

Extent to Which Microteaching Enhances Classroom Management Competencies among Physics Teacher Trainees in Selected Public Universities in Western Kenya

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Abstract

Classroom management competence is a fundamental professional skill that determines teachers' ability to create and sustain effective learning environments. Despite its importance, many novice teachers experience difficulties in maintaining learner discipline, managing classroom routines, and sustaining learner engagement during instruction. Microteaching has increasingly been recognized as an important teacher preparation strategy that provides pre-service teachers with opportunities to develop classroom management competencies through repeated practice, constructive feedback, and reflective learning. This study determined the extent to which microteaching enhances classroom management competencies among physics teacher trainees in selected public universities in Western Kenya. Guided by Vygotsky's Social Development Theory, the study adopted a convergent parallel mixed-methods research design. The target population comprised physics teacher trainees, physics teacher educators, and Heads of Physics Departments from four public universities. Data were collected using questionnaires, observation schedules, interview schedules, and document analysis guides. Quantitative data were analyzed using descriptive and inferential statistics, while qualitative data were analyzed thematically. The findings revealed that microteaching significantly enhanced trainees' classroom management competencies, particularly in maintaining learner discipline, managing lesson transitions, engaging learners actively, improving classroom movement and positioning, and teaching through demonstration. Inferential analysis further established that microteaching had a statistically significant positive influence on classroom management competence ($t = 12.907$, $p < .001$). However, classroom observations indicated that some trainees had not fully translated perceived competence into consistent classroom practice. The study concludes that microteaching is an effective instructional approach for developing classroom management competencies among physics teacher trainees. The study recommends strengthening reflective supervision, increasing opportunities for repeated microteaching sessions, and integrating authentic classroom experiences into teacher education programmes to enhance classroom management competence before teaching practice.

Keywords: Microteaching, Classroom Management Competencies, Physics Teacher Trainees, Teacher Education, Professional Competence.

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INTRODUCTION

Teacher effectiveness extends beyond mastery of subject content to include the ability to create and maintain a learning environment that promotes meaningful learner participation. Among the professional competencies expected of beginning teachers, classroom management remains one of the most critical because it directly influences learner

engagement, instructional effectiveness, and academic achievement. Classroom management encompasses the knowledge, skills, and dispositions that enable teachers to establish classroom routines, manage learner behaviour, organize instructional activities, maintain learner attention, and create a positive learning climate. Without these competencies, even well-prepared instructional content may fail to achieve intended learning outcomes.

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The growing emphasis on competency-based teacher education has increased the need for teacher preparation programmes to equip pre-service teachers with practical classroom management skills before they enter actual classrooms. Traditional teacher education has often emphasized theoretical knowledge at the expense of practical teaching competencies, leaving many beginning teachers inadequately prepared to handle classroom realities. Consequently, teacher education institutions have increasingly adopted microteaching as a structured instructional strategy through which teacher trainees repeatedly practice specific teaching skills within simulated classroom environments. Through lesson presentation, peer teaching, observation, constructive feedback, and lesson revision, microteaching provides opportunities for teacher trainees to develop confidence and competence in managing classroom situations.

Physics teaching presents unique classroom management demands because it frequently involves demonstrations, practical activities, laboratory experiments, collaborative learning, and learner-centred instructional approaches. Teachers are therefore required to manage classroom movement, coordinate instructional transitions, maintain learner discipline, and facilitate active participation while ensuring safety during practical activities. These responsibilities require classroom management competencies that extend beyond general pedagogical knowledge. Consequently, exposing physics teacher trainees to structured microteaching experiences may provide opportunities to develop these competencies before undertaking teaching practice.

Although numerous studies have established the contribution of microteaching to the development of general teaching competencies, relatively few have specifically examined its influence on classroom management competencies among physics teacher trainees, particularly within Kenyan universities. Most previous studies have focused on instructional delivery, lesson planning, or communication skills, leaving limited evidence regarding classroom management in subject-specific contexts. This study therefore sought to determine the extent to which microteaching enhances classroom management competencies among physics teacher trainees in selected public universities in Western Kenya.

LITERATURE REVIEW

Microteaching Effectiveness on Development of Classroom Management Competencies

Classroom management has consistently been identified as one of the strongest predictors of effective teaching and successful learner outcomes. It involves the teacher's ability to establish orderly learning environments, maintain learner discipline, organize instructional activities, manage transitions, motivate learners, and respond appropriately to classroom

behaviours. Effective classroom management enables teachers to maximize instructional time, reduce disruptions, and promote active learner participation. Consequently, teacher education programmes increasingly recognize classroom management as a core professional competency requiring deliberate preparation before teachers enter actual classrooms.

Microteaching has emerged as one of the most effective approaches for developing classroom management competencies among pre-service teachers. Originally developed at Stanford University by Allen and Ryan (1969), microteaching was designed to provide teacher trainees with opportunities to practice specific teaching skills in simplified classroom situations before transferring those skills to authentic teaching environments. Through repeated cycles of planning, teaching, observation, feedback, reflection, and reteaching, trainees progressively improve their classroom management techniques while developing confidence in handling instructional situations.

International studies consistently demonstrate that microteaching contributes significantly to classroom management development. In the United States, Emmer and Sabornie (2016) observed that teachers with strong classroom management skills were better able to establish classroom routines, minimize learner disruptions, and maximize instructional time. Similarly, Brophy (2017) reported that effective classroom management strengthened teachers' capacity to implement learner-centred instructional strategies, formative assessment, and differentiated instruction. More recent studies in Europe have shown that structured microteaching enhances teachers' abilities to monitor learners, coordinate lesson transitions, and apply positive reinforcement strategies that reduce disruptive behaviours. In Asia, video-assisted microteaching has enabled teacher trainees to improve classroom presence, voice projection, gestures, and movement within the classroom, thereby strengthening teacher authority and learner engagement.

Within Africa, studies have equally demonstrated the effectiveness of microteaching in developing classroom management competencies. Research conducted in Nigeria established that teacher trainees who participated in structured microteaching became more competent in maintaining learner attention, questioning effectively, and applying reinforcement strategies during lesson delivery. Studies from Ghana further reported improvements in teachers' abilities to organize lesson routines and manage classroom activities, while South African research highlighted the contribution of microteaching in preparing teachers to manage diverse and inclusive classrooms through differentiated instruction and collaborative learning strategies.

In Kenya, the implementation of the Competency-Based Curriculum has further heightened the importance of classroom management competencies. Learner-centred instructional approaches require teachers to effectively coordinate group activities, facilitate discussions, supervise practical work, and maintain learner discipline while encouraging active participation. Kenyan studies have shown that microteaching enhances teacher trainees' ability to establish classroom routines, manage laboratory activities, coordinate group discussions, and facilitate learner-centred instruction. Nevertheless, available studies have largely focused on biology, chemistry, and mathematics teacher education, with limited evidence concerning physics teacher trainees despite the practical nature of physics instruction.

Despite substantial evidence supporting microteaching, several limitations remain. Critics argue that simulated teaching environments cannot fully replicate the complexity of authentic classrooms characterized by diverse learner behaviours, large class sizes, and unpredictable classroom dynamics. Additionally, the quality of supervision and feedback varies considerably across institutions, influencing the extent to which trainees develop classroom management competence. These gaps underscore the need for further empirical investigation into the effectiveness of microteaching in developing classroom management competencies among physics teacher trainees in Kenyan universities.

METHODOLOGY

The study adopted a convergent parallel mixed-methods research design guided by Vygotsky's Social Development Theory. The design enabled quantitative and qualitative data to be collected concurrently, analyzed independently, and integrated during interpretation to provide a comprehensive understanding of the effectiveness of microteaching in developing classroom management competencies among physics teacher trainees. The study was conducted in four selected public universities in Western Kenya offering Bachelor of Education (Science) programmes.

The target population comprised physics teacher trainees, physics teacher educators, and Heads of Physics Departments. Teacher trainees were selected through simple random sampling, while physics lecturers and Heads of Departments were purposively selected because of their direct involvement in supervising microteaching. Data were collected using structured questionnaires administered to teacher trainees, observation schedules during live microteaching sessions, semi-structured interview schedules for lecturers, and document analysis guides. The research instruments were validated by experts in science education, while reliability of the questionnaire was established using Cronbach's alpha coefficient. Quantitative data were analyzed using descriptive

statistics, including frequencies, percentages, means, and standard deviations, together with inferential statistics comprising independent samples t-tests and one-way analysis of variance (ANOVA) at a significance level of 0.05. Qualitative data obtained from interviews and classroom observations were analyzed thematically and integrated with quantitative findings to facilitate triangulation and strengthen the credibility of the study's conclusions. These procedures enabled the study to comprehensively examine the contribution of microteaching to the development of classroom management competencies among physics teacher trainees.

Microteaching Effectiveness on Development of Classroom Management Competencies

Classroom management is widely recognized as one of the most essential competencies for effective teaching. Over the years, research has indicated that classroom management skills directly influence teaching effectiveness, students' learning experiences, and the overall academic achievement of learners (Aronson, 2017). Effective classroom management ensures an environment that fosters optimal learning, which is integral to the development of teaching competencies such as communication, instructional delivery, and student engagement (Jones & Jones, 2016). It refers to the teacher's ability to create and maintain an orderly, productive learning environment through strategies such as setting rules, organizing activities, motivating learners, and addressing disruptive behavior.

For many novice teachers, managing a classroom effectively is more challenging than delivering content knowledge, since it requires constant decision-making, quick adaptation, and strong interpersonal skills. Microteaching, with its focus on short, structured teaching episodes, has become an important tool in helping pre-service teachers develop these competencies before entering full classroom contexts.

Globally, research shows that microteaching strengthens novice teachers' ability to establish classroom control and maintain learner engagement. Early work at Stanford University positioned microteaching as a way of practicing teaching skills, such as giving instructions, handling questions, or reinforcing behavior, which are central to management (Allen & Ryan, 1969). More contemporary studies have confirmed this impact. For example, in Europe, Groschner *et al.*, (2019) reported that microteaching improved teachers' skills in monitoring students, transitioning between activities, and using positive reinforcement, all of which reduce off-task behavior. In Asia, video-based microteaching has been widely used to develop teachers' self-awareness about voice, gestures, and positioning, elements of teacher presence that strongly influence classroom discipline (Remesh, 2013; Jeon, 2025). These findings suggest that microteaching

provides not only technical practice but also reflective opportunities that enhance teachers' authority and control in class.

Classroom management has been extensively studied, with several scholars recognizing it as a crucial factor for the development of a competent teacher. Effective classroom management is linked to various teaching skills, including the ability to establish clear expectations, create a supportive learning environment, and employ various pedagogical strategies that engage students. According to Emmer and Sabornie (2016) in United States, teachers with effective classroom management skills are better able to establish routines that allow for smoother transitions, minimize disruptions, and allocate more time for instructional activities. These skills also help teachers manage diverse student behaviors, which is increasingly vital in today's classrooms.

In developed countries, studies have demonstrated that teachers with strong classroom management skills are more likely to create environments conducive to the development of other professional competencies. For instance, a study by Brophy (2017) in USA, showed that classroom management directly influences a teacher's ability to develop effective instructional practices, such as differentiation, formative assessment, and collaborative learning. Moreover, teachers who exhibit effective classroom management are often more confident in implementing innovative teaching strategies and using technology in their classrooms (Rimm-Kaufman & Sandilos, 2020).

In addition, microteaching has been credited with helping pre-service teachers apply proactive management techniques rather than relying solely on corrective measures. For instance, studies in India have shown that trainees who undergo microteaching are more likely to prepare clear lesson objectives, use structured questioning, and design engaging activities, thereby reducing classroom disruptions (Luo, 2024). In Turkey, Goktalay and Bal (2021) found that microteaching enabled student teachers to anticipate potential classroom challenges and plan preventive strategies such as structured routines and scaffolding. This proactive orientation indicates that microteaching supports a shift from reactive discipline to preventive and developmental management.

In African contexts, microteaching has also proven useful in strengthening classroom management competencies which includes maintaining attention, classroom movement and stimulus variation though challenges of implementation remain. In Nigeria, Adeyemi (2018) found that student teachers trained through microteaching developed greater skills in maintaining learner attention and using questioning techniques to keep classes interactive. Similarly, Udo

(2019) showed that microteaching helped teachers practice reinforcement strategies, which improved discipline and motivation. In Ghana, Tamanja (2021) reported that microteaching improved the ability of teachers to prepare structured lesson plans with clear routines, thereby minimizing disorder during lessons. South African studies have highlighted the use of microteaching to prepare teachers for inclusive classrooms. Mahlangu (2020) noted that microteaching provided opportunities for trainees to practice strategies such as differentiated questioning and group management, which are crucial for handling diverse learners. Nevertheless, scholars also observe that overcrowded classrooms, resource limitations, and insufficient supervision often undermine the transfer of microteaching-acquired skills into authentic teaching contexts.

Kenyan studies provide additional evidence of the value of microteaching in developing classroom management competencies. Mwangi and Wanjohi (2018) reported that pre-service biology teachers who participated in microteaching displayed stronger abilities to establish routines and sustain learner participation during lessons. Kariuki (2019), working in chemistry education, found that microteaching enhanced teachers' ability to manage laboratory sessions by improving clarity in instructions and supervision of group experiments. Mutua (2020) observed that mathematics trainees benefited from microteaching in handling group work, ensuring learners remained focused during problem-solving sessions. In the context of the Competency-Based Curriculum (CBC), Oluoch (2021) emphasized that microteaching was crucial in preparing teachers to implement learner-centered approaches, which demand careful classroom control to maintain order during participatory learning. These findings indicate that microteaching supports not only traditional classroom management skills but also new competencies demanded by curriculum reforms however, its effectiveness in physics is not documented, hence the need for my study.

A critical strength of microteaching lies in the use of video recordings and peer feedback. Globally and locally, this technique allows pre-service teachers to observe their own interactions, reflect on moments of loss of control, and adjust accordingly (Sezaki, 2023). In Kenya, several teacher training colleges have adopted video microteaching, enabling trainees to critically analyze how they give instructions, respond to off-task behavior, or use movement within the classroom space. This reflective practice sharpens self-awareness, a key ingredient of effective classroom management.

Despite these benefits, limitations persist. A recurrent critique is that microteaching occurs in artificial environments where peers role-play as students. While useful, this simulation does not fully capture the unpredictability, emotional dynamics, or behavioral

diversity of real classrooms (Thangaraju, 2023). Consequently, teachers who excel in microteaching sometimes struggle to maintain order in actual classes, particularly large ones with over 60 learners, common in many African contexts. Another limitation is the quality of feedback. When feedback is too general or sugarcoated to avoid offending peers, trainees may miss opportunities to learn concrete management strategies (Jeon, 2025).

Subject-specific research also reveals variations in how classroom management competencies are acquired through microteaching. In science subjects such as chemistry and biology, managing laboratory or fieldwork activities requires additional competencies that microteaching can support through simulated experiments (Kariuki, 2019; Mwangi & Wanjohi, 2018). In mathematics, the focus is often on managing peer discussions, ensuring equitable participation, and monitoring problem-solving processes (Mutua, 2020). In language classes, microteaching helps teachers practice strategies for managing oral presentations, group readings, and writing workshops (Luo, 2024). However, there is still limited exploration of how microteaching develops management skills in physics subjects where classroom settings differ significantly from traditional lecture-based formats.

The integration of technology into microteaching has opened new opportunities for classroom management training. Recent studies in Asia and Europe show that virtual reality (VR) simulations expose trainees to realistic classroom scenarios, including disruptive behaviors, thereby strengthening their adaptive responses (VR Microteaching Trials, 2025). In Kenya, while such innovations are still emerging, there is growing interest in digital microteaching platforms that can replicate large class sizes and provide feedback on interaction management. The adoption of these tools could significantly enhance the authenticity of microteaching in developing classroom management competencies.

Equity issues also deserve attention. In well-resourced contexts, microteaching often benefits from structured rubrics, video technology, and trained supervisors. In contrast, African and Kenyan institutions

sometimes face resource constraints, limiting microteaching to small groups with minimal technology support. This disparity affects the depth of classroom management skills acquired, as teachers in resource-poor contexts may lack opportunities for reflective analysis or detailed feedback (Udo, 2019).

Despite the growing recognition of the importance of classroom management as a teaching competence, research on the influence of microteaching in enhancing these competencies, particularly among physics teacher trainees, remains limited. While there are studies that have explored the general impact of microteaching on teacher development (Beasley & Kember, 2019), the specific influence of microteaching on physics teacher trainees has not been adequately addressed. Given the practical nature of physics teaching, which requires not only a solid understanding of scientific concepts but also effective pedagogical strategies, microteaching presents a valuable opportunity for future physics teachers to develop both content knowledge and teaching competencies.

In this study the researcher established that, microteaching provides an effective platform for developing classroom management competencies that are fundamental to successful teaching. Consequently, teacher preparation programmes should emphasize repeated supervised teaching practice that exposes teacher trainees to realistic classroom situations requiring learner engagement, classroom organization, communication, and behaviour management. Teacher education institutions should therefore strengthen mentorship and reflective supervision during microteaching to ensure that classroom management competencies are fully developed before teacher trainees proceed to teaching practice.

RESULTS AND DISCUSSIONS

This section examined how microteaching contributes to the development of classroom management competencies among physics teacher trainees in selected universities in Western Kenya. The study had five items testing classroom management competencies of the physics teacher trainees. The findings were as shown in Table 1 below.

Table 1: Development of Classroom Management Competencies among Physics Teacher Trainees in Microteaching

	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Total
	N	%	N	%	N	%	N	%	N	%	
Control student in a lesson.	3	1.9			7	4.3	67	41.6	81	50.3	158
Aptly transitions between activities	1	0.6			4	2.5	64	39.8	89	55.3	158
Engage all students actively in the lesson.	1	0.6	1	0.6	2	1.2	46	28.6	108	67.1	158
Improved spatial awareness and movement	2	1.2			10	6.2	50	31.1	96	59.6	158
Effective teaching by demonstration	1	0.6	1	0.6	1	0.6	39	24.2	117	72.7	159

The results presented in Table 1 indicate that majority of respondents perceived microteaching as having a positive influence on their ability to maintain discipline during lesson delivery. Specifically, 81 (50.3%) respondents strongly agreed and 67 (41.6%) agreed, representing a combined agreement of 148 (91.9%). Only 7 (4.3%) respondents were neutral, while 3 (1.9%) strongly disagreed.

These findings imply that microteaching significantly enhances physics teacher trainees' classroom management competencies. This was evident in maintaining discipline and creating an orderly learning environment. The high level of agreement indicates that

the structured practice, feedback, and reflective experiences embedded in microteaching enabled trainees to develop practical behavior management strategies and the confidence required to respond effectively to classroom disruptions. Effective classroom discipline was essential for meaningful learner engagement and instructional effectiveness.

Similarly, qualitative findings from the open-ended interviews corroborated the quantitative results by reinforcing the critical role of microteaching in enhancing physics teacher trainees' classroom management competencies as presented in Table 2 below.

Table 2: Enhanced Ability to Control Classroom Behaviour and the Learning Environment

			Yes		Total
			N	%	N
Enhanced ability to control classroom behaviour and the learning environment	Gender	Male	85	81.7%	104
		Female	51	89.5%	57
		Total	136	84.5%	161
	Institution	Kaimosi Friends University	22	84.6%	26
		Kibabii University	39	83.0%	47
		Moi University	47	85.5%	55
		University of Eldoret	28	84.8%	33
		Total	136	84.5%	161

Microteaching was found to be a very effective strategy for developing classroom management competencies. This was particularly in managing learner behavior and maintaining classroom discipline. Teacher trainees tied the improvement to the repetitive nature of microteaching which provided opportunities to practice, receive feedback, and refine classroom management techniques in a supportive environment. For example, one trainee remarked "microteaching has made it easier for me to realize when a student is not paying attention or dreaming". Similarly observed that, "I am able to keep my students disciplined during my lessons". These narratives cement the thinking that microteaching fosters not only the technical skills required to manage classroom behavior but also the situational awareness and confidence necessary for proactive classroom management.

Classroom dynamics management was another area that physics teacher trainees perceived to be positively influenced by microteaching. One of the teacher trainees remarked, "classroom management has become easier...just like eye movement, questioning techniques, capturing learners' attention and making the lesson dynamic". Another teacher trainee further observed, "through microteaching, I can manage the classroom quite effectively...and make the learning atmosphere more favorable". Clearly, microteaching facilitate teacher trainees to cultivate effective behavior management practices that contribute to orderly, learner-centered, and productive classroom environments.

The qualitative findings in Table 3a shown below support the quantitative results.

Table 3a: Effectiveness of Microteaching on Maintaining learner discipline throughout the lesson

	Not Demonstrated	Poorly Demonstrated		Moderately Demonstrated	Well Demonstrated	Very Well Demonstrated	Total
Course	Integrated Science	1	1	4	3	0	9
	Physics	0	4	5	5	2	16
	Total	1(4%)	5(20%)	9(36%)	8(32%)	2(8%)	25
University	Kaimosi Friends University	1	3	1	0	0	5
	Kibabii University	0	2	3	0	0	5
	Moi University	0	0	5	5	1	11
	University of Eldoret	0	0	0	3	1	4
	Total	1(4%)	5(20%)	9(36%)	8(32%)	2(8%)	25

Table 3b: Effectiveness of Microteaching on Effectively management of transitions between lesson activities

		Not Demonstrated	Poorly Demonstrated	Moderately Demonstrated	Well Demonstrated	Very Well Demonstrated	Total
Course	Integrated Science		1	5	3	0	9
	Physics		0	8	6	2	16
	Total	0(0%)	1(4%)	13(52%)	9(36%)	2(8%)	25
University	Kaimosi Friends University	0	1	3	1	0	5
	Kibabii University	0	0	5	0	0	5
	Moi University	0	0	5	5	1	11
	University of Eldoret	0	0	0	3	1	4
	Total	0(0%)	1(4%)	13(52%)	9(36%)	2(8%)	25

Table 3c: Effectiveness of Microteaching on teacher's confidence and lesson control

		Not Demonstrated	Poorly Demonstrated	Moderately Demonstrated	Well Demonstrated	Very Well Demonstrated	Total
Course	Integrated Science		0	5	4	0	9
	Physics		1	10	4	1	16
	Total	0(0%)	1(4%)	15(60%)	8(32%)	1(4%)	25
University	Kaimosi Friends University	0	0	5	0	0	5
	Kibabii University	0	1	4	0	0	5
	Moi University	0	0	5	6	0	11
	University of Eldoret	0	0	1	2	1	4
	Total	0(0%)	1(4%)	15(60%)	8(32%)	1(4%)	25

Table 3d: Effectiveness of Microteaching on teacher's appropriate use of reinforcement techniques

		Not Demonstrated	Poorly Demonstrated	Moderately Demonstrated	Well Demonstrated	Very Well Demonstrated	Total
Course	Integrated Science	1	1	3	3	1	9
	Physics	1	4	6	3	2	16
	Total	2(8%)	5(20%)	9(36%)	6(24%)	3(12%)	25
University	Kaimosi Friends University	1	3	1	0	0	5
	Kibabii University	1	2	2	0	0	5
	Moi University	0	0	5	5	1	11
	University of Eldoret	0	0	1	1	2	4
	Total	2(8%)	5(20%)	9(36%)	6(24%)	3(12%)	25

Table 3e: Effectiveness of Microteaching on teacher's effective movement and positioning in the classroom

		Not Demonstrated	Poorly Demonstrated	Moderately Demonstrated	Well Demonstrated	Very Well Demonstrated	Total
Course	Integrated Science	2	1	2	4	0	9
	Physics	3	4	4	1	4	16
	Total	5(20%)	5(20%)	6(24%)	5(20%)	4(16%)	25

		Not Demonstrated	Poorly Demonstrated	Moderately Demonstrated	Well Demonstrated	Very Well Demonstrated	Total
University	Kaimosi Friends University	3	2	0	0	0	5
	Kibabii University	1	2	2	0	0	5
	Moi University	1	1	4	4	1	11
	University of Eldoret	0	0	0	1	3	4
	Total	5(20%)	5(20%)	6(24%)	5(20%)	4(16%)	25

However, it also revealed that some trainees still struggled with discipline control in the actual microteaching practices. For instance, the findings indicated that 8 (32%) demonstrated discipline control well, 9 (36%) moderately, and 2 (8%) very well. However, 5 (20%) demonstrated the skill poorly, and 1 (4%) did not demonstrate it at all. This implies that, although trainees perceived strong improvement in discipline control as reflected in quantitative results in Table 1, some had not fully mastered practical discipline management strategies. The observed gaps may mean that, discipline management remains a complex competency requiring continuous rehearsal and feedback.

The academic staff interview findings reinforced both quantitative results from teacher trainees and observation results from the live microteaching sessions. The academic staff observed that microteaching enhanced teacher trainees' behavioral control techniques through routines such as avoiding "chorus answering," maintaining eye contact, and moving around the class to ensure attentiveness. They further emphasized that trainees developed classroom familiarity skills such as learning learners' names and improving teacher presence, critical attributes for learner-centered approaches to lesson delivery.

In summary, the triangulated findings suggested that microteaching was effective in improving discipline management competencies, but some trainees still demonstrated weak classroom control when observed in practice. This indicated that perception of improvement may be stronger than actual performance for some trainees, emphasizing the need for continued practice. These findings aligned with research showing that behavioural control skills are best developed through repeated rehearsal and structured feedback (Oliver & Reschly, 2010; Hattie, 2022).

Secondly, on microteaching enhanced trainees' confidence in handling transitions between lesson

activities, a total of 89 (55.3%) strongly agreed and 64 (39.8%) agreed, resulting in a combined agreement of 153 (95.1%). Only 4 (2.5%) were neutral, while 1 (0.6%) strongly disagreed as indicated in Table 1. This suggests that microteaching supported teacher trainees' development of lesson organization skills, including smooth movement from one activity to another. Effective transitions reduce time wastage, prevent learner distraction, and promote continuity of learning, hence strengthening classroom control and time management.

The open-ended responses on Table 4 below further explained that teacher trainees became more competent in organizing lesson activities, managing time effectively, and communicating instructions clearly to learners. The trainee teachers noted that microteaching helped them to arrange their instruction, save time, and communicate effectively with their learners. In support, one teacher trainee stated that "*microteaching has been very helpful to me... because it has improved my lesson planning and time management skills*", while another added that "*I would now communicate well, manage time well, preparing lesson plan with ease*".

Effective communication skills were also an important outcome of microteaching, with one trainee teacher stating that "*microteaching has helped me improve my communication skills... I can now give clear instructions which will reduce misbehavior and misunderstanding in class*". Similarly, another teacher trainee noted that "*microteaching has improved my communication... I learned to speak in simple language, make eye contacts, and control my voice*".

Teacher trainees additionally emphasized better presentation skills and transitions, as evidenced by one who said that "*I feel more confident in managing the transitions from one activity to another within my lessons because of my experience of microteaching*." Another participant added that "*it helped me improve on my time management... I gained skills in organizing the activities, transitioning smoothly, and avoiding wastage of time*."

Table 4: Ability to Acquire Organizational, Communication, and Time Management Skills

			Yes		Total
			N	%	N
Ability to acquire organizational, communication, and time management skills	Gender	Male	34	32.7%	104
		Female	25	43.9%	57
		Total	59	36.6%	161
	Institution	Kaimosi Friends University	4	15.4%	26
		Kibabii University	10	21.3%	47
		Moi University	31	56.4%	55
		University of Eldoret	14	42.4%	33
		Total	59	36.6%	161

The qualitative findings from live microteaching observations in Table 3a indicated that transitions were largely demonstrated at moderate and good levels. A total of 9 (36%) demonstrated transitions well, 13 (52%) moderately, and 2 (8%) very well. Only 1 (4%) performed poorly, and none failed to demonstrate the skill. This implied that most trainees could manage transitions, though the high proportion of moderate ratings suggests that trainees may still require support to achieve professional-level smoothness and pacing in transitions.

Moreover, the interview findings confirmed that microteaching improved trainees' operational pacing, set induction, and time management. Trainers emphasized that trainees developed better lesson flow by coordinating instructional steps and improving lesson pacing.

The triangulated findings on the same indicated that, microteaching strongly enhanced transition management skills. While trainees expressed very high confidence in questionnaire responses, the observation results suggested that many were still at a moderate

competency level, implying the need for continued refinement through further microteaching cycles. This supported the view that classroom routines and pacing improve through deliberate practice and reflective rehearsal (Ericsson *et al.*, 2018; Kraft & Papay, 2014).

Thirdly, the results on microteaching improved trainees' ability to engage learners in the lesson, the findings in Table 1 showed that, 108 (67.1%) strongly agreed and 46 (28.6%) agreed, giving an overall agreement of 154 (95.7%). Only 2 (1.2%) were neutral, while 1 (0.6%) disagreed and 1 (0.6%) strongly disagreed. This implied that microteaching improved trainees' learner engagement skills such as questioning, participation, and interactive teaching methods. Active engagement is a key classroom management strategy because learners who are actively involved are less likely to misbehave or lose attention.

Similarly, in Table 5 below the open-ended results, the teacher trainees indicated improvement in their abilities to actively engage the learners as well as hold their attention during the course of the lessons.

Table 5: Enhanced Ability to Engage Learners and the Use of Better Instruction Techniques

			Yes		Total
			N	%	N
Enhanced ability to engage learners and the use of better instruction techniques	Gender	Male	45	43.3%	104
		Female	21	36.8%	57
		Total	66	41.0%	161
	Institution	Kaimosi Friends University	11	42.3%	26
		Kibabii University	17	36.2%	47
		Moi University	23	41.8%	55
		University of Eldoret	15	45.5%	33
		Total	66	41.0%	161

For example, one participant stated that, *"it has helped me to improve my ability to engage students actively in the lesson."* Another stated, *"Microteaching has enabled me to actively engage students... and maintain student discipline during the lesson."*

Diverse modes of instruction were emphasized by some participants, as one participant indicated that *"I have learnt how to use questioning techniques explaining concepts effectively; has helped me to give clear*

instructions." Another stated that *"trying different methods like discussions and demonstrations you learn methods to keep learners engaged."* Lastly, some of the trainees realized the importance of learner-oriented approaches, as indicated by one participant who mentioned that, *"It has contributed by making the class lively and active participation by learners."*

Similarly, the observation results in Table 3 showed that teacher trainees demonstrated confidence

and control mostly at moderate levels: 15 (60%) moderately, 8 (32%) well, and 1 (4%) very well, while 1 (4%) was poorly demonstrated. This implied that while trainees perceived themselves as highly capable of engaging learners, some struggled to sustain engagement practically through reinforcement strategies. Engagement may therefore be developing but not consistently applied across all trainees.

Lecturers confirmed that microteaching enhanced learner engagement strategies such as stimulus variation, questioning management, and maintaining order during learner responses. Trainers also highlighted that trainees improved their ability to avoid ineffective routines such as chorus answering, which often reduces meaningful learner participation.

The findings implied that microteaching enhanced learner engagement skills, but actual classroom practice shows uneven application of reinforcement and engagement techniques. This suggested that engagement competence develops gradually and requires continuous mentorship to ensure consistent use of effective strategies (Hattie, 2022; Oliver & Reschly, 2010).

Moreover, on Improving Spatial Awareness and Movement within the Classroom, the findings in Table 1 showed that most respondents believed microteaching improved their classroom movement and spatial awareness. A total of 96 (59.6%) strongly agreed and 50 (31.1%) agreed, giving a combined agreement of 146 (90.7%). However, 10 (6.2%) were neutral and 2 (1.2%) strongly disagreed. This implied that microteaching improved trainees' classroom presence, positioning, and ability to monitor learners effectively. Teacher movement is important in maintaining attention, ensuring learner supervision, and preventing disruptive behaviours, thus improving overall classroom control.

Observation findings in Table 3 on the same revealed weaker performance in movement and positioning compared to trainees' perceptions. Results indicated that 4 (16%) demonstrated movement very well and 5 (20%) well, while 6 (24%) were moderate. However, 5 (20%) were poorly demonstrated and 5 (20%) not demonstrated. These findings implied that although trainees perceived improvement in movement and positioning, many were still unable to demonstrate effective classroom movement in practice. This suggests that movement and positioning may be among the most difficult classroom management skills to master, particularly in simulated environments where the class size is small and teacher trainees may not feel the need to move frequently.

Lecturers strongly emphasized non-verbal classroom management strategies such as sustained eye contact, walking around the class, and active monitoring. Trainers reported that microteaching helped trainees

internalize teacher presence and develop confidence in using physical movement to maintain discipline and attentiveness.

The integrated results indicated a mismatch between perceived improvement and observed practice. While most trainees believed they improved in spatial awareness, observation revealed that many still performed poorly. This implied that trainees may understand the importance of movement but require more structured coaching and repeated microteaching practice to apply the skill consistently. This finding supports evidence that non-verbal management skills are essential predictors of classroom order and learner engagement but require sustained training to master (Hattie, 2022).

Finally, on Teaching Effectively Through Demonstration, the results in Table 1 showed the highest level of agreement on this statement. A total of 117 (72.7%) strongly agreed and 39 (24.2%) agreed, giving an overall agreement of 156 (96.9%). Only 1 (0.6%) was neutral, while 1 (0.6%) disagreed and 1 (0.6%) strongly disagreed. This implied that microteaching greatly enhanced trainees' practical teaching competence, particularly in using demonstrations.

Demonstration is a key instructional technique in science and physics teaching because it supports concept clarity and learner understanding. The high agreement suggested that microteaching strengthened trainees' confidence and skill in using hands-on approaches to enhance learning outcomes. Although demonstration was not directly listed, the observation indicator of "*demonstrates confidence and control in lesson delivery*" is closely related. Most trainees were rated moderate (60%) and well (32%), suggesting that demonstration and delivery confidence were still developing.

Lecturers reported that microteaching enhanced trainees' instructional techniques through stimulus variation and improved lesson presentation. Trainers emphasized that microteaching reduced fear and built confidence, enabling trainees to demonstrate stronger teacher presence during lesson delivery.

These findings implied that microteaching improved trainees' demonstration-based teaching skills and confidence, but observed results suggest that some trainees still demonstrated moderate mastery in actual delivery. This indicated that while trainees strongly perceive improvement, the refinement of demonstration skills may require continued rehearsal and deeper content mastery, particularly in physics instruction.

Discussions on Classroom Management Competence

The integrated findings from the questionnaire, observation schedule, and interview schedule confirm that microteaching positively influenced trainees'

classroom management competencies. Questionnaire findings showed very high agreement (above 90%) across all items, indicating that trainees perceived substantial improvement in maintaining discipline, managing transitions, engaging learners, improving spatial awareness, and teaching through demonstration.

However, observation results revealed that although many trainees demonstrated classroom management skills at moderate to good levels, some competencies particularly movement or positioning, reinforcement techniques, and discipline maintenance which were inconsistently demonstrated. This suggested that trainees perceived improvement may exceed their practical mastery in some areas. Interview findings reinforced that microteaching developed classroom management through psychological readiness, teacher presence, behavioural routines, and pacing skills.

Overall, the findings under this objective implied that microteaching provided a low-risk environment that strengthened classroom management through repeated rehearsal and structured feedback. These findings supported the view that microteaching strengthens teaching competence through repeated practice and reflective improvement (Allen & Ryan, 1969; Ericsson *et al.*, 2018). This supported social cognitive theory, which emphasized that mastery experiences build self-efficacy and professional competence (Bandura, 1997; Tschannen-Moran & Hoy, 2021). The findings also aligned with evidence that non-verbal strategies such as movement and eye contact are essential predictors of learner engagement and classroom discipline (Hattie, 2022; Oliver & Reschly, 2010).

Therefore, microteaching served as a structured platform for developing both psychological confidence and practical classroom control skills needed for effective teaching.

Inferential Statistics on Microteaching and Development of Classroom Management Competence

In addition to descriptive analysis, inferential statistics were conducted to determine whether microteaching significantly influenced the development of classroom management competence among physics teacher trainees. A composite index referred to as the Development of Classroom Management Competence (DCMC) Index was computed to measure trainees perceived improvement in classroom management skills acquired through microteaching. The index was derived by summing scores from five Likert-scale items measuring key classroom management competencies, including learner discipline, lesson transitions, learner engagement, teacher movement within the classroom, and demonstration skills, and dividing the total score by five. The DCMC Index therefore ranged from 1 to 5, where higher scores represented stronger perceived improvement in classroom management competence.

The distribution of DCMC Index scores were presented in Table 6 below. The minimum index score was 1.00 while the maximum was 5.00. The results showed that the majority of respondents scored above 4.00, indicating that most trainees perceived microteaching an effective strategy in enhancing their classroom management skills.

Table 6: Distribution of DCMC Index Scores

DCMC index	Frequency	Percent
1.00	2	1.3
1.80	1	0.6
3.80	3	1.9
4.00	10	6.3
4.20	13	8.2
4.40	31	19.5
4.60	38	23.9
4.80	27	17.0
5.00	34	21.4
Total	159	100.0

To facilitate interpretation, the DCMC Index scores were further categorized into a binary variable referred to as DCMC Change, where mean scores below 4.00 were classified as no improvement, while mean

scores of 4.00 and above were classified as improvement. The descriptive statistics of the DCMC Index by this categorization were presented in Table 7.

Table 7: Descriptive Statistics of DCMC Index

DCMC Change		N	Mean	Std. Deviation
DCMC Index	Improvement	153	4.6105	0.29717
	No improvement	6	2.5333	1.41798

The results indicated that trainees categorized as having improvement recorded a higher mean DCMC Index score ($M = 4.61$, $SD = 0.30$) compared to those categorized as having no improvement ($M = 2.53$, $SD = 1.42$). An independent samples t-test showed that this

difference was statistically significant, $t(157) = 12.91$, $p < .000$ as in Table 8. This suggested that trainees who reported improvement in classroom management competence through microteaching had significantly higher mean scores than those who did not.

Table 8: Independent Samples t-test for DCMC Index

		t	df	Sig. (2-tailed)
DCMC Index	Equal variances assumed	12.907	157	0.000

Gender Differences in DCMC Index Scores

The study further examined whether classroom management competence development differed by gender. The independent samples t-test results revealed that there was no statistically significant difference in

DCMC Index scores between male and female trainees, $t(157) = -0.42$, $p = .675$ as shown in Table 9 below. This indicated that the influence of microteaching on classroom management competence was similar among both male and female trainees.

Table 9: Independent Samples t-test for DCMC Index by Gender

		t	df	Sig. (2-tailed)
DCMC Index	Equal variances assumed	-0.420	157	0.675

The findings suggested that microteaching provided a relatively uniform learning experience in classroom management development across genders. This might be attributed to the structured nature of microteaching, where all trainees received similar opportunities for practice, feedback, and reflection regardless of gender differences.

differed across the sampled universities. The descriptive statistics presented in Table 10 indicated that, mean DCMC Index scores ranged from 4.49 (Kibabii University) to 4.61 (University of Eldoret). Although slight variations were observed, the mean values across institutions were generally high, indicating that trainees from all sampled universities perceived microteaching as effective in developing classroom management competence.

Institutional Differences in DCMC Index Scores

The study also examined whether the effect of microteaching on classroom management competence

Table 10: Descriptive Statistics of DCMC Index by Institution

	N	Mean	Std. Deviation	Std. Error
Kaimosi Friends University	26	4.5462	0.33732	0.06615
Kibabii University	46	4.4870	0.53608	0.07904
Moi University	54	4.5185	0.55561	0.07561
University of Eldoret	33	4.6061	0.70620	0.12293
Total	159	4.5321	0.55339	0.04389

To establish whether these observed mean differences were statistically significant, a one-way analysis of variance (ANOVA) was conducted. The ANOVA results indicated that there was no statistically significant difference in DCMC Index scores across

institutions, $F(3, 155) = 0.31$, $p = .818$ (Table 11). This implied that the effect of microteaching on classroom management competence development was comparable across the four universities.

Table 11: ANOVA Results

DCMC Index	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.289	3	0.096	0.311	0.818
Within Groups	48.097	155	0.310		
Total	48.386	158			

Overall, the inferential analysis demonstrated that teacher trainees reported high levels of improvement in classroom management competence as a result of microteaching. The results further indicate that such improvement did not significantly vary by gender or institution, suggesting that microteaching may provide a consistent and effective approach for developing

classroom management skills among teacher trainees regardless of contextual differences across universities.

FINDINGS

Effectiveness of Microteaching on the Development of Classroom Management Competencies among Physics Teacher Trainees

The second objective of the study was to determine the extent to which microteaching enhances classroom management competencies among physics teacher trainees in selected universities in Western Kenya. The findings established that microteaching substantially enhanced the classroom management competencies of physics teacher trainees. Questionnaire results indicated that an overwhelming majority of the teacher trainees perceived microteaching as effective in improving their ability to maintain classroom discipline, manage transitions between lesson activities, engage learners actively, move purposefully within the classroom, and demonstrate concepts effectively during lesson delivery. Most respondents agreed that repeated teaching practice, coupled with constructive feedback, strengthened their confidence in controlling classroom behaviour and maintaining an orderly learning environment. These findings suggest that the structured nature of microteaching equips teacher trainees with practical classroom management skills that are essential for effective teaching.

Classroom observation findings largely supported the questionnaire results. During observed microteaching sessions, most teacher trainees demonstrated satisfactory competence in maintaining learner discipline, organizing classroom activities, and facilitating smooth lesson progression. However, observations also revealed that a number of teacher trainees experienced difficulties in managing learner behaviour consistently, maintaining learner attention throughout the lesson, and responding effectively to unexpected classroom situations. These findings indicate that although teacher trainees perceived themselves to possess high classroom management competence, actual classroom performance still reflected areas requiring further practice and refinement.

The qualitative findings from lecturer interviews further reinforced these results. Lecturers consistently reported that the cyclical process of lesson presentation, peer review, supervisor feedback, and lesson revision enabled teacher trainees to develop greater confidence and competence in classroom management. According to the lecturers, repeated microteaching sessions helped teacher trainees improve learner engagement, classroom movement, questioning techniques, lesson transitions, and proactive management of classroom behaviour. They further observed that reflective feedback enabled teacher trainees to identify weaknesses in classroom control and progressively refine their management strategies before proceeding to actual teaching practice.

Inferential statistical analysis further confirmed that microteaching had a statistically significant positive

influence on the development of classroom management competencies among physics teacher trainees. The analysis demonstrated that classroom management competence improved significantly following participation in microteaching. Consistent with the findings under the first objective, gender did not significantly influence the development of classroom management competencies, indicating that both male and female teacher trainees benefited similarly from the microteaching experience. Institutional differences, however, suggested variations in competency development across the participating universities, reflecting differences in the implementation of microteaching, supervision practices, and institutional learning environments.

Overall, the findings demonstrate that microteaching is an effective instructional approach for developing classroom management competencies among physics teacher trainees. The opportunities provided through repeated teaching practice, constructive supervision, peer evaluation, and reflective lesson improvement enabled teacher trainees to develop confidence and practical skills for managing classroom environments effectively. Nevertheless, the discrepancies between teacher trainees' self-perceptions and observed classroom performance underscore the need for additional opportunities for supervised practice to achieve higher levels of classroom management competence.

CONCLUSION

The study concludes that microteaching provides an effective platform for developing classroom management competencies that are fundamental to successful teaching. Consequently, teacher preparation programmes should emphasize repeated supervised teaching practice that exposes trainees to realistic classroom situations requiring learner engagement, classroom organization, communication, and behaviour management. Teacher education institutions should therefore strengthen mentorship and reflective supervision during microteaching to ensure that classroom management competencies are fully developed before trainees proceed to teaching practice.

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