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The Effectiveness of the Bibir Method in Promoting Student Participation in Problem-Based Learning Discussions

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ABSTRACT

This study examined the effectiveness of the Bibir Method, a novel approach designed to promote active participation in problem-based learning (PBL) group discussions. The Bibir Method consists of three components: standing while speaking, speaking even when one does not have an opinion, and rotating speaking turns. An experimental approach was employed to assess its effectiveness, with both lecturers and students completing questionnaires before and after the intervention. The results highlight the Bibir Method's strong impact on increasing student participation in PBL, with lecturers expressing higher satisfaction with the Bibir Method (100%) than the conventional method (54.6%). However, challenges were noted, particularly regarding the need for adequate preparation in Tutorial 2, as less prepared students expressed dissatisfaction with the method. Student satisfaction regarding Tutorial 2 was lower with the Bibir Method (71.61%) than with the conventional method (91.35%). In the first tutorial, the three components of the Bibir Method received strong endorsement: standing while speaking (89.47%), speaking even without an opinion (84.21%), and rotating speaking turns (95%). In the second tutorial, endorsement rates were 82.35%, 88.23%, and 94.11%, respectively. In conclusion, the Bibir Method is an effective strategy for enhancing active participation in PBL discussions and could be a valuable addition to educational settings where students tend to be passive during discussions.

Keywords: *Problem-based learning (PBL), Small group discussion, Active participation, Bibir Method, Student participation*

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INTRODUCTION

Problem-based learning (PBL) is a learning approach that originates from the process of understanding solutions to a problem. The sequence involves the introduction of a problem first, followed by the learning process. The aim of the PBL process is for students to acquire knowledge related to a given problem and simultaneously practice problem-solving skills (1, 2). PBL was first applied at McMaster University in Canada in 1969, followed by Maastricht University in the Netherlands in 1974 and Newcastle University in Australia in 1976. Since then, the practice of PBL in medical education has been recommended by the World Health Organization (3, 4).

One positive aspect of PBL is the presence of self-directed learning (5, 6), where students can actively participate in the metacognitive, motivational, and behavioural aspects of their learning process (7, 8). Self-directed learning is crucial and expected to be possessed by medical students, who must learn throughout their lifetime as medical knowledge develops constantly and rapidly (9, 10). In addition to providing students with the opportunity to think openly about how to solve a given case, PBL is also beneficial in enhancing their communication skills in conveying their opinions directly (11, 12). Communication skills are crucial for a doctor who will interact extensively with the public.

PBL was first implemented in medical faculties in Indonesia in 2006 when the Indonesian Medical Council changed the standard teaching and learning process from a traditional curriculum based on teacher-centred learning to a competency-based curriculum that includes student-centred, community-based, elective, and systematic approaches. The implementation of this method is not easy in Indonesia because it requires significant human resources, facilities, and funds (13, 14). In the Faculty of Medicine, Universitas Muslim Indonesia (FK UMI), PBL comprises small group discussions involving 8 to 10 students who discuss a common community health case. The students are led by a designated leader who facilitates the discussion to analyse the case and discuss potential solutions. Tutors in this discussion only oversee the discussion and guide it if opinions on the given case diverge. Almost all lecture courses at FK UMI have PBL programmes that occur 6 to 10 times per course.

Discussions do not always run effectively and often become passive. Sometimes, only one or two people participate, while others remain silent or do not provide input on the case. With passive discussions, the intended purpose of training students to think openly and confidently express their ideas is not effectively achieved. Passivity in group discussions during PBL significantly impacts learning outcomes. When students exhibit passive behaviour, group dynamics are disrupted, and the quality of the discussion is compromised. Active participation is crucial for fostering motivation and improving academic performance. PBL, by design, aims to promote a deep learning approach; however, passive students are limited to achieving only a superficial level of learning (15–18).

Investigating the causes of passive discussion and finding solutions for them is a necessary step to encourage active participation in the classroom. Structured discussion techniques offer a solution to enhance active participation by providing clear rules and guidelines

before the discussion. For instance, methods such as deliberative discussion have been shown to facilitate more productive and well-organised discussions (19, 20). In this study, we implement the Bibir Method as a new form of structured discussion aimed at ensuring equal opportunities for all students to speak through a rotational turn-taking system. While similar to the round-robin approach, the Bibir Method incorporates two additional components: the requirement to stand while speaking and mandatory participation during one's turn, even if the contribution is limited to a simple comment, such as "I have no idea right now."

The Bibir Method, with its techniques of standing while speaking, rotational turn-taking, and mandatory participation, aligns closely with the principles of constructivist theory, as it fosters student engagement, collaboration, and critical thinking in PBL discussions. This structured approach enhances the effectiveness of PBL by promoting a more interactive and student-centred learning environment (19, 20).

In addition, the Bibir Method aligns with social cognitive theory by addressing the interplay of behavioural, personal, and environmental factors that influence learning. By incorporating these techniques, the method creates an engaging and supportive PBL environment, improving student participation and learning outcomes (21, 22). Both constructivist theory and social cognitive theory support the Bibir Method as a potential solution to address student passivity and low confidence in PBL discussions.

METHODS

Study Design and Participants

The conventional format of PBL discussions among students involves random discussions without a sequential order that ensures each student has the opportunity to speak. In some classes where the students tend to be passive during discussions, this conventional system can result in less active discussions because many students may be too shy or afraid to voice their opinions.

In this study, a new discussion method (the Bibir Method) is introduced, with "Bibir" standing for *berdiri* (standing), *berbicara* (speaking), and *rotasi* (rotation). This method is somewhat similar to Stephen D. Brookfield's "circle of voice" discussion method (23) and the round-robin discussion method (24) but includes the component of standing while speaking and a requirement to speak even if one does not have an opinion.

The Bibir Method was registered by Amrizal Muchtar and Andi Sitti Fahirah Arsal in the Ministry of Law and Human Rights of Indonesia on 23 November 2022, with the copyright number EC00202293311 (25). *Berdiri* means that when expressing their opinion, discussion participants must stand. *Berbicara* means that all participants must speak when it is their turn to do so, even if they only say, "I don't have any ideas at the moment." *Rotasi* means that the speaking order is determined by clockwise rotation. In PBL discussion groups, students sit in a circle and discuss the topic. The first speaker is the group leader, the next speaker is the student sitting to their left, and so on, continuing in a clockwise direction. This system applies to brainstorming discussions in Tutorial 1. For Tutorial 2, which requires more scientific answers or opinions based on theory, the system is modified slightly so that each statement from a discussion participant is commented on by two or three other participants before moving on to a new statement (Figure 1).

The study was conducted at the FK UMI, Makassar, Indonesia, from July to December 2022. The target population included 281 second-year students in the 2021 cohort of FK UMI and 45 lecturers who participated in the respiratory PBL block training.

A within-subjects design was selected for this study instead of using a parallel control group. In this design, the same participants are exposed to all experimental conditions. This approach was chosen due to the limited availability of human resources to implement a parallel control group. However, it offers the advantage of greater precision in controlling variables and minimising error variance.

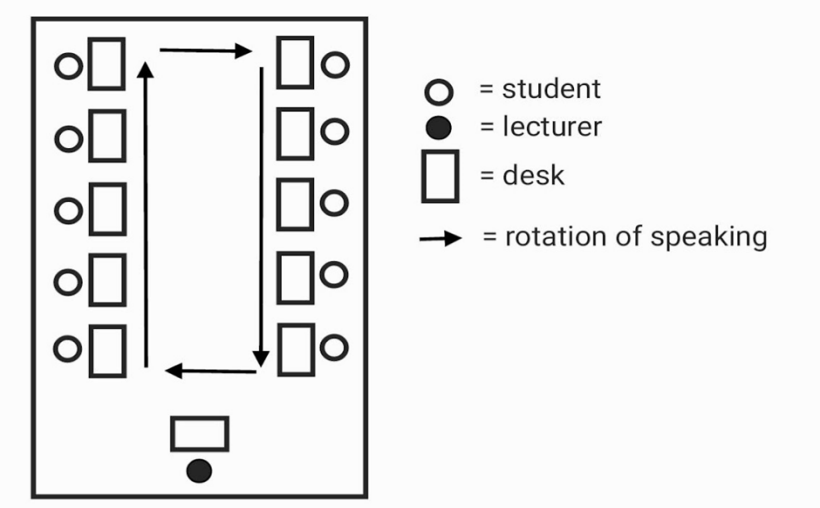

Figure 1: Scheme of the PBL class.

Materials

Instruments

Prior to commencing the experimental phase, both students and educators were administered an initial questionnaire to gauge their satisfaction levels regarding the traditional discussions that had previously occurred. Subsequently, they were instructed to implement the Bibir Method during the ensuing PBL Tutorials 1 and 2. Following its implementation, participants were tasked with completing a second questionnaire to assess their satisfaction with the newly introduced discussion method.

The questionnaire was disseminated either through a Google Forms application link or in a printed paper format, contingent upon the practical circumstances in the field. The questionnaire was validated utilising IBM SPSS Statistics 26 to evaluate the precision of the variable concepts.

Several strategies were employed to minimise response bias in this study. Participants were guaranteed full anonymity, with no identifying information being collected. Detailed and straightforward instructions were provided at the start of the questionnaire to ensure participants could respond accurately and confidently.

The questionnaire items were carefully designed to remain neutral, avoiding any wording that might influence participants' responses. Furthermore, the order of the questions was

randomised to prevent pattern bias, and participation was entirely voluntary, allowing participants the freedom to skip any question or withdraw from the study without any repercussions.

This study employed a validated questionnaire to evaluate satisfaction with the Bibir Method in PBL discussions. Content validity was verified through expert review by two specialists in medical education. The overall scale exhibited internal consistency, with a Cronbach's alpha of 0.62. Questionnaire items included "Have you ever participated in a PBL discussion before?" and "Do you believe PBL activities are important?" To ensure clarity and relevance, the questionnaire was pilot-tested with 10 participants before its full deployment.

Statistical analysis

Descriptive statistics were used for continuous variables with mean and standard deviations (mean ± SD). The means were compared by a paired *t*-test. Linear regression was used to calculate the correlation between each component of the Bibir Method and satisfaction. All statistical analysis was performed with IBM SPSS Statistics 26, and *P*-values equal to or less than 0.05 were considered significant.

RESULTS

This study examined the effect of applying the Bibir Method during small group discussions using PBL among second-year medical students at Universitas Muslim Indonesia. The research involved distributing a questionnaire to respondents, which included lecturers and second-year students. Three questionnaires were given to the same respondents (before applying the Bibir Method and after applying it in Tutorial 1 and Tutorial 2).

Some lecturers and students were not able to respond to all the questionnaires. In total, 24 lecturers completed the pre-tutorial questionnaire, 18 completed the questionnaire post-Tutorial 1, and 16 completed the questionnaire post-Tutorial 2. The corresponding student numbers were 162, 176, and 162, respectively. Female respondents outnumbered male respondents, with an average of 88.65% of lecturers and 72.81% of students being female (Table 1).

Table 1: Profile of respondents based on gender

Gender	Pre-tutorial		Post-tutorial 1		Post-tutorial 2	
	Lecturer, n (%)	Student, n (%)	Lecturer, n (%)	Student, n (%)	Lecturer, n (%)	Student, n (%)
Male	4 (16.66)	41 (25.30)	2 (11.11)	49 (27.84)	1 (6.25)	46 (28.39)
Female	20 (83.33)	121 (74.69)	16 (88.89)	127 (72.16)	15 (93.75)	116 (71.60)

PBL is an Important Academic Activity for Students

According to the survey results, 95.83% of lecturers and 99.38% of students believed that PBL discussions are essential academic activities for them (Figure 2).

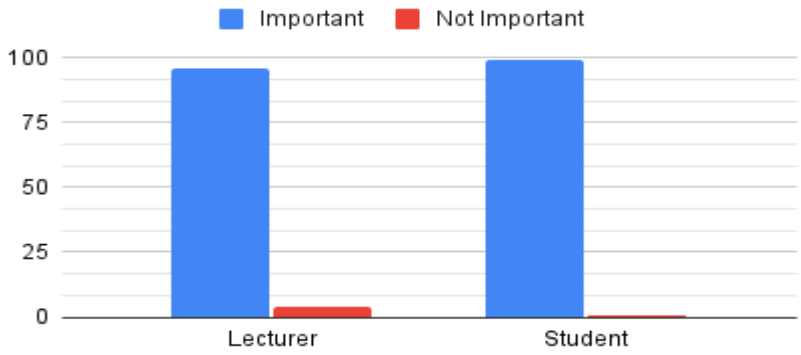

Figure 2: Perceptions of lecturers and students about PBL activities.

Active Student Participation in PBL Discussions Remains Inadequate

Active participation from all participants is necessary for interesting discussions. When students share their opinions and thoughts with others, knowledge transfer is enhanced. According to Table 2, 84.8% of students enjoy active discussions. However, such discussions are rare in the current PBL format. Additionally, 60.9% of lecturers and 64.8% of students believed that less than 75% of students participated in PBL discussions. Low self-confidence was the most common reason for student inactivity, according to 57.9% of lecturers and 66.8% of students (Table 2).

Table 2: Students' and lecturers' feedback before Bibir Method implementation

Item	Respondent	Strongly like, n (%)	Like, n (%)	Neutral, n (%)	Dislike, n (%)	Strongly dislike, n (%)
Students' perception of active PBL discussions	Students	50 (30.3)	90 (54.5)	25 (15.2)	0 (0.0)	0 (0.0)
Perceptions of students' activity in discussions		76%–100% active	51%–75% active	26%–50% active	0%–25% active	
	Students	58 (35.2)	84 (50.9)	21 (12.7)	2 (1.2)	
	Lecturers	9 (39.1)	14 (60.9)	0 (0.0)	0 (0.0)	
Reasons for students not being active in discussions		Low self-confidence	Ineffective group leader	Dominant students	Lack of preparedness	Others
	Students	145 (66.8)	9 (4.14)	49 (22.5)	8 (3.6)	6 (2.7)
	Lecturers	22 (57.9)	7 (18.4)	4 (10.5)	4 (10.5)	1 (2.6)

The Bibir Method Can Improve Student Participation in Discussions

As many as 83.4% of the first tutorial's respondent lecturers and 80% of the second tutorial's lecturers believed that the standing component of the Bibir Method could increase effectiveness and activity in discussions. Among the students, 68.8% and 65.4% agreed with this stance regarding the first and second tutorials, respectively (Table 3).

Similarly, the rotation method could also improve effectiveness and activity in discussions, according to 94.5% of lecturers in the first tutorial and 93.3% in the second tutorial. A total of 80.7% of students in the first tutorial and 69.1% in the second tutorial had the same opinion. The requirement to speak even if one has no opinion also improved effectiveness and activity in discussions, according to 83.3% of lecturers in the first tutorial and 86.7% in the second tutorial. As many as 69.4% of students in the first tutorial and 61.1% in the second tutorial had the same opinion.

Table 3: Students' and lecturers' feedback on components of the Bibir Method

Bibir component	Tutorial	Respondent	Improving the effectiveness of the discussion, n (%)	Enhancing the activeness of the discussion, n (%)	No effect, n (%)	Disrupting the discussion process, n (%)
Standing component	1	Students	33 (19.1)	86 (49.7)	0 (0.0)	54 (31.2)
		Lecturers	3 (16.7)	12 (66.7)	2 (11.8)	0 (0.0)
	2	Students	49 (30.2)	57 (35.2)	39 (24.1)	17 (10.5)
		Lecturers	3 (20.0)	9 (60.0)	3 (20.0)	0 (0.0)
Rotation component	1	Students	51 (29.0)	91 (51.7)	29 (16.5)	5 (2.8)
		Lecturers	3 (16.7)	14 (77.8)	0 (0.0)	1 (5.6)
	2	Students	58 (35.8)	54 (33.3	37 (22.8)	0 (0.0)
		Lecturers	2 (13.3)	12 (80.0)	1 (6.7)	0 (0.0)
Speaking component	1	Students	58 (33.0)	64 (36.4)	49 (27.8)	5 (2.8)
		Lecturers	6 (33.3)	9 (50.0)	2 (11.1)	1 (5.6)
	2	Students	42 (25.9)	57 (35.2)	50 (30.9)	13 (8.0)
		Lecturers	4 (26.7)	9 (60.0)	2 (13.3)	0 (0.0)

Satisfaction of Lecturers and Students with the Bibir Method

Lecturers rated the Bibir Method very highly, with a satisfaction rating of 100% for both PBL Tutorial 1 and PBL Tutorial 2, as shown in Table 4. This represents an improvement over the conventional method, which had a satisfaction rating of only 52.2%.

For students, the satisfaction rate for Tutorial 1 was relatively high at 86.4%, while that for Tutorial 2 was somewhat lower at 71.6%. The latter represents a decline from the previous satisfaction rate of 91.5% for the conventional method, which may be attributed to the unfamiliar nature of the Bibir Method.

Table 4: Students' and lecturers' feedback after the Bibir Method implementation

Item	Tutorial	Respondent	Very satisfied, n (%)	Satisfied, n (%)	Dissatisfied, n (%)	Very dissatisfied, n (%)
Satisfaction with the conventional system	1	Students	21 (12.7)	130 (78.8)	13 (7.9)	1 (0.6)
		Lecturers	0 (0.0)	12 (52.2)	10 (43.5)	1 (4.3)
Satisfaction with the Bibir Method	1	Students	14 (8.0)	138 (78.4)	21 (11.9)	3 (1.7)
		Lecturers	3 (16.7)	15 (83.3)	0 (0.0)	0 (0.0)
	2	Students	4 (2.5)	112 (69.1)	43 (26.5)	3 (1.9)
		Lecturers	1 (6.7)	14 (93.3)	0 (0.0)	0 (0.0)
Quality of students' opinions after Bibir Method implementation			Better	Same	Worse	
	1	Students	83 (47.2)	84 (47.7)	9 (5.1)	
		Lecturers	9 (50.0)	9 (50.0)	0 (0.0)	
	2	Students	62 (38.3)	84 (51.9)	16 (9.9)	
		Lecturers	6 (40.0)	9 (60.0)	0 (0.0)	
Desire to practice the Bibir Method in the future			Very eager	Want	Do not want	
	1	Students	14 (8.0)	134 (76.1)	28 (15.9)	
		Lecturers	6 (33.3)	12 (66.7)	0 (0.0)	
	2	Students	5 (3.1)	89 (54.9)	68 (42.0)	
		Lecturers	2 (13.3)	13 (86.7)	0 (0.0)	

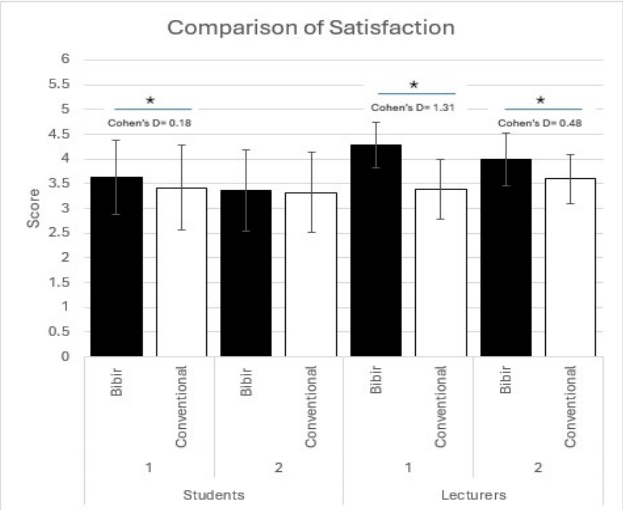

Figure 3: Comparison of satisfaction with Tutorials 1 and 2.

Figure 3 and Table 5 compare the Bibir Method and the conventional method and present the correlation of each component of the Bibir Method with satisfaction.

Table 5: The effect of each Bibir Method component on satisfaction

Respondents	Tutorial	Item	Calculated *t* vs *t*-table*	*p*-value	Calculated *f* vs *f*-table*	*p*-value
Students	1	Rotation component vs satisfaction	2.17 > 1.97	< 0.05		
		Standing component vs satisfaction	2.83 >1.97	< 0.05		
		Speaking component vs satisfaction	2.50 > 1.97	< 0.05		
		All components vs satisfaction			1.00 < 2.66	< 0.05
	2	Rotation component vs satisfaction	5.30 > 1.97	< 0.05		
		Standing component vs satisfaction	4.88 > 1.97	< 0.05		
		Speaking component vs satisfaction	3.90 > 1.97	< 0.05		
		All components vs satisfaction			11.72 > 2.66	< 0.05
Lecturers	1	Rotation component vs satisfaction	3.71 > 2.12	< 0.05		
		Standing component vs satisfaction	0.93 < 2.12	< 0.05		
		Speaking component vs satisfaction	2.25> 2.12	< 0.05		
		All components vs satisfaction			4.24 > 3.34	< 0.05
	2	Rotation component vs satisfaction	2.46 > 2.16	< 0.05		
		Standing component vs satisfaction	1.68 < 2.16	< 0.05		
		Speaking component vs satisfaction	1.45 < 2.16	< 0.05		
		All component vs satisfaction			4.05 > 3.59	< 0.05

Notes: * A correlation is considered to exist when the calculated *t*-value is greater than the critical *t*-table value or when the calculated *f*-value exceeds the critical *f*-table value; $p < 0.05$

Table 6 reveals that one reason for students' satisfaction with this system is that they have a fair chance to speak, while the longer time requirement for discussions is a reason for dissatisfaction.

In this study, 100% of lecturers expressed interest in implementing the Bibir Method in the future for both Tutorials 1 and 2. However, only 84.1% of students were interested in using the Bibir Method for Tutorial 1 and 58% for Tutorial 2, as depicted in Table 4.

DISCUSSION

PBL is an Important Academic Activity for Students

Based on the survey findings, an overwhelming majority of lecturers (95.83%) and students (99.38%) express the belief that participatory PBL discussions are integral components of the academic experience (Figure 2). Within the context of these discussions, students engage with simulated cases closely mirroring real-life patient scenarios. These cases incorporate various patient attributes, including age, gender, chief complaints, and symptoms. By immersing themselves in these scenarios, students are prompted to adopt the perspective of a practicing medical professional, fostering critical thinking. Through collaborative discourse with their peers, they analyse the patient's condition, formulate diagnoses, and develop treatment plans. This activity serves as a crucial training ground, equipping students with the skills needed for thoughtful decision-making and preparing them for authentic interactions with patients in real-world scenarios.

Table 6: Reasons for satisfaction and dissatisfaction with the Bibir Method

Comments of satisfied participants	Comments of dissatisfied participants
In my opinion, this method is better because everyone answers in order, so there's no one answering more because everyone gets a turn, and there's no competition.	Implementing the Bibir Method is quite challenging because it requires a relatively long time.
It is very helpful for friends who were initially afraid to speak.	When there is material to be interrupted, we have to wait for our turn to express opinions.
Because all students become active in responding. There is no domination term in discussing.	Because we find it somewhat difficult to choose questions and answers that we want to address and have already learned. We are afraid that we cannot discuss to the maximum.
I am satisfied because we can think more, and the discussion flows, meaning one person doesn't appear active, but the whole group is active in answering due to taking turns.	It's good that students take turns, but when corrected by a peer in PBL, it has to be in order and cannot go directly to that person.
Very good because it helps us learn by listening to different opinions expressed by friends, thus increasing knowledge.	A drawback of this method is that we cannot directly counter a friend's opinion because we have to wait for our turn.

Active Student Participation in PBL Discussions Remains Inadequate

Active participation from all participants is crucial for cultivating engaging discussions. The exchange of ideas not only enriches individual understanding but also facilitates knowledge transfer within the group. As revealed in Table 2, a significant 84.8% of students favoured active discussions. Despite this preference, interactive engagement is infrequent in the current PBL environment.

Table 2 further demonstrates that a substantial percentage of participants (60.9% of lecturers and 64.8% of students) believed that less than 75% of students actively engage in PBL discussions. This observed discrepancy prompts an examination of potential barriers. According to the data, the primary obstacle is low self-confidence, identified by 57.9% of lecturers and 66.8% of students (Table 2). Addressing this confidence issue is pivotal for fostering a more dynamic and participatory PBL environment, empowering each student to contribute meaningfully to discussions.

This low self-confidence is often rooted in anxiety and low self-esteem, leading to physical manifestations such as sweaty palms, heart palpitations, and stomach aches. In Indonesia, this confidence deficit may be linked to cultural factors, as Indonesian society remains steeped in a collectivist culture that prioritises group goals over individual ones. Consequently, students may not be accustomed to freely expressing their opinions, a habit that extends to educational settings. To overcome this confidence hurdle, students must cultivate self-assurance through speech training and thorough preparation before participating in discussions.

The Bibir Method Can Improve Student Participation in Discussions

The Bibir Method introduces a novel approach to discussions, catering to both lecturers and students. Previously, PBL discussions were conducted using conventional methods, lacking the systematic regulation of speaking turns and relying solely on the voluntary participation of those inclined to speak. This led to a passive class dynamic despite repeated emphasis by lecturers on the importance of increased activity. Recognising the need for a discussion system that compels student participation, the Bibir Method incorporates three key components: standing while speaking, speaking even without a pre-formed opinion, and rotating speaking turns, all aimed at eliminating speaking passivity during discussions.

The Bibir Method appears to foster active participation, even among students who may initially feel discomfort or dissatisfaction when expressing their opinions. The standing component seems to contribute to a more engaging discussion environment, with many participants perceiving it as beneficial for maintaining focus and encouraging interaction. Similarly, the rotation component was viewed positively, suggesting that structured movement enhances participation and effectiveness in discussions.

Additionally, requiring students to speak even when they do not have a strong opinion appears to encourage engagement, helping students to develop confidence in articulating their thoughts and fostering a more dynamic learning atmosphere. The alignment of perspectives between students and lecturers, as summarised in Table 3, further highlights the potential advantages of this approach in stimulating discussions.

These findings suggest that structured discussion strategies can enhance engagement, although individual preferences and comfort levels may influence their effectiveness in different learning environments. Further exploration could help determine how to optimise these methods for diverse student needs.

Table 5 illustrates a correlation between each component of the Bibir Method and the satisfaction of both students and lecturers with the new approach. Hypothesis testing to determine whether the components of the Bibir Method have an effect on satisfaction relies on the condition where the calculated *t*-value exceeds the critical *t*-table value. Similarly, for the combined impact of all components, the calculated *f*-value needs to surpass the critical *f*-table value. Among the components, rotation emerged as the most influential in affecting satisfaction, followed by speaking and standing, which had the least impact on satisfaction. Interestingly, several respondents believed that standing while speaking was not crucial. The discussion can still become more active without this last component.

PBL is an active learning approach that encourages learners to collaborate in understanding and solving complex, ill-structured problems. The inherent complexity and ambiguity of these problems require learners to share their existing knowledge, negotiate diverse

perspectives, seek additional information, and construct well-reasoned arguments to support their solutions. As part of this process, students must be encouraged—or even compelled—to express their opinions (26).

In contexts where students tend to be passive, the Bibir Method offers a promising solution to promote active participation and engagement. This method aligns with research on socially shared regulation of learning (SSRL), which highlights the importance of collaborative learning and shared responsibility in managing learning processes. Like SSRL, the Bibir Method employs structured approaches to ensure active participation. For example, SSRL studies have demonstrated the effectiveness of question prompts in improving student engagement during problem-solving tasks (27). Similarly, the Bibir Method's strategies—such as rotational speaking turns and mandatory responses—can serve as implicit prompts, encouraging students to remain attentive and engaged in discussions.

However, implementing structured participation methods like the Bibir Method may present challenges in less supervised environments. Research on asynchronous online discussions indicates that students often rely heavily on instructor guidance and may struggle to self-regulate their participation (28). This suggests that without proper facilitation or a supportive learning environment, the Bibir Method may lose some of its effectiveness, particularly in online or remote settings where real-time interaction and monitoring are limited.

Satisfaction of Lecturers and Students with the Bibir Method

Satisfaction levels with the Bibir Method vary between lecturers, who observe, and students, who actively participate in discussions. Lecturers expressed high satisfaction, recording a 100% rating for both PBL Tutorial 1 and PBL Tutorial 2, as indicated in Table 4. This marks an improvement over the previous conventional method, which only garnered a 52.2% satisfaction rating. The enhancement is attributed to addressing the previous source of dissatisfaction—the passivity of students—through the Bibir Method, leading to increased satisfaction for lecturers.

For students, the satisfaction rate was relatively high at 86.4% in Tutorial 1 but slightly lower at 71.6% in Tutorial 2. This reflects a decrease from the previous satisfaction rate of 91.5% with the conventional method, attributed to the unfamiliar nature of the Bibir Method. Figure 3 illustrates the differences in mean between the Bibir Method and the conventional method, wherein satisfaction with the Bibir Method was significantly higher for Tutorial 1 among both students and lecturers. The effect size was small for Tutorial 1 for students (Cohen's D = 0.18) and large (Cohen's D = 1.31) and medium (Cohen's D = 0.48 ≈ 0.5) for Tutorials 1 and 2, respectively, for lecturers.

However, for Tutorial 2 among students, the difference was not as significant as among lecturers. Satisfaction in Tutorial 1 surpassed that in Tutorial 2 because in the latter, students faced the obligation to express opinions scientifically, posing challenges for those less prepared with sufficient knowledge.

In Tutorial 2, students were obligated to express their opinions in a scientifically rigorous manner, requiring them to substantiate their arguments with evidence, critical reasoning, and appropriate academic language. While this approach aligns with the goals of fostering higher-order thinking and deep learning, it also created challenges for students who were less prepared, lacked sufficient foundational knowledge, or were not confident in articulating complex ideas.

For such students, the demand for scientific rigour could lead to feelings of intimidation or frustration, ultimately reducing their overall satisfaction with the tutorial experience. By contrast, Tutorial 1 may have offered a less formal or demanding environment, allowing students to participate more freely without the pressure of meeting stringent academic expectations. This contrast highlights the importance of balancing rigour with support, ensuring that students feel both challenged and adequately prepared to engage in meaningful academic discussions.

Table 6 highlights that students' satisfaction stemmed from having a fair chance to speak, while dissatisfaction arose from a relatively longer time requirement. These aspects require attention from lecturers to modify the discussion environment and encourage more active participation.

In evaluating PBL discussions at the FK UMI, instead of active participation, additional aspects, such as the quality of scientific information, communication skills, analytical ability, openness in discussions, ethics, and time discipline, are considered.

Active participation, coupled with preparedness, significantly enhances knowledge transfer among students. According to both lecturers and students, the Bibir Method did not significantly impact the quality of answers during discussions, as indicated in Table 4. The quality was more reliant on students' knowledge readiness entering Tutorial 2. All lecturers (100%) expressed interest in implementing the Bibir Method implementations for both tutorials in the future, whereas student interest was slightly lower (84.1% for Tutorial 1 and 58% for Tutorial 2, as depicted in Table 4). Modifications to the Bibir Method are necessary to address respondents' dissatisfaction with its limitations.

Various types of discussions take place across all levels of education, from elementary school to junior high, senior high, and university settings. The Bibir Method might be effectively implemented in situations where many participants tend to remain passive for various reasons, helping to foster active participation and engagement. However, follow-up studies are necessary to clearly determine its impact.

The Bibir Method also shows potential for application in online discussions, where the rotation and speaking components can be retained while the standing element can be omitted. Initial tests that we conducted with small groups yielded results comparable to the offline method, although further research is needed for verification. Additionally, it is important to test the method in diverse environments, such as cultures where students are generally more active, like many Western settings, to assess its applicability. Its implementation should also be evaluated in other disciplines, such as the humanities, arts, and technology, to determine its suitability across various fields of study.

Regarding long-term effects on communication skills, it would be worthwhile to investigate how the Bibir Method can help students develop essential skills, such as critical thinking and public speaking. There is also potential for this method to induce behavioural changes that extend beyond the academic environment, potentially influencing individual performance in professional settings like meetings, presentations, or team collaborations.

To enhance the Bibir Method's effectiveness, two suggestions are proposed. First, students should be required to thoroughly prepare for Tutorial 2 by studying the assigned topic from Tutorial 1 and summarising relevant articles. This approach aims to elevate the quality of student answers during Tutorial 2 discussions. Second, the Bibir Method can be modified

based on participant feedback. Dissatisfaction with the rotation method because of the longer waiting time for speaking can be addressed by allowing participants to raise a hand before their turn, accommodating those with more knowledge. A shift from individual to group rotation has also been implemented at the FK UMI by forming three smaller groups of two to three students/group within the class, leading to improvements in overall satisfaction.

The Bibir Method stands as a promising tool for facilitating effective offline discussions. Through thorough student preparation and thoughtful modifications, its effectiveness can be enhanced further. However, this study has several limitations, primarily stemming from its reliance on self-reported data, which may introduce inaccuracies or biases due to the subjective nature of respondents' input. Additionally, the absence of a parallel control group could contribute to potential bias, as the within-subject design makes it challenging to isolate the effects of each intervention. The first intervention may influence the outcomes of the second, creating a carryover effect that is difficult to mitigate. Replicating this study in the future, ideally with a robust experimental design, could help enhance its validity and accuracy.

CONCLUSION

Passivity in PBL discussions is a common issue that can result in a disengaging atmosphere. One of the primary causes is a lack of self-confidence among participants. This study introduced a novel approach called the Bibir Method to enhance student participation in PBL. The Bibir Method consists of three key components: standing while speaking, the requirement to speak even in the absence of a prepared opinion, and rotating speaking turns. These elements help address the factors that contribute to passivity in discussions. The method has been shown to significantly increase active participation without diminishing the quality of students' contributions. However, to further improve the quality of contributions, students must prepare in advance before entering the discussion. Educators interested in implementing the Bibir Method can adapt it by emphasising a structured turn-taking system and mandatory speaking while adjusting the standing requirement to fit the specific dynamics of their classrooms.

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ETHICAL APPROVAL

Authorisation for the research involving human subjects was formally obtained from the Universitas Muslim Indonesia Review Board, denoted by the registered reference number UMI012305180.

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