootongchai, S., & Songkram, N. (2018). Design and development of SECI and Moodle online

- learning systems to enhance thinking and innovation skills for higher education learners. *International Journal of Emerging Technologies in Learning*, 13(3).
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Fansury, A. H., Januarty, R., & Rahman, S. A. W. (2020). Digital content for millennial generations: Teaching the English foreign language learner on COVID-19 pandemic. *Journal of Southwest Jiaotong University*, 55(3), 1-13.
- Ferri, F., Grifoni, P., & Guzzo, T. (2020). Online learning and emergency remote teaching: Opportunities and challenges in emergency situations. *Societies*, 10(4), soc10040086.
- Gamage, S. H. P. W., Ayres, J. R., & Behrend, M. B. (2022). A systematic review on trends in using Moodle for teaching and learning. *International Journal of STEM Education*, 9(1), 1–24.
- Ghory, S., & Ghafory, H. (2021). The impact of modern technology in the teaching and learning process. *International Journal of Innovative Research and Scientific Studies*, 4(3), 168–173.
- Gundu, N., & Ozcan, D. (2017). Implementation of the Moodle system into EFL classes. *Profile Issues in Teachers Professional Development*, 19, 51–64.
- Gurajena, C., Mbunge, E., & Fashoto, S. (2021). Teaching and Learning in the new normal: opportunities and challenges of distance learning amid covid-19 pandemic. SRRN.
- Hashemi, A., & Daneshfar, S. (2018). The impact of different teaching strategies on teaching grammar to college students. *Theory and Practice in Language Studies*, 8(3), 340–348.
- Heymann, P., Bastiaens, E., Jansen, A., van Rosmalen, P., & Beausaert, S. (2022). A conceptual model of students' reflective practice for the development of employability competences, supported by an online learning platform. *Education+ Training*.
- Jeong, K.-O. (2022). Facilitating sustainable self-directed learning experience with the use of mobile-assisted language learning. *Sustainability*, 14(5), 2894.
- Khairani, N. A., & Rajagukguk, J. (2019). Development of Moodle E-Learning Media in Industrial Revolution 4.0 Era. *4th Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2019)*, 559–565.
- Khan, A., Egbue, O., Palkie, B., & Madden, J. (2017). Active learning: Engaging students to maximize learning in an online course. *Electronic Journal of E-Learning*, 15(2), pp107-115.
- Koç, Ö., Yüksel, G., & Altun, E. (2021). Technology Acceptance and usage behaviour of content and language integrated learning teachers in Turkey. *English Language Teaching Educational Journal*, 4(2), 113–124.
- Košir, A. K., Tomc, H. G., Tomić, I., Pinčejr, I., Dedijer, S., Adamović, S., Beris, Y., & Gulacti, Ć. E. (2022). Visual effects and their importance in the field of visual media creation. *Journal of Graphic Engineering and Design*, 13(2), 5-13.
- Larsen, D. P., London, D. A., & Emke, A. R. (2016). Using reflection to influence practice: student perceptions of daily reflection in clinical education. *Perspectives on Medical Education*, 5(5), 285–291.
- Makruf, I., Rifa'i, A. A., & Triana, Y. (2022). Moodle-based online learning management in higher education. *International Journal of Instruction*, 15(1), 135–152.
- Mandasari, B., & Aminatun, D. (2022). Investigating teachers'belief and practices toward digital media of English learning during covid-19 pandemic. *English Review: Journal of English Education*, 10(2), 475–484.
- Nafi'ah, U., Suprpta, B., & Wijaya, D. N. (2019). Building the student's autonomous learning through development of learning resource based on flip-book on the material of Tantri relief. In *1st International Conference on Social Knowledge Sciences and Education (ICSKSE 2018)* (pp.82–86), Atlantis Press.
- Nengsih, Y. K., Handrianto, C., Nurrizalia, M., Waty, E. R. K., & Shomedran, S. (2022). Media and resources development of android based interactive digital textbook in nonformal education. *Journal of Nonformal Education*, 8(2), 185-191.
- Noermanzah, N., & Suryadi, S. (2020). Improving students' ability to analyze discourse through the Moodle-based blended learning method. *English Review: Journal of English Education*, 9(1), 81–94.
- Ran, W., & Jinglu, L. (2020). The design and development of digital books for e-learning. In *2020 4th International Conference on Artificial Intelligence and Virtual Reality* (pp. 51–55). Atlantis Press.
- Rashidov, A. S. (2022). Using of problem educational technologies in the development of students'creative and logical thinking skills. *Berlin Studies Transnational Journal of Science and Humanities*, 2(1.5 Pedagogical sciences), 262-274.
- Sergis, S., Vlachopoulos, P., Sampson, D. G., & Pelliccione, L. (2017). Implementing teaching model templates for supporting flipped classroom-enhanced STEM education in Moodle. In *Handbook on Digital Learning for K-12 Schools* (pp. 191–215). Springer.
- Setiyono, J., Sukarni, S., & Ngafif, A. (2021). Online learning perception during covid-19 pandemic. *English Review: Journal of English Education*, 10(1), 75–82.

- Steinert, Y., Mann, K., Anderson, B., Barnett, B. M., Centeno, A., Naismith, L., Prideaux, D., Spencer, J., Tullo, E., & Viggiano, T. (2016). A systematic review of faculty development initiatives designed to enhance teaching effectiveness: A 10-year update: BEME Guide No. 40. *Medical Teacher*, 38(8), 769–786.
- Takev, M., Rodríguez-Artacho, M., & Somova, E. (2019). Creating interactive and traceable epub learning content from Moodle courses. *Mathematics and Informatics*, 4(62), 459–470.
- Thomas, M. S. C., & Rogers, C. (2020). Education, the science of learning, and the COVID-19 crisis. *Prospects*, 49(1), 87–90.
- Triana, M. J. R., Santos, L. P. P., Vozniuk, A., Boroujeni, M. S., Schwendimann, B. A., Holzer, A. C., & Gillet, D. (2017). Monitoring, awareness and reflection in blended technology enhanced learning: A systematic review. *International Journal of Technology Enhanced Learning*, 9(ARTICLE), 126–150.
- Weiss, D., & Bitan, K. (2018). Promoting a meaningful learning experience with a born-digital interactive e-book and a digital teaching platform. *International Journal of Learning and Teaching*, 4(3), 255–258.
- Yot-Domínguez, C., & Marcelo, C. (2017). University students' self-regulated learning using digital technologies. *International Journal of Educational Technology in Higher Education*, 14(1), 1–18.
- Yugo, F. K., Hendriana, H., & Afrilianto, M. (2022). The impact of Moodle-based Learning Management Systems (LMS) on learning achievement in the covid-19 pandemic. *Empowerment: Jurnal Ilmiah Program Studi Pendidikan Luar Sekolah*, 11(1), 35–42.
- Zabolotniaia, M., Cheng, Z., Dorozhkin, E., & Lyzhin, A. (2020). Use of the LMS Moodle for an effective implementation of an innovative policy in higher educational institutions. *International Journal of Emerging Technologies in Learning (IJET)*, 15(13), 172–189.