



Facilitating flexible learning: A study of students' perceptions of synchronous and asynchronous blended learning

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Abstract

This study explored students' perceptions of the implementation of synchronous and asynchronous blended learning. The current case study investigated 78 undergraduates who enrolled in a course while involved in an experiential learning program called *Merdeka Belajar-Kampus Merdeka* (MBKM) or independent learning on an independent campus. Quantitative and qualitative data were collected in this study using surveys and interviews. The quantitative information was analyzed using descriptive statistics whereas thematic analysis was adopted to analyze the qualitative data. The five dimensions of flexible blended learning, including place, time, service, technology and pedagogy were adopted as a framework for this study. The findings suggested that synchronous and asynchronous blended learning could provide flexible learning regarding place, time, service, technology and pedagogy to support students' learning and participation in the MBKM program. According to students, facilitating factors for the flexibility of synchronous and asynchronous blended learning include providing accessible learning materials, the possibility of time negotiation, providing various ways for social interactions, aligning topics or activities between the course and the MBKM program, small group settings, giving clear feedback and minimal scheduling changes. These factors must be considered when optimizing synchronous and asynchronous blended learning implementations.

Keywords: Blended learning, Experiential learning, Learning flexibility, Perceptions, Synchronous and asynchronous learning, Undergraduates.

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Contribution of this paper to the literature

The current study's findings provide valuable contributions especially for implementing synchronous and asynchronous blended learning to facilitate students' learning while involved in an experiential learning program. The negative impacts of synchronous and asynchronous blended learning are expected to be minimized by considering the facilitating factors.

1. Introduction

In this digital society, labor market requirements are changing (Müller & Mildenerger, 2021; OECD, 2017). Professions with routine tasks have gradually disappeared replaced by automatization. People need various skills to meet the demands of different and new occupational fields. The OECD (2019) recognized six transversal skills crucial for technology-rich work environments including critical and creative thinking, problem-solving and decision-making skills using technology and working collaboratively. Educational institutions are expected to be able to assist students in obtaining the necessary information and skills to succeed in any workplace in a digitally connected global economy as a result of these facts (Müller & Mildenerger, 2021; Müller, Mildenerger, & Steingruber, 2023; OECD, 2019).

Indonesia introduced the "Merdeka Belajar-Kampus Merdeka" (MBKM) or independent learning-independent campus policy in response to changes in digital society through the Ministry of Education and Culture early in 2020. The student's right to study outside of the study program for three semesters is one of the policies outlined in the MBKM policy. This program aims to provide opportunities for students to develop competence, innovation, creativity, capacity, personality and independence and build knowledge through experiential learning in industry, the workplace, the real community or different universities (Directorate General of Higher Education, 2020). The MBKM program relies on the philosophical principles of progressivism education which emphasizes meeting students' needs and interests through building life experiences (Mustaghfiroh, 2020; Noddings, 2018). The MBKM learning activities can be carried out inside or outside the university. The MBKM activities can be in the form of student exchanges, internships or work practices, teaching assistance in education units, research, humanitarian projects, entrepreneurial activities, independent studies or projects or community services (Directorate General of Higher Education, 2020). Students receive 20 credit units for participating in an MBKM learning form for one semester.

Study programs must provide flexibility to facilitate student learning activities inside and outside the university to support MBKM activities (Müller & Mildenerger, 2021; Müller et al., 2023). Flexible learning may be interpreted differently (Hrastinski, 2019). However, this learning environment should facilitate students' various needs and provide greater learning autonomy (Smith & Hill, 2019; Vanslambrouck, Zhu, Lombaerts, Philipsen, & Tondeur, 2018). The degree of flexibility in learning can be assessed in various aspects (Veletsianos & Houlden, 2019) and they identified four dimensions of flexible learning: place, time, service, technology and pedagogy.

The selection of learning strategies is also one of the crucial keys to supporting student learning in study programs while participating in MBKM activities (Junaidi et al., 2020; Ramadania & Aswadi, 2020). The recommended learning strategy for optimizing the MBKM program is blended learning (Junaidi et al., 2020; Yamin, 2020). Blended learning combines online synchronous and asynchronous learning allowing students to learn according to their pace without sacrificing social interaction (Cronje, 2022; Müller et al., 2023). This strategy was chosen because the MBKM activities require students to be physically present at the location of the MBKM activities so that learning courses can only be conducted online. The exploration of student perceptions regarding the implementation of synchronous and asynchronous learning is essential to determine the strengths and weaknesses of these learning modes.

Students' perceptions of synchronous and asynchronous learning have been explored by previous studies (Alzahrani et al., 2023; Kohnke & Moorhouse, 2021; Moorhouse & Wong, 2022; Susiyawati, Nurita, Sari, Mursyidah, & Qosyim, 2022). However, the investigation of students' perceptions of synchronous and asynchronous blended learning especially when participating in the MBKM program is limited. Studies conducted by Hakim, Fajri, and Faizah (2022) and Astuti and Rosiawan (2022) that focused on students' perceptions of online student exchange as one of the MBKM activities did not explicitly discuss the facilitating factors of synchronous and asynchronous blended learning implementation. This case study helps lecturers design a flexible learning environment to support students in achieving optimal outcomes in both courses and the MBKM program. This study also contributes to the limited literature on synchronous and asynchronous blended learning that facilitates the MBKM program. The research questions guiding the investigation are as follows:

- To what extent did the implementation of synchronous and asynchronous blended learning meet the five dimensions of flexibility?
- What aspects of synchronous and asynchronous blended learning facilitate flexible learning?

2. Flexible Learning

Educational institutions must provide flexibility in the digital age to ensure students can customize their studies (Müller & Mildenerger, 2021; Müller et al., 2023). Flexible learning has many interpretations (Hrastinski, 2019). In general, flexible learning accommodates students' diverse needs and encourages learning self-regulation (Smith & Hill, 2019; Vanslambrouck et al., 2018). According to Cronje (2022), flexible learning has four dimensions: place, time, service, technology and pedagogy. Flexibility covers physical and digital learning environments and formal and informal learning spaces (Eyal & Gil, 2020). Sheail (2018) classified time flexibility as full-time, part-time and flextime. Flexible learning is expected to provide inclusive, accessible and equitable learning regarding the service dimension (Veletsianos & Houlden, 2019). Using various learning platforms encourages students to be involved in the learning process depending on the available facilities (Nguyen & Kieuthi, 2020). Pedagogy can be flexible by implementing various learning methods from direct instruction to constructivist learning. Most flexible learning is conducted in online or blended learning environments (Kohnke & Moorhouse, 2021; Müller et al., 2023; Susiyawati et al., 2022).

3. Methods

3.1. Research Method

The current study investigated students' perceptions of synchronous and asynchronous blended learning to explore the facilitating factors of this flexible learning. A descriptive case study method was adopted in this study to achieve the objective (Cohen, Manion, & Morrison, 2020; Merriam, 2009; Yin, 2018). The method was selected because the study aimed to understand the implementation of synchronous and asynchronous blended learning at a particular university in Surabaya, Indonesia without aiming to generalize the findings (Cohen et al., 2020; Simons, 2009; Tight, 2010; Yin, 2018) as the case is bounded by the context (Yin, 2018). Semi-structured interviews were carried out after an online survey to obtain a comprehensive knowledge of the study's emphasis (Moorhouse & Wong, 2022). In addition, qualitative and quantitative information was collected to triangulate the findings of this case study (Cohen et al., 2020; Merriam, 2009; Yin, 2018).

3.2. Research Context

This study was conducted at Universitas Negeri Surabaya (UNESA), a state university in Surabaya, Indonesia. The university has implemented and supported the government's policy of MBKM activities since 2020. The Rector's Decree about the MBKM stated that UNESA required sophomore undergraduates to participate in at least two MBKM activities in different semesters (Surabaya State University, 2020). Each MBKM activity is conducted for one semester and converted into 20 credit units. The number of UNESA students involved in various MBKM activities is increasing from 6044 students in 2021 to 7090 students in 2022. The government, the UNESA or industry partners may fund the MBKM activities. Some study programs provided by UNESA allow students to participate in the MBKM activity while enrolled in one or two courses following the policy. This allows students to complete their studies within the allotted time frame.

A total of 78 voluntary undergraduates consisting of seven male and 71 female students were involved in this study. These undergraduates were respondents who filled out and returned the online survey. These undergraduates were enrolled in one or more courses while participating in one of MBKM's activities in 2022. The MBKM activities included community services (41%), teaching internships (32.1%), internships in industry (10.3%), student exchange (3.8%), research activities (7.7%), entrepreneurship (14.1%), independent studies or projects (14.1%) or humanitarian projects (3.8%). The courses taken by the students were conducted in synchronous and asynchronous blended learning because the MBKM activities require students' physical presence.

3.3. Data Collection

This study gathered quantitative and qualitative data. The quantitative data were collected using quantitative items of the online survey whereas the qualitative information was generated from interview results and the survey's open-ended questions. The survey was administered to the respondents in July 2023 using Google Forms to collect students' perceptions about implementing synchronous and asynchronous blended learning while participating in MBKM activities. A total of 31 questions were listed in the questionnaire of the survey comprising five items asking about respondents' identities, eight questions inquiring about the implementation of synchronous and asynchronous blended learning and the last 18 items focusing on respondents' perceptions of the implementation of synchronous and asynchronous blended learning. The questionnaire was developed using a variety of question formats including short answer, single-select multiple choice, multi-select multiple choice, open-ended and Likert scale questions. The questionnaire was adapted from the Fall 2020 national online and blended learning survey (Clayton Christensen Institute, 2020) and staff survey reflections on blended learning teaching delivery in term 1 (Royal Veterinary College, 2015). Three lecturers with experience teaching synchronous and asynchronous blended learning reviewed the questionnaire to improve its validity. Some items were revised to increase clarity based on the reviews. The final version of the questionnaire was then piloted with four students to ensure the readability of the items in the questionnaire. These processes were conducted to ensure the validity and reliability of the data (Cohen et al., 2020; Merriam, 2009; Moorhouse & Wong, 2022; Susiyawati, Sudibyo, & Sari, 2021; Yin, 2018).

The survey administration was followed by semi-structured interviews to better understand the collected data (Cohen et al., 2020; Yin, 2018). The interviews involved 15 voluntary respondents who had completed the survey. The respondents were selected for their positive or negative perceptions of implementing synchronous and asynchronous blended learning. A consent form was delivered to each respondent through social media (WhatsApp) before the interview. An interview protocol was developed to guide the interview sessions by focusing on the trends and themes of the survey data. The interviews were conducted in August 2023 involving three interviewers. Each interview session was video recorded and lasted approximately 60 minutes using a video-conferencing application (Google Meet).

3.4. Data Analysis

Quantitative and qualitative data were analyzed separately. The quantitative data was analyzed using descriptive statistics, including frequencies and percentages (Cohen et al., 2020; Fraenkel, Wallen, & Hyun, 2012). The six-step thematic analysis (Braun & Clarke, 2006; Moorhouse & Wong, 2022) was adopted to analyze the qualitative data collected from the qualitative items of the survey and interview results. The six steps can be described as follows:

1. The researchers repeated reading the interview transcriptions and respondents' responses to the survey's qualitative items to become familiar with the content of the data. The qualitative information was then translated into English for analysis using Voyant Tools, a free web-based application for reading and analyzing digital texts. This application can be accessed at <https://voyant-tools.org>.
2. Each researcher generated initial coding using Voyant Tools and compared the results to those created by other researchers through a shared cloud-based online document.
3. The researchers discussed generating relevant themes by combining appropriate initial coding.
4. The generated themes were classified under the conceptual framework of flexibility in blended learning, including place, time, service, technology and pedagogy (Cronje, 2022; Veletsianos & Houlden, 2019).

5. The researchers re-reviewed and decided on the final themes. Each theme was defined.
6. The final analysis was conducted to produce a report by selecting the relevant examples of each final theme.

All researchers were involved in each stage of the thematic analysis to improve the validity and reliability of the data analysis (Cohen et al., 2020; Moorhouse & Wong, 2022; Yin, 2018). The analysis results of quantitative and qualitative data were compared and compiled in response to the research questions.

4. Findings

This study focused on undergraduates' perceptions of synchronous and asynchronous blended learning to understand the aspects supporting flexible learning. Quantitative and qualitative data were collected in response to the two proposed research questions. In general, the undergraduates' perceptions of the flexibility of synchronous and asynchronous blended learning while participating in an MBKM activity are shown in Figure 1.

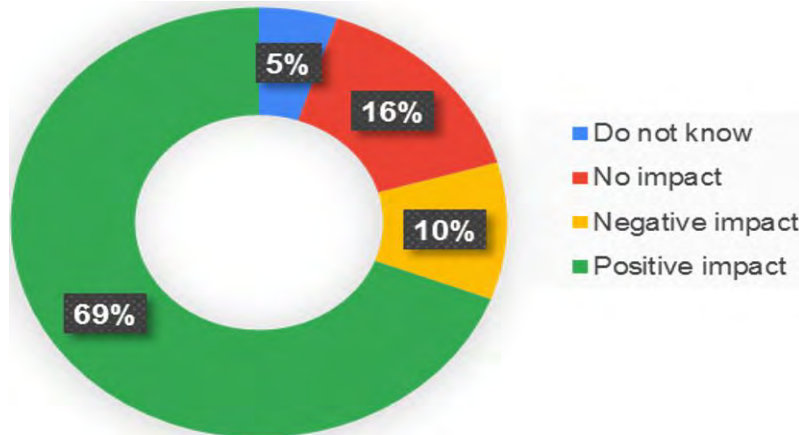


Figure 1. Students' perceptions of the impact of synchronous and asynchronous blended learning on learning flexibility.

Figure 1 shows that more than half of the respondents perceived the flexibility of synchronous and asynchronous blended learning. However, the others had different perceptions of this learning design. Indeed, 10% of them viewed synchronous and asynchronous blended learning as negatively impacting learning flexibility. These findings indicate that synchronous and asynchronous blended learning designs or implementations influence learning flexibility. The results related to the flexibility of synchronous and asynchronous blended learning will be presented in the following paragraphs by focusing on the five dimensions of flexibility in blended learning including place, time, service, technology and pedagogy.

4.1. Place

All courses students attended while participating in an MBKM activity were conducted using synchronous, asynchronous or blended learning because MBKM activities require students' physical presence. The university has arranged no face-to-face learning for students involved in MBKM activities so that students can learn from the location of MBKM or anywhere. The types of learning modes students experience during the courses while participating in an MBKM activity are shown in Figure 2.

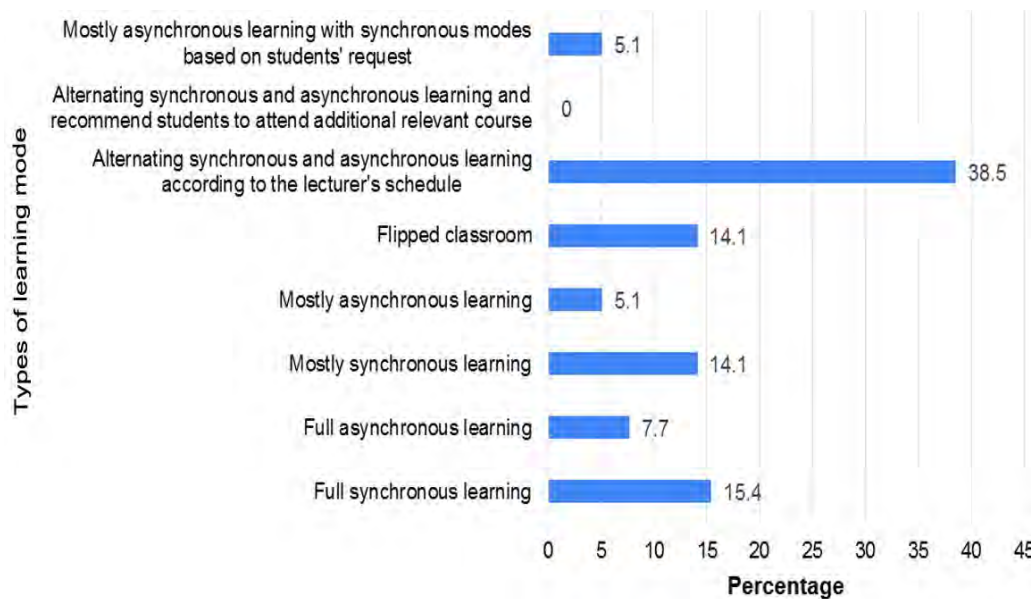


Figure 2. Types of learning modes for courses taken by students while participating in an MBKM activity.

Data in Figure 2 exhibits that most students experienced synchronous and asynchronous blended learning in courses that they were programmed while participating in MBKM activities. According to the lecturer's schedule, alternating synchronous and asynchronous learning were experienced by more than 30% of the students. The other students mainly participated in full synchronous, primarily synchronous and flipped classrooms. The findings indicate that most courses implemented synchronous modes for students while participating in MBKM activities.

Using synchronous mode was beneficial for some students but detrimental for others. The location of MBKM activity was one of the reasons for this phenomenon. This assertion is corroborated by the word cloud (see Figure

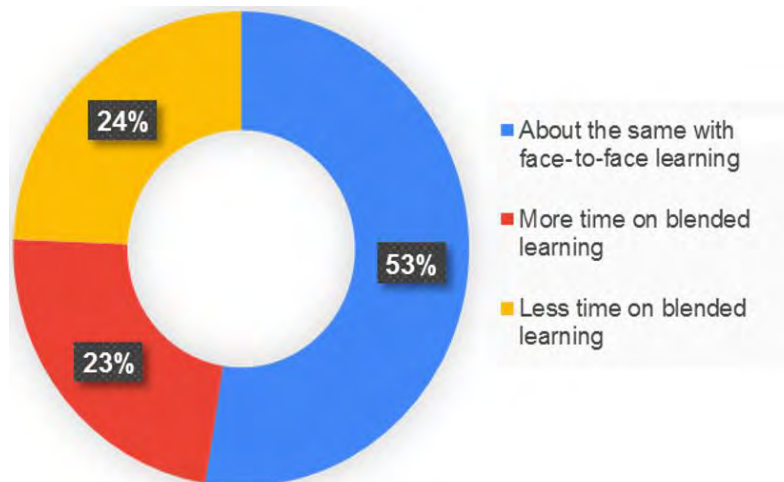


Figure 4. Students' perceptions towards the comparison of learning time spent between face-to-face and blended learning.

The majority of students reported that their blended learning time during an MBKM activity was nearly identical to their in-person learning time as shown in Figure 4.

Indeed, 24% of the students perceived that blended learning required a shorter time than face-to-face learning. However, 23% of the survey respondents experienced a longer period of synchronous and asynchronous blended learning compared to face-to-face learning. This fact suggests the challenges students experienced during the study regarding time. The time challenge is supported by the data in Figure 3. The word "time" is recognized as one of the most mentioned aspects when students responded to the survey question about learning difficulties. The detailed obstacles students experienced when engaged in synchronous and asynchronous blended learning are presented in the following quotes:

"Before participating in MBKM activities, usually in 1-3 days, 1 task is completed depending on the level of the number and difficulty of the assignment. But when participating in MBKM, I needed more time because the activities were quite dense and the assignments' due dates were around 2-5 days for each" [respondent 4: response to the interview question].

"The obstacle occurred when the lecturer's schedule was uncertain and often changed resulting in time conflicts with MBKM activities" [response to survey item 18].

"It was quite difficult to manage time because there were so many work programs [MBKM activities], lectures and assignments" [response to the survey item 18].

The responses suggested that time management was students' primary challenge when attending synchronous and asynchronous blended learning while engaging in the MBKM program. Changes in class schedules exacerbated this problem. More than 30% of respondents suggested that learning be carried out according to schedule (schedule certainty).

4.3. Service

Another aspect of flexibility in blended learning is service. Veletsianos and Houlden (2019) stated that inclusivity, accessibility and equity are essential for service-oriented flexibility. This study analyzed the service aspect of students' perceptions of lecturers' services during synchronous and asynchronous blended learning as presented in Figure 5.

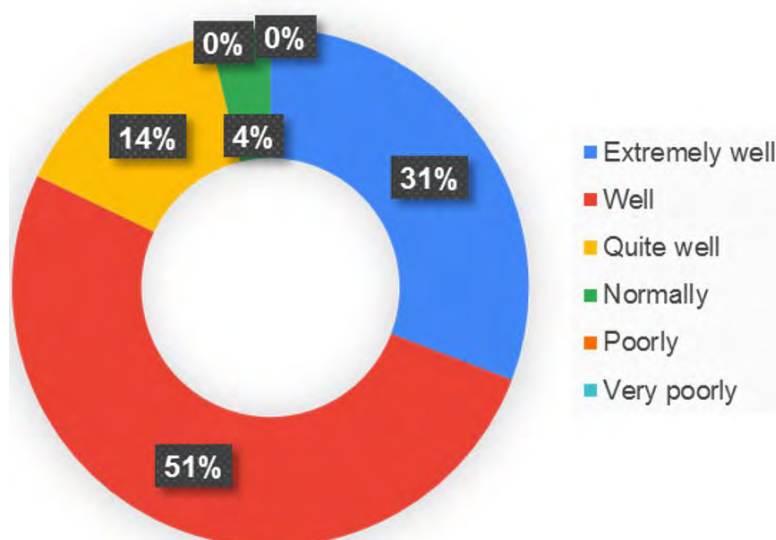


Figure 5. Students' perceptions of the lecturer's service during synchronous and asynchronous blended learning. Poorly and very poorly written lines are invisible indicating that no student perceived the lecturer's service at these levels.

Data in Figure 5 show that all students had positive perceptions about the services they received from their lecturers during blended learning. Most of them indicated that their lecturers served the students well during the learning and none of the students perceived negatively the lecturer's services. The aspects frequently mentioned by students related to lecturers' services include schedule agreement (11%), online teaching capability (10%), lecturers'

understanding of the MBKM situation (9%), well explained learning material (9%) and feedback on assignments (5%). Details regarding each aspect of the lecturers' service are available in the following information:

“Lecturers could accept negotiations on the hours or schedule of the course when the course coincides with MBKM activities” [response to survey item 24].

“Lecturers could understand the obstacles experienced by most students, namely regarding difficult signals” [response to the survey item 24].

“Some lecturers presented learning material with references from various sources and made it [the presentation] as clear as possible” [response to survey item 24].

“I chose this option because, during distance learning, the lecturer always gave the material properly and maximally. The lecturer corrected student assignments together, so students understand which part of the assignment mistakes have been made. Lecturers always encourage students to be active in online classes” [response to survey item 24].

“Lecturers provided materials and recordings to students after the lecture was finished so that they could help students who experienced signal problems. Moreover, lecturers also provided feedback to each student regarding the assignments given” [response to the survey item 24].

The findings suggested that students perceived good service from the lecturers when the learning materials were understandable and accessible anytime and anywhere. Students from diverse areas, including a place with internet connectivity problems could benefit from learning, thus improving the inclusivity of learning by providing accessible learning materials. Lecturers' understanding of students' conditions at the MBKM sites through schedule and time negotiation was another strategy that lecturers used to provide inclusive learning. Giving feedback on each student's assignments was the lecturers' effort to provide equal learning.

4.4. Technology

Technology is a critical aspect of synchronous and asynchronous blended learning. Lecturers could not provide any learning for students who participated in MBKM programs because the physical presence of lectures and students was not supported without technology. A variety of technologies used in synchronous and asynchronous blended learning while students are engaged in the MBKM program are presented in Figure 6.

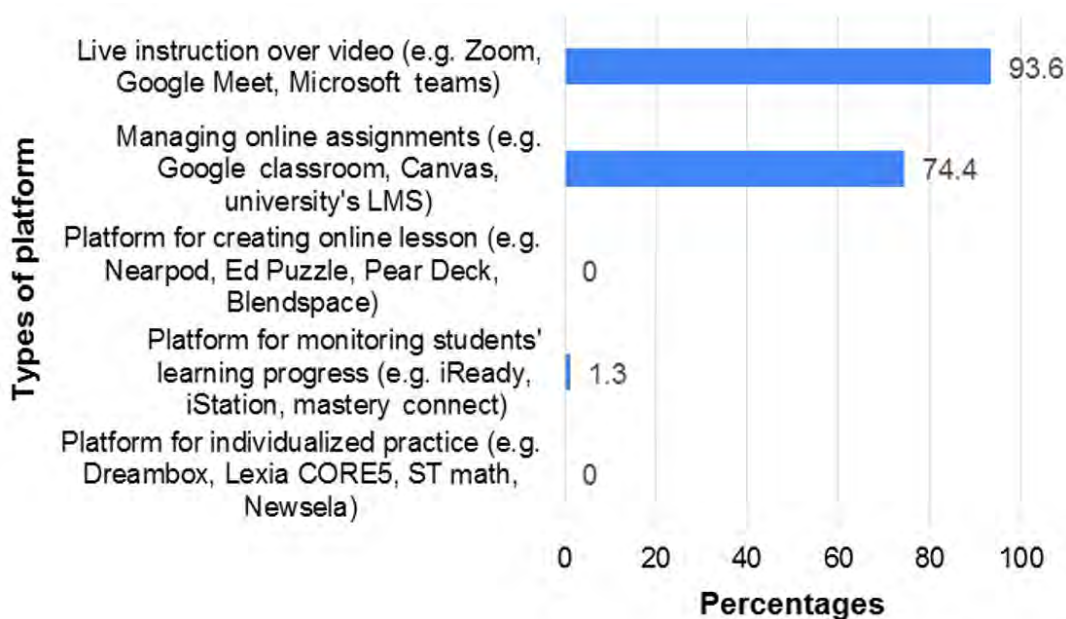


Figure 6. Platforms used by lecturers during synchronous and asynchronous blended learning.

Figure 6 shows that most lectures used platforms for live instruction over video, such as Zoom, Google Meet, or Microsoft Teams indicating that synchronous mode dominated the learning students experienced while participating in the MBKM program. This information supports the data about the types of learning modes as explained in section 3.1. In addition, more than 70% of students recognized the use of online assignment platforms to support asynchronous learning such as Google Classroom or the university's Learning Management System (LMS). The UNESA developed a Moodle-based LMS, VINESA to support learning digitalization and flexibility. UNESA's lecturers are recommended to use the VINESA for online, blended and face-to-face learning. However, some lecturers kept using Google Classroom because of its practicality and familiarity.

Technology was used to facilitate interactions and communication between lecturers and students in addition to supporting learning. Various ways for interactions used in learning while students participate in the MBKM program are shown in Figure 7.

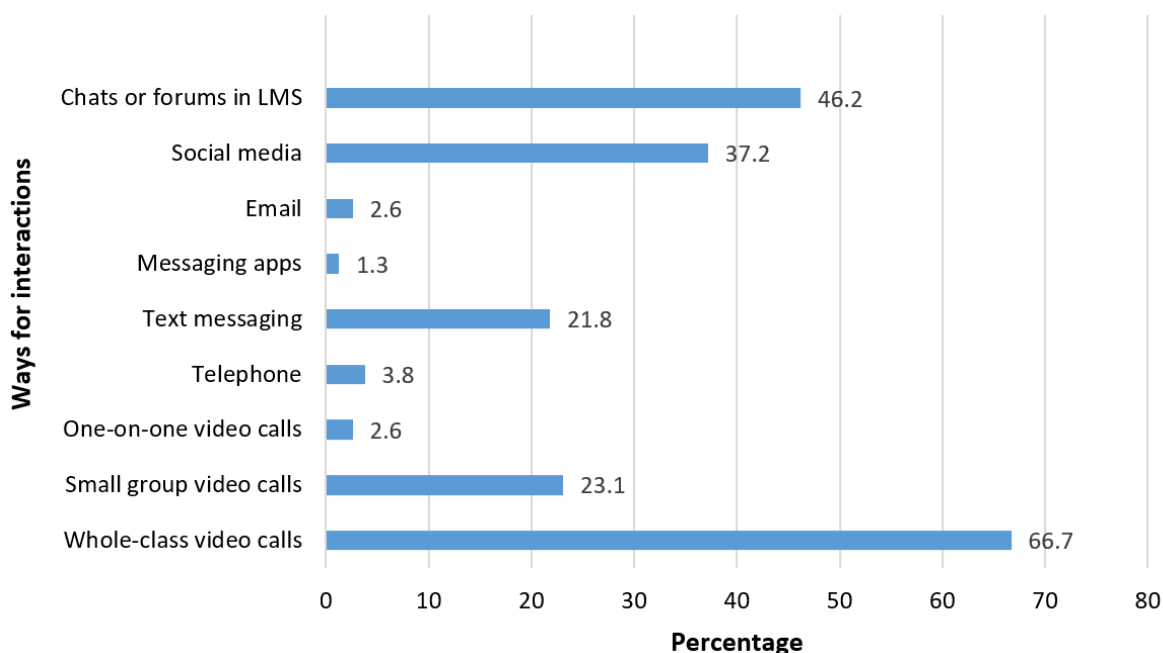


Figure 7. Ways of interacting during synchronous and asynchronous blended learning.

The information in Figure 7 suggests that whole-class video calls, LMS and social media were the primary means used by lecturers to interact and communicate with students. The highest percentages of whole-class video calls indicated that most lecturers preferred to use platforms for live instruction over video such as Zoom, Google Meet or Microsoft Teams. Thus, interactions took place mostly during class sessions. The following quotes support this fact:

“When interacting, lecturers and students used the Zoom and Google Meet platforms for virtual face-to-face interaction and Google Classroom for additional interaction. Interaction with lecturers and students was carried out every Saturday” [respondent 4: response to interview question].

“The best quality of interaction was through Google Meetings or Zoom Meetings because you can talk directly, so there were fewer misunderstandings [respondent 5: response to the interview question].

However, 37% of the students identified that lecturers used social media such as WhatsApp for learning. This fact is also apparent in the following responses:

“Using Google Meet to collect assignments, using Google Drive and using WhatsApp to contact the lecturer” [respondent 3: response to the interview question].

“The course was more often using Google meetings and Zoom meetings while asynchronous learning by working on assignments or discussions through Google Classroom and WhatsApp giving and collecting assignments through WhatsApp because of the ease of access [respondent 6: response to the interview question].

“Always using Google Meet for materials such as PPT sent through a WhatsApp group, for collecting assignments use Google Drive” [respondent 7: response to the interview question].

According to the responses, social media (e.g., WhatsApp) was used to communicate, share learning materials, and collect assignments. Instead of using LMS, the lectures relied on WhatsApp and Google Drive as platforms for asynchronous learning due to their ease of access.

The selection of interaction methods affected the quality of lecturer-student and student-student interactions. Students’ perceptions of interaction quality in synchronous and asynchronous blended learning are presented in Figure 8.

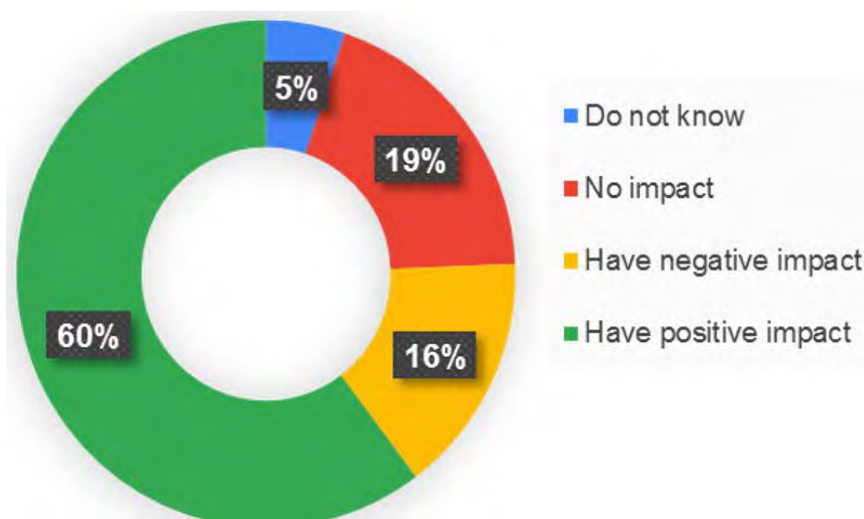


Figure 8. Students’ perceptions of the lecturer’s service during synchronous and asynchronous blended learning.

Figure 8 shows that more than half of the respondents perceived that synchronous and asynchronous blended learning positively affected lecture-student and student-student interactions. In contrast, 16% of them recognized

the negative impacts of this learning on the quality of interactions. These opposite perceptions are also apparent in students' responses to interview questions.

"Interaction with lecturers and friends was carried out every Saturday for seven consecutive weeks. The quality of the meetings is in a good category because between students and lecturers, there was two-way interaction" [respondent 4: response to the interview question].

"The English used was difficult to understand and was exacerbated by poor signals so the material presented was difficult to understand. Interactions with friends elsewhere were not frequent because of their slow responses, so I relied on offline discussions with friends in the same place even though they have different study programs. I was not confident studying online because I felt alone and became afraid to respond to the lecturer's questions" [respondent 3: response to the interview question].

The quotes above suggest that the quality of interactions during synchronous and asynchronous blended learning is affected by internet connectivity and individual personality. A poor internet connection may cause frustration during interactions resulting in lower motivation. Students' character also plays a role in online interaction. For some students, physical presence is essential to building the interaction but others may find online meetings sufficient. Therefore, generating social interactions in various ways is necessary for synchronous and asynchronous blended learning.

4.5. Pedagogy

The pedagogical aspect of synchronous and asynchronous blended learning cannot be overlooked despite the critical role of technology. Students may be unable to achieve expected learning objectives without appropriate learning design (Mozelius & Hettiarachchi, 2017). The types of learning activities students experienced in synchronous and asynchronous blended learning while participating in the MBKM program are presented in Figure 9.

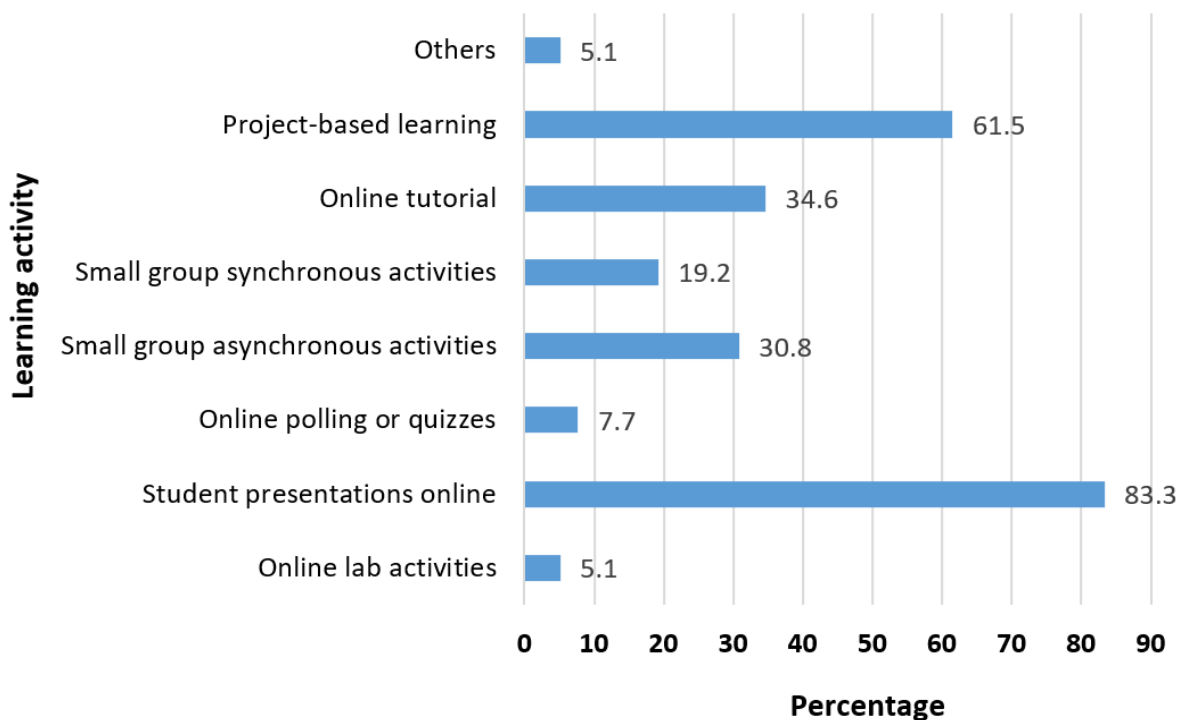


Figure 9. Learning activities students experienced during synchronous and asynchronous blended learning.

Information in Figure 9 suggests the flexibility of pedagogies implemented by the lecturers during synchronous and asynchronous blended learning. The pedagogies ranged from direct instruction (e.g., online tutorials, online polling, or quizzes) to student-centered learning (e.g., student presentations online, project-based learning). More than half of the respondents experienced student presentations online and project-based learning activities indicating student activeness in learning. However, 34% of the respondents also recognized online tutorials suggesting the variety of learning designs lecturers implemented according to the characteristics of learning topics. Examples of various learning activities students experienced during synchronous and asynchronous blended learning are presented in the following quotes:

"Synchronous learning activities in the form of delivering material [by the lecturer] and presentation of assignment results [by students], asynchronous learning activities in the form of article review assignments and preparing mini research on malacology as the final assignment of the course" [respondent 8: response to the interview questions].

"Synchronous learning activities in the form of explanations by the lecturer and discussions, 2-3 students made presentations and then the lecturer gave general feedback. There was no specific feedback. Asynchronous learning activities consisted of looking for research problems from authentic problems, articles or discussions with friends followed by developing chapters 1, 2, and 3 of the research proposal" [respondent 9: response to interview questions].

According to the quotes, both students experienced almost the same learning methods despite course differences. During synchronous learning, they received online tutorials which were dominated by lecturers followed by student-centered learning activities through online presentations. Furthermore, lecturers implemented a constructivist learning method (project-based learning) during asynchronous learning. Both students were required to create a research proposal or design research. These findings indicate the flexible learning design implemented by lecturers to support students during synchronous and asynchronous blended learning.

The implementation of flexible, synchronous and asynchronous blended learning affected students' learning. Students' perceptions of the learning aspects after implementing synchronous and asynchronous blended learning are presented in Figure 10.

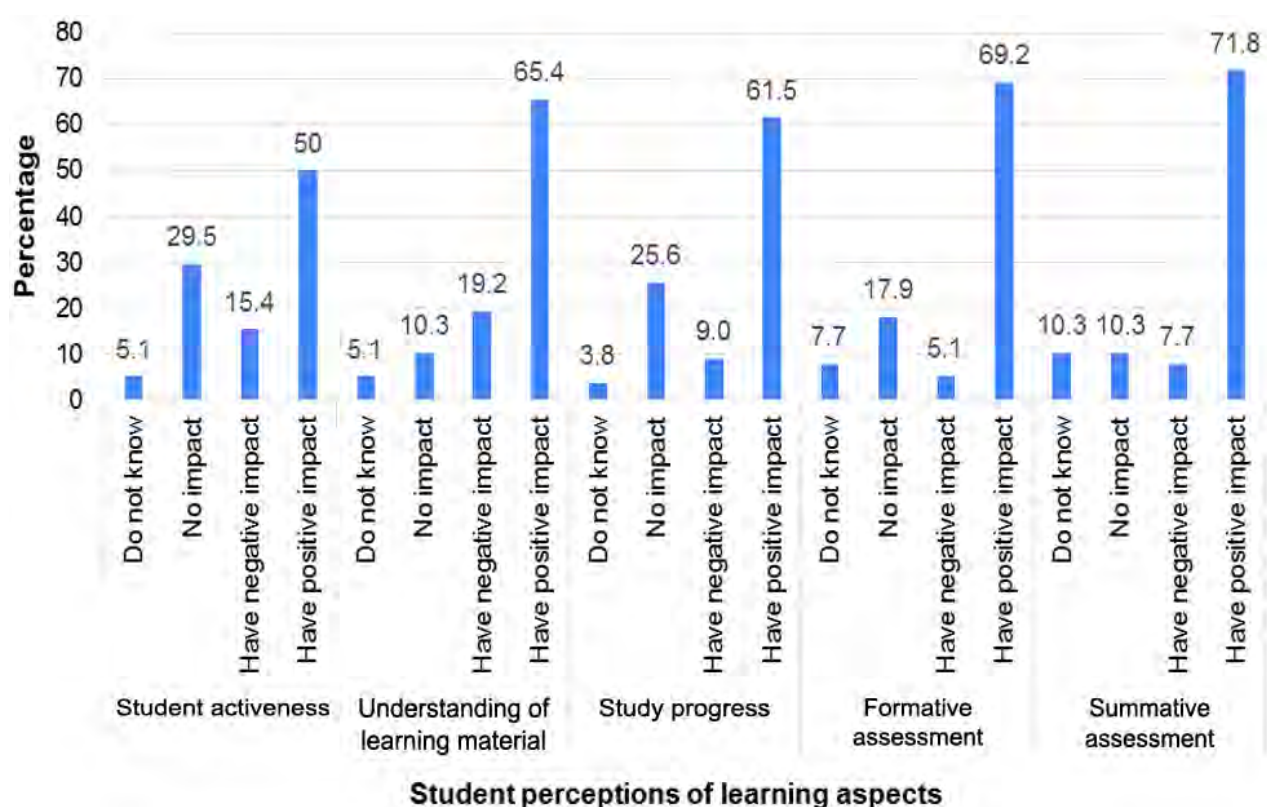


Figure 10. Students' perceptions towards the impact of synchronous and asynchronous blended learning on learning aspects.

According to Figure 10, most students perceived the positive impacts of synchronous and asynchronous blended learning on learning aspects including student activeness, understanding of learning material, study progress and formative and summative assessments. However, many students perceived negative impacts of this learning method on their learning process and achievement. In the following statements, some students shared ideas to improve the flexibility of synchronous and asynchronous blended learning.

"Understanding of malacology or mollusk material increased rapidly because of the materials during lectures, journal review assignments, malacology research projects and activities during MBKM directly studying mollusks at the Zoological Bogoriense Museum" [respondent 4: response to the interview question].

"I understood the material better in this course compared to a similar one because we studied the materials in a small group whereas the similar course was conducted with a large group of students, so I was embarrassed to participate and was afraid of making mistakes. In addition, in this course, each student's assignment was given clear feedback" [respondent 6: response to the interview question].

"Build student trust in lecturers through schedule certainty and providing clear feedback" [respondent 10: response to interview question].

The responses above suggest four strategies to improve the flexibility of synchronous and asynchronous blended learning. The strategies include aligning topics or activities between the course and the MBKM program, small group settings, clear feedback and minimal scheduling changes.

5. Discussion

The findings of this study suggested the flexibility of synchronous and asynchronous blended learning without compromising learning quality (Müller & Mildenerger, 2021), thus supporting the previous research (Cronje, 2022; Howell, 2022; Moorhouse & Wong, 2022). The implementation of synchronous and asynchronous blended learning met the four aspects of flexible blended learning as proposed by Cronje (2022) and Veletsianos and Houlden (2019) including place, time, service, technology and pedagogy. Regarding the place, synchronous and asynchronous blended learning facilitated students to join courses and participate in the MBKM program at the same time. Students could attend the class from anywhere especially at the MBKM site where physical presence is required. The flexibility of the place allowed students to manage several tasks without spending more time in the classroom. Vanichvatana (2020) identified home as a student's preferred informal learning space and the correlation between learning place and achievement. However, students at the poor-signal MBKM site were disadvantaged by the implementation of synchronous and asynchronous blended learning. A similar condition was observed by Cronje (2022). Students could not join the virtual meeting properly resulting in the incomplete information students received in synchronous learning. The limited social interaction exacerbated the condition due to internet connectivity problems and the unavailability of physical classes. Providing accessible learning materials anytime and anywhere was considered a strategy to minimize the challenges related to the place of synchronous and asynchronous blended learning (Binnewies & Wang, 2019; Howell, 2022).

In terms of time, synchronous and asynchronous blended learning enabled students to study anytime according to their learning pace (Müller & Mildenerger, 2021; Susiyawati et al., 2022) and time management since students needed to be involved in courses and MBKM activities. The time flexibility offered by synchronous and asynchronous blended learning enhances social interaction (Walker, 2020; Yamagata-Lynch, 2014) and more

profound understanding (Pleines, 2020). Although flexible time is beneficial, time management skills become critical for students to achieve the learning targets (Alzahrani et al., 2023). Only students with good time management could handle both course assignments and the MBKM activities at the same time. Students' difficulties in time management when involved in MBKM activities in the form of online international student exchange were also recorded by Astuti and Rosiawan (2022) in their study. In this case, students' self-regulated learning is critical as the inability to do so results in lower engagement and performance (Binnewies & Wang, 2019). Therefore, students found that course schedule certainty was vital for them to arrange possible schedules and prioritize tasks. Sudden changes to class schedules make students frustrated and overwhelmed with managing their time. The problems are doubled when students attend lectures and MBKM activities together.

Since physical interactions are missing, lecturers' service during synchronous and asynchronous blended learning is necessary. Inclusive and equal lecturers' service enables flexible learning (Veletsianos & Houlden, 2019) and minimizes the problems students face during learning such as a lack of assistance and social isolation (Cronje, 2022). Providing learning materials on learning platforms such as LMS and Google Classrooms helps students to be able to access the materials anytime and anywhere especially for those who have problems with internet connections, thus increasing learning inclusivity (Binnewies & Wang, 2019; Howell, 2022). Understanding students' diverse conditions during synchronous and asynchronous blended learning is another inclusive service that lecturers can offer. Students and lecturers can negotiate affordable time, schedules or activities. Giving clear and specific feedback to students is an effort that lecturers can make to provide equal learning. This strategy reduces students' confusion and improves social interaction.

Synchronous and asynchronous blended learning can be conducted only with supported technology. Technology functions not only to support learning but also to facilitate communication and interaction. Using various platforms in synchronous and asynchronous blended learning enables students with different conditions to select the most suitable platform to join lessons and be involved in the interaction thus improving learning flexibility (Müller et al., 2023). This finding is confirmed by the positive responses of students involved in online international student exchange when a variety of learning media were used (Astuti & Rosiawan, 2022). Most lecturers used Google Classroom or Google Drive for managing assignments due to their simplicity. Many students and lecturers prefer using WhatsApp to communicate and share documents because of its accessibility and ease of use (Tarisayi & Munyaradzi, 2021). The prevalent use of WhatsApp during synchronous and asynchronous blended learning was also recognised in the study conducted by Cronje (2022). Incorporating various video conference systems, such as Zoom or Google Meet and chats increases the learning experience and a sense of social interaction (Kohnke & Moorhouse, 2021).

However, internet connectivity and individual personalities affect the quality of interactions during synchronous and asynchronous blended learning (Cronje, 2022). Poor internet connection is the primary challenge in online interactions; thus, selecting an accessible platform is essential. Similarly, Howell (2022) identified social interaction as the biggest challenge of the HyFlex mode of instruction, combining synchronous and asynchronous due to the limitations of technology usage. Individual personality is another factor affecting students' activeness in online interactions. Some students found that minimal contact in online interaction lowered their motivation to participate. In contrast, other students perceived online interactions as convenient due to minimal face-to-face contact.

Pedagogy is a core aspect of achieving learning objectives and providing meaningful learning despite the critical role of technology (Bumblauskas & Vyas, 2021). The use of various learning methods facilitates students' diverse learning styles. Lecturers considered that implementing direct instruction followed by a student-centred learning method can foster students' activeness and support their learning in synchronous and asynchronous blended learning (Cronje, 2022). Some students perceived that the strategy increased their burden because they had to handle assignments and MBKM activities. These perceptions can cause stress on students as recognized by Hakim et al. (2022) when studying stress on students who taking part in MBKM activities. Students suggested strategies to improve synchronous and asynchronous blended learning, including aligning topics or activities between the course and the MBKM program, small group settings, clear feedback and minimal scheduling changes. Making inline learning activities with the MBKM program and minimizing schedule changes help students manage their time well. Time management is crucial for students' learning and achievement (Alzahrani et al., 2023). Students' sense of community during synchronous and asynchronous blended learning increases when they interact in small groups (Wang, Sun, Le, & Guo, 2020; Yamagata-Lynch, 2014), thus minimizing social isolation. In a small-group format, students receive equal attention from others and lecturers and have similar opportunities to participate in learning and discussions (Wang et al., 2020). Lecturers' timely and clear feedback is critical in designing effective and attractive blended learning (Müller et al., 2023; Spanjers et al., 2015).

6. Conclusion and Implications

This study explored the undergraduates' perceptions of the implementation of synchronous and asynchronous blended learning they experienced when participating in the MBKM program. This study focused on the flexibility of synchronous and asynchronous blended learning and factors facilitating flexible learning. The research findings suggested that according to students' perceptions, synchronous and asynchronous blended learning could provide flexible learning regarding place, time, service, technology and pedagogy to support students' learning and participation in the MBKM program. However, several students were deprived of the implementation of synchronous and asynchronous blended learning primarily due to poor internet connections in the area where the MBKM program occurred. Students recommended several strategies to facilitate the flexibility of synchronous and asynchronous blended learning, including providing accessible learning materials, the possibility for time negotiation, providing various ways for social interactions, aligning topics or activities between the course and the MBKM program, small group settings, giving clear feedback, and minimal scheduling changes.

We believe that the findings reported in the current study provide valuable contributions especially for implementing synchronous and asynchronous blended learning to facilitate students' learning while involved in the MBKM program. The negative impacts of synchronous and asynchronous blended learning are expected to be minimized by considering the facilitating factors. Based on the findings, it is recommended that the university that

runs MBKM programs provide students with a learning management system that enables them to access learning materials, platforms for learning, interaction and assessment in one place. It avoids students' confusion and difficulties in reviewing past learning activities. For instructional practice, the researchers recommend aligning classroom learning and MBKM activities to enable students to experience the application of theory and concepts in real situations. However, this case study may not apply to other universities that run the MBKM program in different ways. Therefore, it would be beneficial to conduct similar studies in different contexts.

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