

The Optimization of Hybrid Technology in Synchronous and Asynchronous Speaking Class

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Abstract

In an era characterized by dynamic shifts in the field of education, the pursuit of effective teaching remains a prominent objective. This study investigates a novel methodology that integrates hybrid synchronous and asynchronous methods to enhance students' English language speaking skills in the context of English language instruction. This study commences by underscoring the significance of possessing proficient English-speaking skills. Dynamic learning encompasses a combination of real-time interactions and exercises that can be completed at different times. The objective of this study is to elucidate the perspectives of educators towards the integration of hybrid synchronous and asynchronous methodologies in the instruction of English language skills, specifically in the context of speaking classes. Educators in high school or vocational settings ought to use a blended approach to English language instruction, specifically in the context of speaking courses. The research employed a descriptive case study approach. The study incorporated participants who were engaged in semi-structured interviews that encompassed questionnaires administered with high rates of close-ended responses. The findings of the study indicate that there is a significant impact of social and psychological elements on teachers' proficiency in online communication. The ramifications of these findings are of great importance for educators in the field of English language instruction. The utilization of hybrid synchronous and asynchronous approaches has the potential to enhance students' oral communication abilities within the classroom setting. In summary, the hybrid approach to English instruction, encompassing both ongoing and non-ongoing components, involves the inclusion of proficient-speaking teachers and actively engaged students in speaking-focused sessions.

Keywords: synchronization; asynchronous, English language teaching, psychosocial attitudes.

INTRODUCTION

In the world of education, the role of teachers is very important because, without teachers, you cannot learn. It cannot be denied that in the era of globalization, we are

required to be active, creative, and master technology so that we are not left behind by the current times. If we cannot keep up with modern developments, we will be left behind by others. Imanian (2019) One important component of the education program is English language education, which aims to improve students' ability to communicate effectively in English. However, creating an interactive environment and supporting the development of students' speaking skills is often a problem in teaching speaking skills. In the era of the Industrial Revolution 4.0, there was a new way to learn English. Hybrid synchronous and asynchronous models on online platforms combine direct learning synchronous with independent learning asynchronous to improve student learning (Wahyuningsih, 2018).

Synchronous learning enables direct and collaborative interaction through the incorporation of electronic activities, such as teacher lectures and question-and-answer sessions (Salmon, 2013). However, synchronous sessions require students and teachers to be present simultaneously. In contrast, asynchronous environments are not limited by time, so students can perform asynchronous electronic activities whenever they want. Hybrid online environments combine synchronous sessions with a variety of asynchronous electronic activities. Since asynchronous and synchronous learning patterns may be very different, it is referred to as a hybrid because it combines simultaneity and nonsimultaneity. A study conducted by Swan (2001) linked student satisfaction and the level of learning they experienced when studying asynchronously. It is very important to know how students view both media (Somenarain et al., 2010). This research discusses the strengths and weaknesses of the two paradigms based on student perceptions and learning analysis (Greller & Drachsler, 2012).

Synchronous and asynchronous hybrid learning allows students to be involved in learning directly through speaking practice, group discussions, and direct feedback from the teacher. Asynchronous learning allows students to learn to speak and learn independently, as well as watch videos and follow exercises independently. Although the hybrid method offers advantages, teachers' psychosocial attitudes towards English language teaching must be understood. According to Mulyasa (2005), teachers have an important role in carrying out effective learning, and changes in teaching methods can influence their perception of the world. Student synchronous learning is a way to reduce educational differences between teachers and students (Sun & Chen, 2016). Synchronous learning environments include interactive interactions that occur in real time, including online interactions. The ability to learn languages is influenced by synchronous learning (Rinekso & Muslim, 2020). Students and teachers must be present simultaneously for synchronous learning. Students have strong relationships with their peers and teachers in a synchronous environment (Yamagata-Lynch, 2014). However, as online modes have attracted the attention of teachers, shyness and spontaneous expressions have become a concern for them (Racheva, 2018). High demand for real-time experiences, along with technical issues such as low speed and connectivity, are additional problems (O'Rourke & Stickler, 2017). Teachers must use additional online learning strategies to address the challenges of the synchronous environment.

Asynchronous environments are time-flexible, so students can manage their free time and their pace of completing assignments. Students' previous experiences with new concepts are also enhanced by asynchronous learning. This is because they tend to pay attention to a topic for a long time and generate various ideas, which helps them actualize their critical thinking skills (Lin & Lawrenz, 2012). With more opportunities for peer group discussions and less reliance on notes, students gain critical thinking skills and creativity. Students can be distracted if they stray from the topic of an online forum discussion, even if their activities are influenced by it. In addition, unexpected feedback is a disturbing factor (Huang & Hsiao, 2012). Students find ways to interact independently because there are not enough opportunities to socialize. As a result, teachers must find ways to overcome these learning challenges during asynchronous mode.

Effective learning usually refers to improving the relationship between the learning process, interaction, collaboration, participation, responsibility, and goals. It also refers to learning outcomes, such as critical thinking skills, problem-solving, and higher-order thinking (Watkins et al., 1996). Therefore, compared to traditional face-to-face learning, e-language pedagogy is designed and implemented so that students do not get frustrated and achieve goals (McCloskey et al., 2013). The language learning process allows for human touch, immediate feedback, and interaction in real-time. This can be achieved through the use of collaboration as a communicative approach to language teaching to create language learning contexts that encourage group electronic activity and the social construction of language. This involves a shift in focus from teacher-centered pedagogy to learner autonomy.

Hybrid synchronous and asynchronous language teaching is an alternative to overcome the problems of synchronous and asynchronous learning. Additionally, simultaneous and non-simultaneous learning modes are included. Independent, student-centered, and self-directed learning can result from hybrid spaces (Murphy et al., 2011). Additionally, student participation in online class discussions is known as independent learning (Ene & Upton, 2018). Through hybrid learning, students are more confident in increasing class participation. According to Mridul et al. in their research, online learning during the pandemic caused anxiety, stress, and depression in students. The research results showed that students experienced 16.98 percent moderate depression, 16.98 percent anxiety, and 14.46 percent stress as a result of online learning without direct interaction between teachers and students (Mridul et al., 2021). The results suggest that illness may be a reason why students do not participate as expected in some circumstances because student participation affects their ability to speak.

Synchronous and asynchronous center on factors that literally influence student learning outcomes. Many indicators of social atmosphere and individual psychological conditions fall into the category of psychosocial variables (Long & Cumming, 2013). Therefore, according to Montore, Chaves, and Alvarado (2014), a number of psychosocial variables influence language learning outcomes. Many people do not object to the idea that social factors consist of age, gender, social class, and ethnic identity, while psychological

factors consist of anxiety, attitudes, aptitudes, and motivation. Nowadays, many English teachers use various speaking learning platforms. Most speaking courses deal with academic speaking, that is, speaking for academic and public purposes. Speaking activities help students become more confident and able to convey their ideas better. Some people use online education.

Previous research on hybrid English teaching is relevant enough to find research those previous researchers have not carried out. Ramadhani et al. (2020) studied EFL students with synchronous and asynchronous learning separately. This research found many speaking problems in online learning environments. Some researchers are also investigating hybrid language learning (Afriani, LZ, 2021). Apart from that, research conducted by Adnyana (2022) shows that students are not interested in learning and are not proficient in speaking English. This research aims to assess students' English-speaking abilities through a hybrid learning approach. The research results, according to Tusino (2021), show that social and psychological components are very important in the context of online writing. In addition, English teachers must offer exposure to interesting material, engaging writing activities, and positive correction for online writing. In English language learning in the 21st century, Saputro (2022) is used to explain the advantages and needs of students to use technology in English language learning. In addition, Rahmawati (2022) stated that hybrid learning will help students improve their speaking skills because they have the opportunity to learn much information via the Internet and other technology. The research results show that this method can be used to teach people how to speak. This is because the measurement results show that learning speaking skills is influenced by the hybrid learning model. However, only a small number of researchers have investigated the use of synchronous and hybrid learning in speaking contexts.

This research aims to explain students' perceptions of hybrid synchronous and asynchronous learning models in speaking. This research question is about students' psychosocial views about hybrid synchronous and asynchronous language learning in EFL speaking, students' expectations of good teachers in the online speaking process, and the perceived benefits and barriers of online speaking practice. Therefore, this research aims to investigate teachers' psychosocial attitudes toward teaching English with a hybrid synchronous and asynchronous approach in speaking classes. By understanding teachers' attitudes towards teaching, we can identify the needs and support needed by teachers in implementing a hybrid approach and overcome challenges related to their role and skills in English language learning. Thus, this research will provide insight into the development of effective and sustainable English teaching approaches in speaking classes.

METHOD

Research Sample

The descriptive case study looked at 22 purposively selected undergraduate students. This study was conducted at a private university in West Java, Indonesia. This study was conducted on students who took English classes during the fourth semester. Among the respondents, there were 12 women and 10 men aged 19–22. They have diverse social

backgrounds and come from various cities. The English teacher taught students speaking via online platforms such as Google Meet and Zoom. Students actively take part in a speaking course for one semester.

Instruments and Procedures

Tools used include semi-structured interviews conducted in writing classes and close-response questionnaires that can be accessed online. Learners' perceptions were examined through various tools, including psychosocial scales (Long & Cumming, 2013), learners' expectations of the teacher's role during the speaking process (Keen, 2017), and the advantages and disadvantages of speaking online. The embedded online questionnaire spoke using a five-point Likert scale, from one strongly disagree to five strongly agree. In contrast, in-depth interviews were used to enhance the questionnaire data source. The questionnaire contains sixteen items, and the interview guide includes five main questions. Students' perceptions are influenced by the following factors: psychological variables (anxiety, attitude, aptitude, and motivation), social variables (age, gender, social class, and ethnic identity), and students' expectations about the teacher's role in online speaking activities. These factors also influence both the advantages and disadvantages of hybrids. Language learning in both synchronous and asynchronous modes.

Speaking learners use online learning platforms to learn speaking. Google Meet and Zoom are used for the presentation stage, and Google Classroom is used for the criticism stage. Students are taught writing via the Internet during sixteen meetings during one semester. Online tools were used to collect data through interviews and questionnaires. Participants' informed consent was also sought before data were collected. At the final meeting of the speaking course, an online questionnaire with a rigorous response rate and a semi-structured interview were used. Each student was asked to fill out an online questionnaire using Google Forms. After completing the questionnaire, twelve participants were asked to undertake a thirty-minute online interview to discuss their opinions about hybrid practices in speaking.

Data analysis

The aim of this descriptive case study was achieved through the use of thematic analysis. Data for this research was obtained from various sources using close-response questionnaires and semi-structured interviews. Analysis of student responses to online questionnaires was used to determine each average perception indicator. In the interim, the results of the interviews were transcribed and coded to indicate the subject and unit of analysis. Additionally, data were reduced for student responses that were separate from the themes discussed and not relevant. Next, psychosocial variables, student expectations, benefits, and barriers from asynchronous and synchronous hybrid learning models are used to classify and describe the research results.

RESULT AND DISCUSSION

Result

The results of data analysis regarding how students see the application of learning models through hybrid synchronous and asynchronous are in Table 1.

Table 1. Student Psychosocial Perceptions

Perception	Statement	Method
Psychological variables	Students with low anxiety find it easier to communicate in English.	3.56
	Confidence improves students' speaking abilities.	3.89
	Learners who can use English better	2.87
	The speaking ability of students who have high learning motivation increases.	3.78
Social variables	Older students can communicate better in English.	2.76
	Male students and female students have better speaking skills.	3.62
	Students with better social backgrounds.	3.50
	Learners from big cities had extensive discussions.	2.40
Student Expectations	Teachers must provide relevant learning materials.	3.87
	Teachers must make speaking activities interesting.	3.90
	Spelling errors must be corrected clearly by the teacher.	2.79
	Teachers help students by providing criticism about spelling and grammar errors.	2.80
Benefit	Speaking skills are improved through hybrid synchronous and asynchronous learning.	3.76
	With the ability to learn languages in a hybrid synchronous and asynchronous manner, we become more familiar with learning technology.	3.12
Obstacle	Language learning carried out in a hybrid synchronous and asynchronous manner disrupts the teacher's understanding of the material.	2.76
	Problems with internet connections arise when people learn languages in a hybrid way, namely synchronous and asynchronous.	3.87

Social variables are, on average, less important than psychological variables, as shown in Table 1. Here, learning with a good attitude is considered the most important component in improving students' speaking abilities. In addition, learners with good speaking talents have a greater possibility of improving their speaking abilities. Teachers are advised to create more interesting content to use in online speaking activities. One of the main problems students face during online meetings is poor connectivity, as shown in Table 1.

The following are several student statements that represent their psychosocial perspective, as follows:

Table 2. Psychosocial Perspective of Students

Perception	Category	Examples of student speeches
Psychological variables	Anxiety level	"I get nervous when I speak in front of people."
	Interest and learning participation	"Hybrid learning encourages me to be more active in studying."
	Language learning potential	"I thought I could not speak English because I lacked vocabulary."

	Intrinsic and extrinsic motivation	"For my future career as an English tutor, I need to be able to speak English."
Social variables	Age	"I can speak more English in college than in vocational school."
	Gender differences	"Female students have greater speaking potential than male students."
	Social family background	"My family does not support me speaking to my partner in English."
	Practice language and beliefs	"I have more experience communicating in English with my classmates at school."

Table 3. Expectations, benefits and barriers of students

Perception	Category	Examples of student speeches
Student expectations	Meaningful input	"I need a more valuable explanation from my lecturer regarding my speaking errors via Google Meeting."
	Group work activities	"When I do group presentations over the internet, I am motivated."
	Constructive feedback	"My lecturers usually give me relevant feedback on my speaking performance."
	Language correction	"My lecturer always gives me immediate corrections for mispronunciations of English words while speaking."
Benefit	Improved speaking	"I finally got used to speaking more fluently than before."
	Technological familiarity	"I am used to using online platforms to learn speaking from my lecturers."
Obstacle	Retention of material	"Virtual explanations are difficult to understand."
	Internet connectivity	"I took online classes as usual because I had internet connectivity problems."

The research results show that the teacher's psychosocial attitude is very positive towards teaching English in the classroom using a hybrid synchronous and asynchronous approach. The majority of teachers stated that they were happy with the hybrid approach. They recognize the benefits of this method, which increases student participation and allows for more flexible learning. During synchronous sessions, students are more active and dare to speak. They can also study material asynchronously, allowing them to learn at their own pace. This is reported to support students' ability to speak English.

Additionally, this research shows that teachers face problems and changes in their workplace. Some educators disagree with the use of technology required in a hybrid approach. They believe that they must improve their digital skills if they want to navigate online learning successfully. In addition, it is very difficult for teachers to change their role from information provider to facilitator and learning guide. To deal with these changes, teachers must teach adaptation and flexibility skills.

Discussion

Based on research data, the data shows that a number of variables influence students' cognition and character when participating in online learning facilitated by platforms such

as Zoom, Google Meetings, and others. Their reluctance to take part in some activities in online classes, where they interact less with classmates and teachers, causes their cognitive development to be largely hampered. This shows that half of the respondents tend to avoid speaking classes because they are worried about making mistakes (Englishtina, I. et al., 2021).

Learning with a good attitude is considered the most important component for improving students' speaking skills, seen from a psychosocial perspective. Learners who have good speaking skills also have greater opportunities to improve their speaking skills. Teachers create more interesting materials for learning speaking in online speaking activities. Table 1 also shows that poor connectivity is the main problem students face during online meetings. This is in line with Afriani (2021), who stated that at several meetings, teachers considered the Zoom application to be ineffective in helping online learning because most students did not have a connection.

We hope that students will be motivated to take part in online group presentations because they can answer questions from other groups online and feel comfortable answering questions. Teachers can contact students via video conference, encouraging students to ask others if they do not understand the presentation material. In addition, there is a greater possibility that they will receive direct feedback (Fitriani, Y., 2020). Learners said they had difficulty understanding teachers' virtual explanations. This is supported by Ramadhani (2020), who states that written materials must be well-designed to provide a pre-teaching vocabulary to students. At this stage, the teacher must repeat the pre-taught vocabulary that is relevant to the topic. Made a public statement that day. During speaking classes, teachers should provide thorough input, original assignments, and relevant oral and written feedback. Thus, English teaching combined synchronously and asynchronously results in improved teacher speaking skills and increased student engagement in speaking classes.

Based on the explanation above, it shows that the use of a hybrid synchronous and asynchronous approach in teaching English in speaking classes provides significant benefits. Previous studies suggest that hybrid methods may be better for learning English. Teachers report that students are more engaged in their speaking skills, which allows direct interaction between students and teachers and allows teachers to provide immediate feedback. Additionally, students reported that they made gains in their learning and deepened their understanding of English-speaking skills.

However, this research also found that teachers faced problems and changes when using a hybrid approach. According to teachers, using online learning technology makes them afraid and uncomfortable. Additionally, teachers' responsibilities have changed from providing information to helping and directing students. These challenges show that educators need support and training to acquire digital skills and adapt to their new roles. Agree that a hybrid synchronous and asynchronous approach can be an effective solution to improve English learning in speaking classes. However, these changes also require adapting teachers' attitudes and skills to overcome technological challenges. Therefore, for teachers to adopt these methods confidently and successfully, they need to get help and

training. Two important elements discussed in this research are that the hybrid approach can be widely applied to English language learning in speaking classes. Teachers can use both synchronous and asynchronous sessions to increase student engagement, and asynchronous sessions can help students learn independently. Second, teachers must be educated about the use of technology and digital skills. Teachers must understand their psychosocial attitudes toward instructional change. Further research could explore useful strategies for addressing technology issues and teachers' psychosocial impacts in an effort to improve English language teaching in speaking classes. In addition, students' roles and perspectives on teaching with a hybrid approach were studied to understand their learning process better.

Thus, teaching English in speaking classes using a hybrid synchronous and asynchronous approach can be beneficial for student learning. However, the challenges and changes teachers face when using this approach indicate that teachers need support. Using a hybrid approach in teaching English can improve learning and provide a more varied learning experience for students.

CONCLUSION

According to data analysis, psychological variables are, on average, more important than social variables. Learning good attitudes is the most important component to improve students' speaking skills in this case. In addition, there are more opportunities for students who have good speaking skills to improve their speaking skills. Teachers are advised to create more interesting materials that can be used for learning speaking in online speaking activities. It also shows that the main problem students face during online meetings is caused by poor connectivity. When students participate in online learning through platforms such as Zoom, Google Meetings, and others, many factors influence their thinking and their character. Thus, English teaching combined synchronously and asynchronously results in improved teacher speaking skills and increased student engagement in speaking classes.

REFERENCES

- Adnyana, I. K. S. (2022). Meningkatkan Keterampilan Berbicara Bahasa Inggris dengan Menerapkan Model Pembelajaran Hybrid Learning pada Masa Pandemi Covid -19. *Journal of Education Action Research*, 6(2), 235–241. <https://doi.org/10.23887/jear.v6i2.45808>.
- Afriani, Z.L. et.al. (2021). Strategies in Online Speaking Classroom in the Time of Covid-19: A Descriptive Study at Tertiary Level. *ENGLISH FRANCA: Academic Journal of English Language and Education*, Vol. 5, No. 2, DOI: 10.29240/ef.v5i2.2613
- Ene, E., & Upton, T.A. (2018). Synchronous and asynchronous teacher electronic feedback and learner uptake in ESL composition. *Journal of Second Language Writing*, pp. 41, 1–13. <https://doi.org/10.1016/j.jslw.2018.05.005>
- Englishtina, I. et al. (2021). Students' participation in speaking online class (a case study).

ETERNAL (English et al.), Volume 12, No. 2

- Fitriani, Y. et.al. (2020). Students' Perspective of Online Learning on Speaking Class During Covid-19 Pandemic. *Humanities Journal of Language and Literature*, Vol. 7 No. 1.
- Greller, Wolfgang & Drachsler, Hendrik. (2012). Translating Learning into Numbers: A Generic Framework for Learning Analytics. *Educational Technology & Society*. 15. 42-57.
- Huang, X. & Hsiao, E.L. (2012). Synchronous and asynchronous communication in an online environment: Faculty experiences and perceptions. *Quarterly Review of Distance Education*, 13(1), 15-30.
- Imania, K. (2019). Hybrid Learning Dalam Meningkatkan Profesionalisme Guru Di Era Industri 4.0. *JURNAL PETIK*. 5. 30-35. 10.31980/jpetik.v5i2.569.
- Keen, J. (2017). Teaching the writing process, *Changing English*. 24(4), 372-385, <https://doi.org/10.1080/1358684X.2017.1359493>
- Lin, H.S., Hong, Z.R., & Lawrenz, F. (2012). Promoting and scaffolding argumentation through reflective asynchronous discussions. *Computers & Education*, 59(2), 378-384. <http://dx.doi.org/10.1016/j.compedu.2012.01.019>
- Long J., & Cumming J. (2013). Psychosocial Variables. In M.D. Gellman, & J.R. Turner (Eds.). *Encyclopedia of Behavioral Medicine*. Springer. https://doi.org/10.1007/978-1-4419-1005-9_48
- McCloskey, M. L., Thrush, E. A., Wilson-Patton, M. E., & Kleckova, G. (2013). Developing English language curriculum for online delivery. *Calico Journal*, 26(1), 182-203. <http://dx.doi.org/10.1558/cj.v26i1.182-203>
- Montore, R.L., Chaves, M.J.Q., & Alvarado, J.S. (2014). Social factors involved in second language learning: A case study from the Pacific Campus, Universidad de Costa Rica. *Revista de Lenguas Modernas*, 435-451. <https://revistas.ucr.ac.cr/index.php/rlm/article/View/15077/14350>
- Mulyasa, E., (2005). *Menjadi Guru Profesional, Menciptakan Pembelajaran Kreatif dan Menyenangkan*. Bandung: Remaja Rosdakarya.
- O'Rourke, B., & Stickler, U. (2017). Synchronous communication technologies for language learning: Promise and challenges in research and pedagogy, *Language Learning in Higher Education*, 7(1), 1-20. doi: <https://doi.org/10.1515/cercles-2017-0009>
- Perveen, A. (2016). Synchronous and asynchronous e-language learning: A case study of the virtual university of Pakistan. *Open Praxis*, 8(1), 21-39. <http://dx.doi.org/10.5944/openpraxis.8.1.212>
- Ramadhan, P. (2020). The Teaching Procedures for Online Public Speaking Class. *Journal of Linguistics, English Teaching, and Education*, Vol 1, No 3, November 2020, pp. 79-81
- Rahmawati, D., & Pranowo, D. (2022). Hybrid learning dalam pembelajaran keterampilan berbicara bahasa Prancis. *LITERA*, 21(2), 217-226. <https://doi.org/10.21831/ltr.v21i2.46705>.
- Racheva, V. (2018). Social aspects of synchronous virtual learning environments. *AIP Conference Proceedings* 2048, 020034, pp. 1-10. <https://doi.org/10.1063/1.5082050>
- Rinekso, A.B., & Muslim, A.B. (2020). Synchronous online discussion: teaching English in higher education amidst the COVID-19 pandemic. *JEES (Journal of English Educators Society)*, 5(2), 155-162. <https://doi.org/10.21070/jees.v5i2.646>
- Salmon, G. (2013). *E-tivities: The key to active online learning*. Routledge

- Saputro, I. E., Faridi, A., Saleh, M., & Syafri, F. (2022, September). Pemanfaatan Aplikasi Synchronous dan Asynchronous Pada Pembelajaran Bahasa Inggris: Perspektif dan Urgensi Mahasiswa Pada Fenomena Pendidikan Abad 21. In *Prosiding Seminar Nasional Pascasarjana (PROSNAMPAS)* (Vol. 5, No. 1, pp. 541-545).
- Salmon, G. (2013). *E-tivities: The key to active online learning*. Routledge.
- Somenarain, L., Akkaraju, S., & Gharbaran, R. (2010). Student perceptions and learning outcomes in asynchronous and synchronous online learning environments in a biology course. *Journal of Online Learning and Teaching*, 6(2), 353-356. Retrieved from http://jolt.merlot.org/vol6no2/somenarain_0610.pdf
- Sun, A., & Chen, X. (2016). Online education and its effective practice: A research review. *Journal of Information Technology Education: Research*, 15, 157-190. <https://doi.org/10.28945/3502>.
- Swan, K. (2001). Virtual interaction: Design factors affecting student satisfaction and perceived learning in asynchronous online courses. *Distance education*, 22(2), 306-331. <http://dx.doi.org/10.1080/0158791010220208>.
- Watkins, C., Carnell, E., Lodge, C. & Whalley, C. (1996). *Effective learning*. The School Improvement Network, Research Matters, No. 5. Institute of Education, University of London.
- Wahyuningsih, D., & Sungkono, S. (2018). Peningkatkan interaktivitas pembelajaran melalui penggunaan komunikasi asynchronous di Universitas Negeri Yogyakarta. *Jurnal Inovasi Teknologi Pendidikan*, 4(2), 227-237. doi:<https://doi.org/10.21831/jitp.v4i2.19086>
- Yamagata-Lynch, L.C. (2014). Blending online asynchronous and synchronous learning. *The International Review of Research in Open and Distributed Learning*, 15(2). <https://doi.org/10.19173/irrodl.v15i2.1778>