



## IMPLEMENTING MULTIMODAL PEDAGOGY FLIPPED CLASSROOM (MPFC) TO PROMOTE EFL STUDENTS' SPEAKING ABILITY AND THEIR AUTONOMY

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**Abstract:** Multimodal Pedagogy Flipped Classrooms (MPFC) are well regarded for professional, pedagogical, and practical contributions to classroom practices in global context. Yet, Indonesian education setting has not provided significant attention, and the implementation of MPFC should be cultivated further for its benefit in language learning. Therefore, the present study investigates the impact of the MPFC to promote students' performance of speaking skill, measure the relationship of speaking ability and their level of autonomy, and exploring students' perception of MPFC implementation. The study conducted a mixed method which involved sixty students learning English as a foreign language from a private university in Indonesia and 6 selected students for interviews data collection. The quantitative research mediated MPFC for experimental class and product-based approach for control class while the qualitative research design using classroom observation and semi-structured interviews. The obtained data were analyzed using independent t-test and ANOVA for quantitative purpose, and thematic analysis to interview. The results show a profound difference in students' speaking from the pretest ( $M=77.00$   $SD=4.85$ ) to the post-test ( $M=80.90$   $SD=3.12$ ). Moreover, the relationship between their speaking skill and autonomy reveal betterment after MPFC implementation ( $t$ -value 0.003). Students perceive positively toward this pedagogical intervention including their experience, challenges, and their strategy to cope with challenges found. The implications and recommendations of the study are also discussed.

**Keywords:** *EFL students; flipped classroom; learning autonomy; multimodal pedagogy; speaking.*

### INTRODUCTION

The ability to speak English in academic settings is an essential component of language learning to accomplish effective communication among members in globalized world (Block, 2010; Kashinathan & Abdul Aziz, 2021). By mastering it, students enable foster verbal fluency (Ghasemi & Mozaheb, 2021), confidence building (Listyani & Kristie, 2018), vocabulary enhancement (Anggraeni et al., 2020), intercultural communication (Eisenclas & Trevaskes, 2007). However, in Indonesian context, this skill remains a challenge for many students due to limited practice opportunities, more emphasis on product

oriented, students' personal problems such as self-confidence, linguistic challenge, and mental block (Abrar et al., 2018; Kusuma, 2021). Previous research indicated that Indonesian students often struggle with speaking which has a significant impact on their ability to communicate in real-world contexts (Pinilih & Sukarno, 2024). Coping these challenges, the classroom practices need more interactive and practical learning environments which could help improve speaking skills, aligning Indonesian students with global communication standards (Renandya & Widodo, 2016).

One interactive and practical learning environment strategy is multimodal pedagogy as it is devoted by (Li, 2020). Research on multimodal pedagogy highlights its effectiveness to integrate different forms of communication, including written, visual, audio, and kinesthetic elements, to improve students' engagement and comprehension (Rohi & Nurhayati, 2024). According to Anstey and Bull (2020), multimodal pedagogy enhances a dynamic classroom setting that facilitates greater knowledge by allowing students to engage with the material through a variety of senses. Studies have shown that multimodal techniques enable students to integrate concepts across many forms, they promote a variety of learning styles and enhance retention, which is especially advantageous in digital learning situations (Kress & Bezemer, 2023). In a study by Kirk et al. (Kirk et al., 2023), multimodal teaching techniques have been shown to increase student engagement and promote critical thinking as they enable them to evaluate and comprehend data presented in a variety of ways. Further research by Stunell (2021) emphasizes that multicultural classrooms, where students from a variety of linguistic backgrounds can find alternate methods to understand and engage in the learning process, are particularly good places for multimodal teaching.

Despite multimodal pedagogy has gained traction for its positive impacts on student speaking skill and learning outcome, there remains a significant research gap in its application within flipped classroom models. Several existing literatures focus on the general benefits of multimodal teaching, such as fostering comprehension and nurturing to diverse learning styles (Li, 2020). However, there are few studies explicitly looking at how multimodal resources can be best utilized for the flipped classroom, in which students interact with the material at home and apply what they have learned in class. Research on the flipped classroom has largely centered around content delivery and in-class activities without deeply exploring how integrating multimodal elements might further enhance pre-class learning (Al-Samarraie et al., 2020).

The MPFC devotes valuable implications for speaking classes, particularly in fostering learner autonomy. In a classroom practice, the flipped mode gives students the chance to practice speaking at their own pace by encouraging them

to interact with a variety of multimodal materials outside of the classroom, including audio recordings, video examples, and interactive exercises (Wu & Wang, 2021). This pre-class exposure assists to building students' confidence and familiarity with language patterns and learning resources before engaging in real-time interactions which create more effective in class speaking activities. Moreover, the gained autonomy through accessing multimodal materials encourages students to take responsibility for their language development, as they can repeatedly review and practice language inputs suited to their individual needs and learning preferences (Shabani & Jabbari, 2023) which regard to the following research questions: (1) Is there any significant effect of MPFC to students' speaking skill with the following hypothesis? H0= There is no significant difference on MPFC implementation to promote students' speaking skill H1=There is significant difference on MPFC implementation to promote students' speaking skill (2) Is there a statistically relationship in speaking skills and learning autonomy levels among students after MPFC implementation? (3) What are students' perceptions on the implementation of MPFC in speaking class?

## **METHOD**

The study employed mixed method research design proposed by Creswell and Poth (Creswell & Poth, 2016) which was conducted in a university context. In quantitative design, the research was situated of one-group pre-test and post-test design to investigate the effectiveness of MPFC implementation to foster students' speaking proficiency and its' relationship on students' learning autonomy. In qualitative research design, semi-structured interviews were organized to delve students' perceptions on MPFC implementation in classroom practices including their experiences, challenges encountered, and coping strategies. A purposive sampling method was used to determine 60 EFL participants who meet the criteria of research needed and separately semi-structured interviews were organized to 6 selected students from their proficiency level including low, intermediate, and high speaking proficiency from their pre-test scores as indicated in the following table.

*Table 1. Research participants of interviews*

No	Pseudonyms	Gender	Age	Proficiency
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1	S1	Female	18-22	High
2	S2	Male	18-22	Low
3	S3	Male	18-22	Intermediate
4	S4	Female	18-22	Intermediate
5	S5	Female	18-22	Low
6	S6	Female	18-22	High

The present study employed three research instruments to collect the data namely speaking test, questionnaires, and interviews. The speaking test was administered to EFL students to look into MPFC effectiveness from pre-test and post-test scores. The speaking test was designed with task complexity, task form, and task difficulty from both tests. As the part of the research accuracy, test validity was conducted through inviting experts to provide judgement prior the research. In addition to the MPFC effectiveness, the self-reported questionnaires were distributed to students to measure students' responses towards its relationship with MPFC implementation to their learning autonomy. Before distributing the surveys, the reliability of questionnaire was measured through Cronbach Alpha 0.81 indicating that the questionnaire is high reliable to use for further research. Finally, semi-structured interview consisted of 6 main deriving from construct theory of MPFC as it is indicated in the following table.

Table 2. *Constructs of interview's questions*

No	Construct	Questions	Number of main questions
1	Learning resources	What is your new experience of using MPFC in speaking class? What is your challenge of using MPFC in speaking class?	1
2	Learning mode	How do you learn MPFC material during speaking class? How do you recommend this learning to your future class?	1
3	Instructional Support	How do you cope with your challenge of	1

using MPFC in speaking class?  
What is your feedback to MPFC class for betterment in the future?

The obtained data was analyzed to delve the effects of multimodal pedagogy in a flipped classroom (MPFC) on speaking skills and learning autonomy, mixed were conducted to address different data types and research questions. First, the speaking tests were compared between pre-and post-test to assess students' improvements in the speaking skills, an independent t-test assisted by SPSS 24 was used to compare the mean scores of the experimental group (those exposed to MPFC) with those of the control group (product-based approach). Second, the gained data from the self-reported questionnaire was analyzed through ANOVA assisted SPSS 24 which aim to examine differences in students' learning autonomy levels. Finally, thematic analysis was applied to data gathered from interviews. By means of coding, grouping the data into major themes, and interpretation, the qualitative data showed important insights and recurrent patterns concerning students' experiences with MPFC implementation in speaking class.

## RESULTS AND DISCUSSION

The present study aims to assess the effectiveness of flipped classroom mode framed by multimodal pedagogy to foster students' speaking skill, relationship toward learning autonomy, and students' perceptions on pedagogical intervention on speaking class.

### *Promoting EFL students' speaking skill through MPFC class*

The data analysis shows that students' speaking skill improve impressively through the implementation of Multimodal Pedagogy Flipped Classroom with significance value  $0.000 < 0.05$  as it is displayed in Table 3.

Table 3. *Independent t-test*

Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower

**Didih Faridah, Ratnawati, Luthfiyatun Thoyyibah, Desi Nurani, Sherly Pebriani Permana, Adila Yohana**

*Implementing multimodal pedagogy flipped classroom (mpfc) to promote EFL students' speaking ability and their autonomy*

Speaking score	Equal variances assumed	.000	-1.133	1.139	-3.413
	Equal variances not assumed	.000	-1.133	1.139	-3.424

The above table demonstrates statistical analysis of speaking scores, which compares groups with or without assumed equality of variances. A statistically significant difference in speaking scores between the two groups is suggested by the significance value (Sig. (2-tailed) of .000 in both cases <0.05. With a standard error of 1.139, the average difference in speaking scores is -1.133. If identical variances are assumed, the 95% CI for the score difference is rather wide, ranging from roughly -3.413 to -3.424 indicating that an intervention class under the pedagogical intervention of MPFC outperform well than those in control group. Overall, the findings reveal that students with multimodal pedagogy flipped classroom improve their speaking skill during the pedagogical intervention which means that H1 is accepted (There is significant difference on MPFC implementation to promote students' speaking skill).

*Relationship of MPFC implementation to foster students' speaking skill and learning autonomy*

Recent research reveals a significant relationship between the implementation of MPFC in speaking skill and learning autonomy with p-value 0.003<0,05 as indicated in the Table 4.

**Table 4. Test of Analysis of Variance (ANOVA)**

	Sum of squares	df	Mean square	F	Sig.
Between groups	289.158	3	96.386	5.015	0.003
Within groups	2229.433	116	19.219		
Total	2518.592	119			

The analysis's findings imply that the multimodal pedagogy employed in a flipped classroom setting has a major impact on the relationship between speaking abilities and learning autonomy. The statistical results demonstrate that the groups differ significantly from one another (F (3, 116) = 5.015, p = 0.003), suggesting that the MPFC has a quantifiable impact on speaking abilities and learning

autonomy. The between-group variance (96.386) is significantly greater than the within-group variance (19.219), indicating that individual differences within the groups are less significant than the instructional method's contribution to variances in speaking skill and autonomy. These results provide credence to the notion that multimodal pedagogy which incorporates many media and interaction can promote improved speaking ability as well as greater student autonomy. In essence, students in a flipped classroom environment benefit from a more flexible, interactive, and self-directed learning experience, which leads to better engagement and improved outcomes in both their speaking abilities and their autonomy in learning.

*Students' perceptions of MPFC in speaking class*

Students' perceptions of the implementation of MPFC in speaking classes offer valuable insights into their learning experiences, challenges, and strategies. Many students report that these approaches enhance their ability to organize thoughts, regulate emotions, and improve their overall speaking performance and learning autonomy as it is presented in Table 5.

**Table 5. Analysis data for interview**

Theme	Subtheme	Interview Data
Experience	Learning resource	Students are engaged in the instructional design of classroom activities Students have greater interested in multimodal resources
	Learning mode	Students feel practical to implement the approach Students manage their learning pace and perk through learning platforms
	Individual support	Students feel more autonomous of learning framework Students cultivate more on features of Canva
Challenge	Learning resource	Students have unstable Internet connection Students time management system to learn outside of classroom
	Learning mode Individual support	Students must adapt on flipped classroom mode Students learn more and in detail about the learnt material Students need to adjust on students' availability and

Strategy	Learning resource	time management of collaboration activity Students ensure that they are on good Internet connection through self-access learning centre provided by campus
	Learning mode	Students access learning resources which subscribed by campus library Students request assistance and feedback from teacher as facilitator both synchronously and asynchronously
	Individual support	Students enhance their self-regulation skill to accomplish the academic goals Students use priority scale to accomplish the goal

The Table 5 highlights students' experiences, challenges, and strategies when using multimodal pedagogy in a flipped learning environment, particularly focused on self-regulation and autonomy. From the perspective of learning resources, students feel more involved in the learning process since they are engaged throughout the entire classroom activity. Additionally, they have a keen interest in utilizing multimodal resources, such as interactive content, videos, and photographs, which probably enhances the attraction and accessibility of learning. Nevertheless, a lot of students have trouble with unstable Internet connections, which might make it difficult for them to access digital resources as indicated in the following interview script.

[S3]...At first, I get the problem with how to access the digital recourses for my assignment, but I learn a lot from material and links provided in the Google Classroom by my teacher, and now I can learn many things prior to classroom begin.

Additionally, because it calls for a high level of self-discipline, managing their study time outside of conventional classroom settings is difficult. Students utilize the campus self-access learning centers, which offer reliable Internet, to get around connectivity problems. Additionally, they utilize resources that are subscribed to on campus, guaranteeing that they have access to trustworthy educational content as displayed in the following script.

[S6] I really love this flipped classroom because the flexibility of learning outside the classroom, when I get the problem with my Internet connection and open access for learning resources, I go to the campus self-access learning center...

With regard to the learning mode factor, students experienced the instructional approach's practicality because it enables them to control their own learning speed on digital platforms. Students can modify their learning strategies and schedules to suit their requirements, which promotes a sense of autonomy. Another challenge, though, is adjusting to the flipped classroom format. As a result, students must assume more responsibility for their pre-class preparation, which some may find unfamiliar or difficult. As a way to deal with the difficulties, students actively seek out teacher input, both asynchronously and in real time, which helps them have their questions answered and advance in their educational process as presented in the following script.

[S4] I remember the model of learning introduced to me at the beginning of the course, I have to learn before the classroom activities and perform the projects inside the classroom. To me, this is a dare and I can cope with my anxiety to perform in front of class because I have much time to prepare my assignments...

In Individual support factor, there is a noticeable boost in students' autonomy when they have control over the learning framework. Students also experience that they must improve their technical proficiency and digital savvy as they learn how to use specialized tools, such as Canva, PowerPoint, Google Slides to support their academic works.

[S2] Yes, I must learn technically how to create poster via Canva because to me this platform is the newest and practical to use, so I prefer Canva to other applications. I learn deep and deeper from video tutorial, simulation, and etc.

In fact, they must have a deeper comprehension of the materials, which can take time. They also struggle to plan group activities, frequently as a result of divergent schedules and time management abilities. They focus on improving their self-regulation abilities to address their issues, using techniques like prioritization to efficiently handle academic assignments. Their dedication to reaching their academic objectives

**Didih Faridah, Ratnawati, Luthfiyatun Thoyyibah, Desi Nurani, Sherly Pebriani Permana, Adila Yohana**

*Implementing multimodal pedagogy flipped classroom (mpfc) to promote EFL students' speaking ability and their autonomy*

by methodical self-management is demonstrated by multimodal pedagogy flipped classroom.

The implementation of multimodal pedagogy in a flipped classroom has shown remarkable potential for enhancing students' speaking skills. Through the incorporation of several communication resources, including audio, video, and interactive internet resources, this pedagogy immerses students in dynamic, context-rich settings prior to class, enabling them to absorb and practice information at their own pace. Active group activities such as role-plays, group discussions, and peer feedback take center stage during in-class sessions, and they greatly enhance verbal proficiency. Students gain their confidence and fluency by practicing real-world communication skills in a student-centered setting created by this educational methodology. The multimodal flipped classroom provides an immersive approach for contemporary language instruction since it fosters critical thinking, creativity, and engagement in addition to improving speaking skills, according to research and classroom experiences. This research aligns with previous research from Lee (2019); Liang (Liang, 2023), and Zhao (Zhao, 2023).

Previous studies have highlighted the effectiveness of multimodal pedagogy in flipped classrooms for promoting students' speaking skills. According to Fan (2022), students were given a variety of input that mirrored real-life communication situations when multimedia resources like audio recordings and video lectures were used. Because of this pre-class exposure, students were able to fully prepare, which made it possible for them to participate more actively in class discussions (Jensen et al., 2018). Similar to this, Chen Hsieh et al., (2017) highlighted how the flipped classroom's emphasis on active learning such as peer collaboration and group discussions improved verbal proficiency by motivating students to use language ideas in real-world and interactive situations. According to Yelland (Yelland, 2018), multimodal materials were also found to accommodate a variety of learning methods, which helped language learners feel less anxious and more confident. These results imply that incorporating multimodal pedagogy into flipped classrooms is beneficial for promoting learner autonomy and engagement in addition to speaking skill development (Wang, 2023).

The implications of multimodal pedagogy in flipped classrooms extend beyond speaking skills, benefiting other language skills such as listening, reading, and writing (Gruba et al., 2016). Exposure to a variety of multimodal resources, including podcasts, digital texts, and videos, improves reading and listening comprehension by offering rich, contextualized input that is suited to the requirements of the learners (Lorbis, 2019). Additionally, by encouraging critical engagement with textual and audio-visual resources, the pre-class preparation phase promotes active listening and analytical reading (Kinsella et al., 2017). This method also helps students' writing abilities because it assigns them reflective journals, discussion posts, or group writing projects that help them comprehend language structures better and write more fluently. Additionally, by accommodating various learning styles, multimodal pedagogy improves the effectiveness and inclusivity of language acquisition. These results imply that the incorporation of multimodal materials into flipped classrooms fosters a more comprehensive and participatory language learning experience in addition to improving particular language abilities (Bicen & Beheshti, 2022).

This second research question is to find out how a flipped classroom using a multimodal pedagogy encourage students' learning autonomy. The objective of this strategy is to enable students to take control of their education by using a variety of multimedia resources, including interactive digital tools, infographics, and video lectures. By encouraging students to work with the materials on their own before class, the flipped classroom model helps students develop time management and self-directed learning habits (Ceylaner & Karakus, 2018). It also aims to foster an atmosphere in which students actively investigate, evaluate, and apply knowledge, thus strengthening their capacity for self-directed learning. Through investigating the connection between learner autonomy and multimodal pedagogy, this study seeks to shed light on how technology-enhanced teaching methods can foster lifelong learning abilities and enhance academic results in general. This research is corroborated from previous research findings from Fuchs et al. (Fuchs et al., 2012); Mohammadi Zenouzagh et al. (2023); Ryan et al. (2010).

Prior research has indicated a robust relationship between the development of speaking

abilities and learning autonomy within the framework of a flipped classroom using multimodal pedagogy. For example, Chen Hsieh et al. (2017) discovered that the flipped classroom model, aided by a variety of multimodal resources, pushed students to take charge of their education by interacting with attractive materials and video lectures outside of the classroom. In addition to increasing their speaking confidence, this self-directed preparation helped them develop a sense of accountability for their development. Similarly, Altemueller & Lindquist (Altemueller & Lindquist, 2017) emphasized how the use of multimedia resources in flipped classrooms reinforced self-directed learning habits by enabling students to practice language skills, including speaking, at their own pace. Furthermore, Tsai (Tsai, 2021) noted that by giving students the chance to actively participate and reflect on their learning, the cooperative and participatory nature of in-class activities in flipped classrooms promoted both communication competence and learner autonomy. These results imply that the multimodal approach of the flipped classroom successfully blends the improvement of speaking abilities with the formation of independent learning habits.

Learning autonomy is essential for improving speaking abilities when learning a language. Since self-regulation and motivation are crucial for improving speaking ability, autonomy empowers students to take charge of their education (Zhang, 2024). Fluency and confidence are increased when students actively participate in self-directed activities including role-plays, conversational exercises, and learning by practicing. This is strongly related to the development of effective speaking skills since it calls on students to recognize their own shortcomings and look for ways to do better. Taguchi (Taguchi, 2007) also highlights that independent students are more likely to take charge of communication activities, which improves their pragmatic comprehension and language proficiency. Accordingly, encouraging learning autonomy can foster an atmosphere that is favorable for developing speaking abilities, which will ultimately result in more successful language acquisition.

Third research question deals with the factors contributing to the successful implementation of multimodal pedagogy in a flipped classroom, focusing on three key aspects: learning modes, learning resources, and individual support. The study specifically aims to determine how different learning modalities, such as synchronous and

asynchronous activities, improve students' understanding and engagement in a flipped classroom setting (Lin et al., 2019). It also looks at how different learning resources, such as interactive materials, digital tools, and multimedia information, can promote students speaking skill and learning autonomy. The study also looks into how important one-on-one mentorship and customized feedback are in meeting the unique needs of students and raising their general academic achievement. The project intends to improve teaching and learning results by examining these variables in order to offer insights into practical methods for incorporating multimodal pedagogy into flipped classroom environments (Bicen & Beheshti, 2022).

The implementation of multimodal pedagogy in flipped classrooms is significantly influenced by learning modes, learning resources, and individual support. According to Barua & Lockee, (2024), learning styles like synchronous and asynchronous sessions offer flexibility and accommodate a range of student demands, encouraging active participation and deeper comprehension. These modes improve the learning process by letting students review material at their own speed and participate in face-to-face discussions. In order to integrate different learning styles, such as kinesthetic, visual, and auditory, and provide a more comprehensive learning environment, learning resources such as digital platforms, interactive tools, and multimedia content are essential to multimodal pedagogy (Li, 2020). Additionally, students' unique learning obstacles are addressed by individual support, such as mentorship and tailored feedback, which promotes self-directed learning and enhances academic results. These components work together to form a comprehensive learning environment that improves the effectiveness and adaptability of multimodal pedagogy in flipped classrooms to meet the demands of a wide range of students.

## CONCLUSION

The study concerns on three research objectives including the effectiveness of multimodal pedagogy flipped classroom to enhance students' speaking skill, the relationship between speaking skill and learning autonomy after MPFC implementation, and factors contributing on MPFC implementation. First, students' speaking abilities have been shown to improve when multimodal pedagogy is incorporated into a flipped classroom environment. The method

**Didih Faridah, Ratnawati, Luthfiyatun Thoyyibah, Desi Nurani, Sherly Pebriani Permana, Adila Yohana**

*Implementing multimodal pedagogy flipped classroom (mpfc) to promote EFL students' speaking ability and their autonomy*

creates a dynamic and rich learning environment by involving students in a range of modes, including peer collaboration, interactive digital tools, and movies. This combination fosters confidence and speaking fluency by motivating students to actively engage in pre- and in-class activities. Students arrive at class prepared to participate in higher-order learning activities, especially speaking exercises, thanks to the flipped classroom format, which gives them preparatory materials in advance. Students' capacity to communicate vocally is greatly enhanced by the opportunity for meaningful interaction and authentic practice that the flipped classroom model and multimodal tools provide. Second, the implementation of multimodal pedagogy in a flipped classroom has also revealed a positive correlation between students' speaking skills and their learning autonomy. The method encourages self-directed learning strategies by requiring students to interact with a variety of materials on their own before class. As a result of taking more ownership of their preparation, students gain the self-assurance and preparedness necessary to engage in speaking exercises in class. As students become more proactive in looking for opportunities to practice and hone their communication skills, this increasing autonomy helps them perform better when speaking. By accommodating different learning styles and enhancing the accessibility and appeal of self-paced learning, the incorporation of multimodal resources facilitates this expansion. Third, the success of multimodal pedagogy in a flipped classroom is influenced by several critical factors, including learning resources, learning modes, and individual support. Fostering interest and making sure students are ready for in-class activities require high-quality, easily available, and captivating learning materials. Diverse learning modalities, including interactive, visual, and aural approaches, accommodate varying student preferences and enhance the effectiveness and inclusivity of the educational process. Students' confidence and interest are further increased by instructors' one-on-one coaching, which includes tailored advice and comments. Together, these elements produce a dynamic, encouraging atmosphere that encourages students to take charge of their education and, in the end, improves results in the flipped classroom.

Future research on multimodal pedagogy in flipped classrooms should explore several key

areas to deepen understanding and optimize its implementation. In order to investigate the long-term effects of this strategy on students' speaking abilities and learning autonomy in a variety of educational environments, longitudinal studies are first advised. Second, more research on the layout and efficacy of certain multimodal resources can shed light on how to modify them to accommodate different student preferences and needs. Third, strategies for optimizing individualized learning can be determined with the use of studies on the role of individual support, such as peer mentorship and teacher feedback. Lastly, research on how motivation, anxiety, and cultural elements interact in flipped classrooms would provide a more comprehensive knowledge of how these elements affect learning results. These research topics can help improve multimodal flipped classroom models and guarantee their applicability in larger educational contexts.

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**Didih Faridah, Ratnawati, Luthfiyatun Thoyyibah, Desi Nurani, Sherly Pebriani Permana, Adila Yohana**

*Implementing multimodal pedagogy flipped classroom (mpfc) to promote EFL students' speaking ability and their autonomy*

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