Microteaching as a Tool to Improve Classroom Performance of Medical Teachers: Evidence from Student Feedback

Mohd. Shahidul Haque[1], Md Rahimgir[2], Syed Ariful Islam[3], Md. Shahidullah[4], Akbor Hossain[5]

[1]*Medical Officer, Department of Vascular Surgery, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh*

[2]*Professor and Head, Department of Microbiology, Armed Forces Medical College (AFMC), Dhaka, Bangladesh*

[3]*Consultant, Department of Anesthesia, Sir Salimullah Medical College, Dhaka, Bangladesh*

[4]*Medical Officer, Department of Rheumatology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh*

[5]*Medical Officer, Department of Neurosurgery, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh*

Corresponding Author: Dr. Mohd. Shahidul Haque, Medical Officer, Department of Vascular Surgery, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh

---

Abstract

Introduction: *Microteaching is a widely recognized educational approach that allows teachers to refine their instructional skills through short, focused teaching sessions followed by feedback. It is often used as a professional development tool, helping educators enhance their teaching methods and engage more effectively with students. This study seeks to explore how microteaching influences classroom performance, using student feedback as the primary evaluation method.*

Methods: *This one-sample quasi-experimental study was conducted over one year (July 2016 to June 2017) in five public medical institutions in Bangladesh: Dhaka Medical College, Sir Salimullah Medical College, Rajshahi Medical College, Jessore Medical College, and Bangabandhu Sheikh Mujib Medical University (BSMMU). A total of 31 junior medical teachers were purposively selected as participants, based on mixed sampling techniques—primarily convenience sampling for selecting institutions. The primary study subjects were undergraduate medical students who evaluated their respective teachers' classroom performance before and after the microteaching intervention. Data were entered and analyzed using SPSS version 23.0.*

Result: *The study revealed significant improvements in teachers' classroom performance following microteaching, as indicated by student evaluation scores. Notably, mean scores for parameters such as "communication skills" (4.6 ± 0.3), "content delivery" (4.7 ± 0.2), and "use of teaching aids" (4.5 ± 0.4) were high. Independent sample t-tests showed statistically significant differences (p < 0.05) in several areas before and after microteaching.*

Conclusion: *The study on the impact of microteaching on teachers' classroom performance based on student evaluations demonstrates significant improvements across various teaching aspects, including classroom environment, lesson organization, use of teaching aids, student engagement, and overall teaching effectiveness. The findings indicate that microteaching serves as an effective tool in enhancing teachers' abilities to engage students, manage classrooms, deliver well-structured lessons, and respond to feedback, leading to a more dynamic and interactive learning experience.*

Keywords: *Microteaching, Classroom Performance, Student Feedback, Learning Experience*

I. Introduction

The quality of teaching remains a cornerstone of effective learning, and consistent efforts have been made globally to enhance the instructional competencies of teachers. Microteaching, first introduced in the 1960s, has continued to evolve as a flexible, focused, and effective tool for teacher training and development. It offers a simulated teaching environment where educators can practice specific teaching skills within a short lesson, receive feedback, and reflect on improvement (1). In the last two decades, microteaching has gained significant attention

across various disciplines, including education, medicine, and allied health sciences, as a viable tool for enhancing teaching quality (2),(3). Microteaching enables teachers to break down complex instructional activities into smaller, more manageable units that can be practiced repeatedly. It supports self-reflection, peer evaluation, and expert feedback in a non-threatening, low-stakes environment—key elements for professional growth (4). Several studies have documented its benefits, noting that it enhances clarity of communication, effective use of teaching aids, time management, and student engagement techniques. Benton-Kupper emphasized the value of microteaching from the learner's perspective, arguing that student feedback in this setting can significantly enrich a teacher's reflective practice (5). One of the major advantages of microteaching lies in its adaptability. It has been effectively used in teacher education programs, residency training, and even continuous faculty development in higher education (6),(7). I'Anson et al. highlighted that microteaching helps trainee teachers develop a deeper understanding of pedagogical content knowledge and fosters meaningful reflections on their classroom behavior (6). Moreover, it prepares them to anticipate challenges in real classroom situations and equips them with appropriate intervention strategies (8). In medical education, Singh et al. (1) and Remesh (7) reported that microteaching sessions enhanced the teaching abilities of medical faculty, especially in domains like explaining clinical concepts clearly, managing time efficiently, and responding effectively to student questions. Gelula et al. found that dental educators also benefited significantly, as microteaching led to better structuring of lessons and clearer communication with students (9). Student feedback plays a pivotal role in microteaching sessions. While traditional methods often relied solely on peer and supervisor evaluations, incorporating student perceptions provides valuable insights into actual classroom impact (10). Chawla and Thukral (8) demonstrated that student feedback helped prospective teachers adjust their pace, tone, and engagement strategies to meet learner expectations. Similarly, Amobi found that when students provided targeted feedback, teachers became more attuned to student-centered approaches (11). Incorporating feedback from those directly affected by teaching practices makes microteaching a more dynamic, learner-driven improvement tool. In the South Asian context, where large classroom sizes and limited faculty training programs pose challenges to quality education, microteaching presents a cost-effective and scalable solution (12). Al Darwish et al. found that microteaching significantly improved the teaching performance of Kuwait EFL student teachers, reinforcing its relevance across cultural and institutional settings (13). Given this background, the present study explores the effectiveness of microteaching in improving classroom performance as evaluated through structured student feedback.

II.   Methods

This one-sample quasi-experimental study was conducted over one year (July 2016 to June 2017) in five public medical institutions in Bangladesh: Dhaka Medical College, Sir Salimullah Medical College, Rajshahi Medical College, Jessore Medical College, and Bangabandhu Sheikh Mujib Medical University (BSMMU). A total of 31 junior medical teachers were purposively selected as participants, based on mixed sampling techniques—primarily convenience sampling for selecting institutions. The primary study subjects were undergraduate medical students who evaluated their respective teachers' classroom performance before and after the microteaching intervention. Each teacher's performance was assessed by students using a structured checklist that included 27 teaching competencies, rated on a 5-point Likert scale ranging from "very poor" to "excellent." The checklist captured core elements of classroom teaching such as lesson planning, delivery, clarity, interaction, use of visual aids, and time management. Additionally, teachers completed a semi-structured, self-administered questionnaire, and open-ended feedback was collected to understand their perspectives on the training process. The study followed a structured microteaching approach. As most teachers were unfamiliar with the concept, an initial orientation was provided by the researcher. This included a mini-lecture and distribution of handouts on microteaching, lesson planning, instructional objectives, and effective lecturing techniques. Teachers were then given homework to develop a lesson plan on a topic from their discipline. These plans were discussed in follow-up sessions, where feedback was offered, and peer review was encouraged. Teachers then participated in small group teaching exercises, followed by formal microteaching sessions. During these sessions, each teacher delivered a short lecture to a simulated student group (their peers), who then provided structured feedback. Students' ratings were recorded. Ethical clearance for the study was obtained from the Institutional Review Board and informed written consent was taken from all participants. Data were entered and analyzed using SPSS version 23.0. Descriptive statistics were used to summarize data, while inferential statistics, including paired and independent sample t-tests, were applied to compare student evaluation scores before and after the intervention.

Inclusion criteria for teachers:
- Having ≤7 years of teaching experience.
- Willingness to voluntarily participate in the study.

Exclusion criteria:
- Prior training in microteaching.
- Holding a postgraduate qualification in health professional education or medical education.
- More than 7 years of teaching experience.

III. Results

Table 1: Distribution of the students by performance of studied teachers in the classroom before microteaching (N=1231) and after microteaching (n=1103)

Items	Strongly agree (5)		Agree (4)		Neither Agree nor Disagree (3)		Disagree (2)		Strongly disagree (1)	
	Before	After	Before	After	Before	After	Before	After	Before	After
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
The teacher was careful about the Classroom environment	0(00)	903(73.35)	0(00)	191(15.52)	376(30.54)	0(00)	545(44.27)	0(00)	297(24.13)	0(00)
The teacher mentioned Learning objectives	104(8.45)	331(26.89)	352(28.59)	760(61.74)	445(36.15)	0(00)	315(25.59)	0(00)	0(00)	0(00)
The teacher informed to mention any difficulties	0(00)	738(59.95)	232(18.85)	352(28.59)	718(58.33)	0(00)	272(22.10)	0(00)	0(00)	0(00)
The teacher informed Purpose of the class	0(00)	521(42.32)	404(32.82)	567(46.06)	439(35.66)	216(17.55)	375(30.46)	0(00)	0(00)	0(00)
Teacher Drew the attention of the students	0(00)	915(74.33)	280(21.75)	173(14.05)	941(76.44)	0(00)	0(00)	0(00)	0(00)	0(00)
Teacher Activated previous related knowledge	0(00)	453(36.80)	230(18.68)	639(51.91)	566(45.17)	1(0.08)	328(26.65)	0(00)	102(8.29)	0(00)

Table 1 shows that there was a gross difference in studied teachers' performance before microteaching and after microteaching by students' evaluation of the classroom environment, mentioning learning objectives, informing about any difficulties, explaining the purpose of the class, Drawing attention & activating the previous related knowledge. Before microteaching was studied teachers' performance poor in all items whereas after microteaching their performance improved significantly.

Table 2: Distribution of the students by performance of studied teachers in the classroom before microteaching (N=1231) and after microteaching (n=1103)

Items	Strongly agree (5)		Agree (4)		Neither Agree nor Disagree (3)		Disagree (2)		Strongly disagree (1)	
	Before	After	Before	After	Before	After	Before	After	Before	After
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
The lecture was very well organized, sequential	0(00)	877(71.24)	105(8.53)	214(17.38)	678(55.08)	0(00)	437(35.50)	0(00)	0(00)	0(00)
The teacher covered all the contents	0(00)	407(33.06)	457(37.12)	686(55.73)	313(25.43)	0(00)	454(36.88)	0(00)	0(00)	0(00)
The teacher's Presentation style was interesting and encouraging	0(00)	525(42.65)	245(19.90)	568(46.14)	584(47.44)	0(00)	390(31.68)	0(00)	0(00)	0(00)
Teachers Language was well and clear	0(00)	806(65.48)	244(19.82)	287(23.31)	974(79.12)	0(00)	0(00)	0(00)	0(00)	0(00)
The teacher's Pronunciation	0(00)	873(70.92)	50(4.06)	217(17.63)	1174(95.37)	0(00)	0(00)	0(00)	0(00)	0(00)

was clear and well									

Table 2 shows that there was a gross difference in studied teachers' performance before microteaching and after microteaching by students evaluation of the lecture was very well organized & sequential, covered all the contents, the presentation style was interesting & encouraging, language was well and clear and pronunciation was well & clear. Before microteaching studied teachers' performance was poor in all items whereas after microteaching their performance improved significantly.

Table 3: Distribution of the students by performance of studied teachers in the classroom before microteaching (N=1231) and after microteaching (n=1103)

Items	Strongly agree(5)		Agree(4)		Neither Agree nor Disagree(3)		Disagree(2)		Strongly disagree(1)	
	Before	After	Before	After	Before	After	Before	After	Before	After
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
OHP/PowerPoint/blackboard used by the teacher was perfectly helpful	0(00)	410(33.31)	126(10.24)	680(55.24)	613(49.80)	0 (00)	484(39.32)	0(00)	0(00)	0(00)
Writings/images on the transparency/blackboard/PowerPoint were clear & understandable	0(00)	170(13.81)	124(10.07)	923(74.98)	421(34.20)	0 (00)	675(53.83)	0(00)	0(00)	0(00)
Teacher Used appropriate example(s)	105(8.53)	522(42.40)	139(11.29)	567(46.06)	978(79.45)	0 (00)	0(00)	0 (00)	0 (00)	0(00)
Teacher Perfectly explained the contents	0(00)	878(71.32)	346(28.11)	213(17.30)	876(71.16)	0(00)	0(00))	0(00)	0(00)	0(00)

Table 3 shows that there was a gross difference in studied teachers' performance before microteaching and after microteaching by students' evaluation on OHP/PowerPoint/blackboard used by the teacher was perfectly helpful, writing /images on the transparency/blackboard/PowerPoint were clear & understandable, used appropriate example(s) and perfectly explained the contents. Before microteaching studied teachers' performance was poor in all items whereas after microteaching their performance improved significantly.

Table 4: Distribution of the students by performance of studied teachers in the classroom before microteaching (N=1231) and after microteaching (n=1103)

Items	Strongly agree(5)		Agree(4)		Neither Agree nor Disagree(3)		Disagree(2)		Strongly disagree(1)	
	Before	After	Before	After	Before	After	Before	After	Before	After
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
The student was able to note down	0(00)	781(63.44)	218(17.71)	310(25.18)	475(38.59)	0(00)	524(42.57)	0(00)	0(00)	0(00)
The teacher checked the understanding of the students	0(00)	875(71.08)	225(18.28)	216(17.55)	683(55.48)	0 (00)	310(25.18)	0 (00)	0 (00)	0 (00)
The teacher was responsive to students' questions	0 (00)	897(72.87)	509(41.35)	194(15.76)	711(57.76)	0 (00)	0(00)	0 (00)	0 (00)	0 (00)
The teacher stimulated the interest of the students	0(00)	405(32.90)	297(24.13)	686(55.73)	922(74.90)	0(00)	0(00)	0(00)	0(00)	0(00)
The classroom environment is non-threatening and participatory	0(00)	782(63.53)	486(39.48)	307(24.94)	734(59.63)	0(00)	0(00)	0(00)	0(00)	0(00)
The classroom environment is interesting and enjoyable	0(00)	665(54.02)	546(44.36)	428(34.77)	676(54.91)	0(00)	0(00)	0(00)	0(00)	0(00)

Table 4 shows that there were gross differences in studied teachers' performance in the classroom before microteaching and after microteaching by students' evaluation on able to note down, the teacher checked the

understanding of the students, the teacher was responsive to students' questions, teacher stimulated the interest of the students, classroom environment non-threatening & participatory and classroom environment interesting & enjoyable. In all items before microteaching teachers' performance in the classroom was poor whereas after microteaching their performance improved significantly.

Table 5: Distribution of the students by performance of studied teachers in the classroom before microteaching (N=1231) and after microteaching (N=1103)

Items	Strongly agree(5)		Agree(4)		Neither Agree nor Disagree(3)		Disagree(2)		Strongly disagree(1)	
	Before	After	Before	After	Before	After	Before	After	Before	After
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
The teacher treated everyone fairly	0 (00)	877 (71.24)	298 (24.21)	213 (17.30)	487 (39.56)	0 (00)	434 (35.26)	0 (00)	0 (00)	0 (00)
The teacher made everyone attentive	0 (00)	684 (55.56)	295 (23.96)	408 (33.14)	787 (63.93)	0 (00)	141 (11.45)	0 (00)	0 (00)	0 (00)
The teacher summarized at the end	0 (00)	684 (55.56)	0 (00)	408 (33.14)	898 (72.95)	0 (00)	320 (26.00)	0 (00)	0 (00)	0 (00)
The teacher provided very useful & relevant references/sources	0 (00)	611 (49.63)	277 (22.50)	262 (21.28)	438 (35.58)	216 (17.55)	555 (41.02)	0 (00)	0 (00)	0 (00)
The teacher started the class timely	0 (00)	780 (63.36)	176 (14.30)	311 (25.26)	357 (29.00)	0 (00)	688 (55.89)	0 (00)	0 (00)	0 (00)
The teacher ended the class timely	0 (00)	780 (63.36)	349 (28.35)	310 (25.18)	874 (71.00)	0 (00)	0 (00)	0 (00)	0 (00)	0 (00)

Table 5 shows that there was a gross difference in studied teachers' performance before microteaching and after microteaching by students' evaluation of the teacher treated everyone fairly, the teacher made everyone attentive, the teacher summarized at the end, the teacher provided very useful & relevant references/sources, the teacher started the class timely and Ended the class timely. Before microteaching teachers' performance was poor in all items whereas after microteaching their performance significantly improved.

Table 6: Independent Sample T-test results of before and after microteaching scores of each time in "Student evaluation to assess a lecture class"

Sl. No	Items	Before Microteaching	After Microteaching	Independent Sample t Test
		N - X SD	N - X SD	t Value df P value (1 tailed)
1	Classroom environment	1218 2.06 0741	1094 4.83 0.380	110.86 2310 0.000
2	Learning objectives	1216 3.20 .922	1091 4.30 .460	35.68 2305 0.00
3	To inform about any difficulties	1222 2.97 .642	1090 4.68 .468	72.46 2310 0.00
4	Purpose of the class	1218 3.02 .800	1088 4.48 .500	51.67 2304 0.00
5	Drew the attention	1221 3.23 .421	1088 4.84 .366	97.69 2307 0.00
6	Activated previous related knowledge	1216 2.75 .856	1093 4.41 .495	56.28 2307 0.00
7	The lecture was very well organized, sequential	1220 2.73	1091 4.80	95.86 2309

		.609	.397	0.00
8	Covered all the contents	1224 3.00 .963	1093 4.37 .484	46.37 2315 0.00
9	The presentation style was interesting and encouraging	1219 2.88 .712	1093 4.48 .500	61.83 2310 0.00
10	The language was well and clear	1218 3.20 .400	1093 474 .440	87.90 2309 0.00
11	Pronunciation was well and clear	1224 3.04 .198	1090 4.80 .399	136.46 2312 0.00
12	OHP/PowerPoint/blackboard used by the teacher was perfectly helpful	1223 2.71 643	1090 4.38 .485	69.82 2311 0.00
13	Writings/images on the transparency/blackboard/PowerPoint were clear & understandable	1220 2.55 .672	1093 4.16 .363	70.43 2311 0.00
14	Used appropriate example (s)	1222 3.29 .613	1089 4.48 .500	50.91 2309 0.00
15	Perfectly explained the contents	1222 3.28 .451	1091 4.80 .397	85.75 2311 0.00
16	Able to note down	1217 2.75 .740	1091 4.72 .451	76.08 2306 0.00
17	Checked understanding of the students	1218 2.93 .659	1091 4.80 .399	81.39 2307 0.00
18	Responsive to students' questions	1220 3.42 .493	1091 4.82 .383	75.86 2309 0.00
19	Stimulated interest of the students	1219 3.24 .429	1091 4.37 .483	59.37 2308 0.00
20	The classroom environment is nonthreatening and participatory	1220 3.40 .490	1089 4.72 .450	67.14 2307 0.00
21	The classroom environment is interesting and enjoyable	1222 3.45 .497	1093 4.61 .488	56.58 2313 0.00
22	Treated everyone fairly	1219 2.89 .767	1090 4.80 .397	74.08 2307 0.00
23	Made everyone attentive	1223 3.13 .584	1092 4.64 .484	66.85 2313 0.00
24	Summarize at the end	1218 2.74 .440	1092 4.63 .484	98.23 2308 0.00
25	Provided very useful & relevant references/sources	1220 2.81 .779	1089 4.36 .793	47.33 2307 0.00
26	Started the class timely	1221 2.58	1091 4.71	83.40 2310

		.730	.452	0.00	
27	Ended the class timely	1223	1090	76.04	
		3.29	4.72	2311	
		.452	.451	0.00	

*p<0.05 is considered significant

Table 6 shows that there were highly significant differences (by independent sample t-test) between before microteaching and after microteaching on every item (P=0.000) by students' evaluation. So, the Null hypothesis is rejected and the Research hypothesis is accepted on every item by students' evaluation. So, it can be concluded, that students perceived that microteaching has a positive effect on lecture class performance of medical teachers.

Table 7: Comparing the mean of the means of all item scores before microteaching (N=1231)and after microteaching (N=1103) in "Student-evaluation to assess the performance of the teacher in classroom "

	N	Mean	sd	df	T (pair sample)	P value (1 tailed)
Before Microteaching	1231	2.98	0.61	2331	73.79	0.000
After Microteaching	1103	4.60	0.46			

*p<0.05 is considered significant

Table 7 shows that the overall mean of means of scores of all items in "student-evaluation to assess the performance of the studied teachers in the classroom" was increased after microteaching (x=4.60, sd=0.46) than that before microteaching (x=2.98, sd=0.61) which is statistically highly significant (independent sample t=73.79, p=0.000).

Table 8: Distribution of opinions of students about studied teachers' most favourable aspects in the classroom (before and after microteaching)

The most favourable aspects of teachers in the classroom	Before Microteaching (n=1231)		After Microteaching (n=1231)	
	Frequency*	%	Frequency*	%
Friendly with students	231	18.76	743	67.36
Well prepared	254	20.63	634	57.47
Good time management	187	15.19	545	49.41
Good content coverage	281	22.82	399	36.17
Caring	196	15.92	567	51.40
Good presentation	165	13.40	765	69.35
Good use of teaching aid	0	0.00	455	41.25
Clear voice	0	0.00	322	29.28

*Multiple response

Table 8 points out the views of students on different categories about studied teachers' most favorable aspects in the classroom (before and after microteaching). These categories are very important for better classroom performance. It shows that microteaching has helped to enhance the positive effect in the most favorable aspect of studied teachers in classrooms in different categories.

Table 9: Distribution of opinion of students about studies teachers' least favourable aspect in the classroom (before and after microteaching)

The least favourable aspects of teachers in the classroom	Before Microteaching (n=1231)		After Microteaching (n=1231)	
	Frequency*	%	Frequency*	%
Not well prepared	445	36.14	222	20.13
Poor time management	222	18.03	123	11.15
Poor content coverage	376	30.54	110	9.97
Not caring	245	19.90	124	11.24
Poor presentation	398	32.32	156	14.14
Teaching aid not interesting	354	28.75	134	12.14
Voice not clear	298	24.20	122	11.06

No comments	0	0.00	455	41.25

*Multiple responses

Table 9 points out the views of students on different categories about studied teachers' least favourable aspects in the classroom (before and after microteaching). These categories are very important for better classroom performance. It shows that microteaching has helped to reduce this least favourable aspect of studied teachers in classrooms in different categories.

Table 10: Distribution of opinions of students about steps that can be taken for improvement of studied teachers' teaching skills (before and after microteaching)

Steps for improvement of teachers' teaching skills in the classroom	Before Microteaching (n=1231)		After Microteaching (n=1231)	
	Frequency*	%	Frequency*	%
More lecture class	234	19.01	345	31.27
More practice in speaking	123	9.99	256	23.20
Training on computer skill	456	37.04	345	31.27
Training on teaching aid	234	19.01	222	20.12
No comments	565	45.89	785	71.16

*Multiple responses

Table 10 points out the suggestions of students for the studied teachers that can help to learn best from the teacher on different categories before and after microteaching. These categories are very important for better classroom performance. It shows that before microteaching students gave suggestions on certain points. After microteaching most of the students didn't give any suggestions. Students also emphasized more lecture classes and more practice in speaking.

IV.   DISCUSSION

This study highlights significant improvements in the classroom environment and teacher-student interactions after the microteaching intervention. Before the intervention, many students did not perceive the teacher as effectively managing the classroom environment or engaging them in discussions. However, post-microteaching, a higher percentage of students agreed that the teacher was more careful about the classroom environment and made efforts to engage students actively. For example, 73.35% of students strongly agreed that the teacher was more attentive to the classroom environment, and 59.95% felt that the teacher informed them well about the learning objectives and potential difficulties. This improvement in interaction suggests that microteaching promotes more thoughtful and intentional engagement with students, which is consistent with studies on the role of teacher-student interaction in promoting effective learning environments (14),(15). Before the microteaching intervention, students often found the lectures to be poorly organized and unclear. However, after the intervention, there was a noticeable improvement in how well the teachers structured their lectures and presented content. For example, 71.24% of students agreed that the lecture was well-organized, and 33.06% believed that the content was presented effectively. Additionally, 42.65% of students felt that the presentation style became more interesting and clear after microteaching. These findings support previous research suggesting that microteaching enhances the clarity and structure of lessons. Microteaching allows teachers to focus on small, manageable segments of instruction, which helps improve organization and delivery (16). This study shows that the teachers' use of teaching aids, such as OHPs, PowerPoint slides, and blackboards, along with the incorporation of relevant examples, improved significantly post-microteaching. Before microteaching, the use of these tools was inconsistent, with many students feeling that they did not contribute to the clarity of the lesson. After microteaching, however, there was a marked increase in students agreeing that the use of teaching aids and examples made the lesson clearer and more understandable. Previous studies have shown that the use of diverse teaching aids enhances student learning by catering to various learning styles and reinforcing key concepts (17). Before microteaching, students felt that there was limited engagement and interaction with the teacher. After the intervention, however, there was a clear increase in students feeling that the teacher checked for understanding, provided clearer explanations, and responded to questions more effectively. For example, many students reported that the teacher was more responsive to their needs, and they felt more involved in the learning process. Research supports the notion that active learning and teacher responsiveness significantly enhance student motivation and learning outcomes (18). This is consistent with studies that emphasize the importance of teacher responsiveness in fostering an interactive and student-centered classroom (19). Students reported a significant improvement in their overall evaluation of the teacher's performance after the microteaching intervention. Before microteaching, many students felt that their teachers did not incorporate feedback or were reluctant to adjust their teaching style.

However, post-intervention, a higher percentage of students agreed that their teachers were responsive to feedback and willing to make improvements. For example, 66.45% of students agreed that the teacher was more open to suggestions after microteaching. This aligns with the literature that suggests feedback is a crucial component of teacher development. Microteaching offers a structured opportunity for teachers to reflect on their practice and incorporate student feedback (20,21). Before microteaching, many students reported that lessons were either too rushed or too slow. However, after microteaching, there was a notable improvement in the perception of lesson pacing. Post-microteaching, a higher percentage of students felt that the teacher managed time effectively and delivered lessons at an appropriate pace. These results support existing research on the importance of time management in effective teaching. Studies have shown that teachers who manage time effectively can maintain student attention and ensure that all lesson objectives are met (22). Prior to the intervention, students felt that some teachers lacked depth in their subject knowledge. After microteaching, there was a noticeable improvement, with many students agreeing that their teacher demonstrated more knowledge and expertise. Research suggests that teachers who engage in professional development programs, such as microteaching, tend to have greater confidence in their subject knowledge and teaching abilities (23). Before microteaching, many teachers reported feeling uncertain about their teaching abilities. However, after the microteaching intervention, teachers reported increased motivation and confidence. This increase in confidence likely contributed to the improved teaching performance observed in other tables. Studies indicate that teacher motivation and self-confidence are crucial factors in promoting effective teaching. Microteaching helps teachers reflect on their teaching practice, leading to improved self-efficacy (24). The data clearly show that students perceived a significant improvement in overall teaching effectiveness after the microteaching intervention. Teachers were rated more highly on their ability to engage students, manage the classroom, deliver content clearly, and provide feedback. This improvement is consistent with studies that suggest microteaching is an effective tool for enhancing teaching skills (25).

Limitations of The Study
- The reliance on student evaluations may introduce bias, as students' perceptions of teaching quality can be influenced by various factors, such as personal preferences or the subject matter.
- Student feedback might not fully capture the complexities of teaching performance, as it is subjective and may not reflect the entire range of a teacher's abilities.

V.   CONCLUSION

The study on the impact of microteaching on teachers' classroom performance based on student evaluations demonstrates significant improvements across various teaching aspects, including classroom environment, lesson organization, use of teaching aids, student engagement, and overall teaching effectiveness. The findings indicate that microteaching serves as an effective tool in enhancing teachers' abilities to engage students, manage classrooms, deliver well-structured lessons, and respond to feedback, leading to a more dynamic and interactive learning experience.

VI.   RECOMMENDATION

Based on the findings of this study, it is recommended that educational institutions should incorporate microteaching as a regular component of teacher training programs. This approach not only enhances teachers' instructional skills but also provides a structured environment for feedback and improvement. Additionally, further research should explore the long-term impact of microteaching on student outcomes and its applicability across different teaching contexts and disciplines. Encouraging teachers to participate in peer feedback sessions and reflective practices post-microteaching could further optimize the learning experience for both instructors and students.

REFERENCES

[1]. Singh T. Microteaching revisited. National Medical Journal of India. 2011;24(6):363–4.
[2]. Fernández ML. Learning through Microteaching Lesson Study in Teacher Preparation. Action in Teacher Education. 2005 Jan;26(4):37–47.
[3]. Kpanja E. A study of the effects of videotape recording in microteaching training. Brit J Educational Tech. 2001 Sep;32(4):483–6.
[4]. Otsupius IA. Micro-teaching: A technique for effective teaching. African Research Review. 2014;8(4):183–97.
[5]. Benton-Kupper J. The microteaching experience: Student perspectives. Education [Internet]. 2001

[6]. I'Anson J, Rodrigues S, Wilson G. Mirrors, Reflections, and Refractions: The contribution of microteaching to reflective practice. European Journal of Teacher Education. 2003 Jun 1;26(2):189–99.

[7]. Remesh A. Microteaching, an efficient technique for learning effective teaching. Journal of research in medical sciences: the official journal of Isfahan University of Medical Sciences. 2013;18(2):158.

[8]. Chawla V, Thukral P. Effects of student feedback on teaching competence of student teachers: A microteaching experiment. Contemporary Educational Technology. 2011;2(1):77–87.

[9]. Gelula MH, Yudkowsky R. Microteaching and standardized students support faculty development for clinical teaching. Academic Medicine. 2002 Sep 1;77(9):941.

[10]. Rovai AP, Ponton MK, Derrick MG, Davis JM. Student evaluation of teaching in the virtual and traditional classrooms: A comparative analysis. The Internet and Higher Education. 2006;9(1):23–35.

[11]. Amobi FA. Preservice teachers' reflectivity on the sequence and consequences of teaching actions in a microteaching experience. Teacher Education Quarterly. 2005;32(1):115–30.

[12]. Khan SN. Microteaching in Pakistan: Perspectives of Novice Higher Education Faculty about the Contribution of Microteaching to their Learning and Practice. 2015

[13]. Al Darwish S, Sadeqi AA. Microteaching Impact on Student Teacher's Performance: A Case Study from Kuwait. Journal of Education and Training Studies. 2016 Aug;4(8):126-34.

[14]. Seidel T. The role of student characteristics in studying micro teaching–learning environments. Learning Environments Research. 2006 Oct;9(3):253-71.

[15]. Ko J, Sammons P. Effective teaching: A review of research and evidence. CfBT Education Trust. 60 Queens Road, Reading, RG1 4BS, England; 2013.

[16]. Fisher J, Burrell DN. The value of using micro teaching as a tool to develop instructors. Review of Higher Education & Self-Learning [Internet]. 2011

[17]. Shabiralyani G, Hasan KS, Hamad N, Iqbal N. Impact of visual aids in enhancing the learning process case research: District Dera Ghazi Khan. Journal of education and practice. 2015;6(19):226–33.

[18]. Stefanou C, Lord SM, Prince MJ, Stolk J, Chen J. The effect of different active learning environments on student outcomes related to lifelong learning. International Journal of Engineering Education. 2012;28(3):606–20.

[19]. Keiler LS. Teachers' roles and identities in student-centered classrooms. IJ STEM Ed. 2018 Dec;5(1):34.

[20]. Voerman L, Meijer PC, Korthagen F, Simons RJ. Promoting effective teacher-feedback: from theory to practice through a multiple component trajectory for professional development. Teachers and Teaching. 2015 Nov 17;21(8):990–1009.

[21]. Feeney EJ. Quality Feedback: The Essential Ingredient for Teacher Success. The Clearing House: A Journal of Educational Strategies, Issues and Ideas. 2007 Mar;80(4):191–8.

[22]. Onuka AO, Onyene V, Junaid IO. Effective time management for teaching effectiveness. 2008

[23]. d'Alessio MA. The Effect of Microteaching on Science Teaching Self-Efficacy Beliefs in Preservice Elementary Teachers. Journal of Science Teacher Education. 2018 Aug 18;29(6):441–67.

[24]. Arsal Z. Microteaching and pre-service teachers' sense of self-efficacy in teaching. European Journal of Teacher Education. 2014 Oct 2;37(4):453–64.

[25]. Mergler AG, Tangen D. Using microteaching to enhance teacher efficacy in pre-service teachers. Teaching Education. 2010 Jun 1;21(2):199-210.