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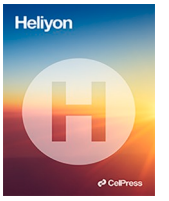

Research article

University student-teachers' diversity and attitudes toward classroom participation

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ABSTRACT

This study examined student-teachers' diversity and attitudes toward classroom participation in a Tanzanian university. A mixed research approach was used to answer three research questions: student-teachers' attitudes toward classroom participation, attitude differences based on their diversity, and the reasons for their attitudes toward classroom participation. The study involved 701 student-teachers in their second and third years of study. Data were collected through questionnaires and focus group discussions and were analysed using Statistical Package for Social Science and MAXQDA software. Results indicated that student-teachers cooperated with colleagues in groups rather than the whole classroom. The results also indicated diversity in classroom participation by gender, programme, and year of study. Further, it was revealed that student-teachers' attitudes toward classroom participation were based on prior experiences, cultural aspects, linguistic barriers, lecturer pedagogical practices, and teaching context. It is concluded that the student-teachers' attitudes toward classroom participation were variably associated with their diversity, and the reasons for the attitudes were mediated internally and externally. Therefore, it is recommended that lectures be conducted by employing apt techniques for fostering active participation to enrich the classroom with student-teachers and lecturers' voices in knowledge construction and sharing. The techniques should be gender, programme, and year of study sensitive while integrating students-teachers' internal and external mediating factors to create interactive classroom moments that encourage knowledge creation and sharing among the classroom members.

1. Background to the study

Students' participation in a classroom talk through collaboration and interaction during teaching and learning is an ideal of 21st-century education provision [1–3]. Students' participation has been one of the most important topics of concern in teaching and learning at different levels of education [4,5]. In teacher education, focusing on student-teachers' participation during teaching and learning is crucial as it will enable them to promote classroom interaction among pupils in their future teaching undertakings [6]. However, it is worth noting that classroom participation that promotes equality in learning is essential for students' learning outcomes. Equality in classroom participation creates a learning environment whereby all students thrive jointly for the best end, regardless of their diversity [7]. Individual characteristics, for that matter, make students different and unique for complementary purposes. This heterogeneity will likely contribute to how students approach and benefit from a particular educational programme, especially in

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teaching and learning [8].

Different policies, strategies, and plans have been implemented worldwide concerning students' diversity to ensure equality in classroom participation. For instance, the Global Agenda 2030 goal four (target seven) observes the need for education to care for learners' diversity [3]. Accordingly [3], recommends teaching to focus on meeting the diverse learning needs of learners through changing structures and content, including curricula, pedagogy, assessment, and others. The recommended pedagogy is learner-centred, focusing on active classroom participation of all children regardless of their diversity. In learner-centred pedagogy (LCP), learners are considered active participants in their learning, with their education shaped by their interests, prior knowledge, and active engagement [9]. The teaching and learning process focuses on learners' meta-cognitive skills, such as collaborative learning and questioning, to justify and validate arguments. Students, for that matter, are assured of opportunities to talk, ask or answer questions, make comments, and work collaboratively in groups. This involvement increases their reasoning, critical thinking, creativity, and problem-solving skills.

While the purpose of LCP was to make learners responsible for their learning through active involvement, research indicates that students' classroom participation at various levels of education is not yet imminent as expected [10]. LCP, being regarded as a home of student classroom participation, has been challenging to implement ([11–14]. The challenge compels many educators to use unidirectional teaching methods, which hardly allow interaction during teaching and learning [15,16]. The reasons usually put forth as an excuse include large class size, lack of resources, nature of the curriculum, and assessment [6,17–19]. Moreover, educators often complain about students' passive behaviour in class sessions, thus making the moments non-interactive learning environments [10].

Less student participation in classroom teaching and learning has necessitated Tanzania to include education in its development plans with a critical outlook. The Tanzania Development Vision 2025 targets providing meaningful quality education to everyone regardless of their differences by 2025 [20]. Likewise, the Education Sector Development Plan [ESDP] (2016/17- 2020/2021) intends to foster creativity, critical thinking, problem-solving and outcome-oriented teaching and learning irrespective of race, gender, geographical location, and disabilities [21]. However, the challenge facing various educational reforms in some countries, including Tanzania, has been implementing LCP that meets the needs of diverse learners in classrooms. Most classrooms have limited learning resources, large classes, and teachers inadequately trained [22,23]. Sometimes, LCP lacks the prominence it deserves [24], such as students' readiness, interest, and active participation [16,25]. There is a virtual absence of discussions, group work, and questions and answers in LCP-related practices [14,16]. Even when teachers try to practice LCP, students are inactive in participating in classroom talk [10,16].

[6] insist that teacher education programmes should focus on student-teachers' active participation to promote it among pupils in the teaching profession. The classroom barriers to practising LCP and inactive participation behaviours of students in the classroom may result in exclusionary practices among student-teachers after graduation. Studies suggest that research across education systems needs to be done in teacher education-providing institutions, including universities, to expose the status of student-teachers' classroom participation for the prosperity of the teaching profession [17,26]. Research needs to address students' diversity in their participation [7,15,24,27–29] and a deeper understanding of their perceptions [4,6]. The current study examined student-teachers' diversity and their attitudes toward classroom participation and was guided by the following research questions.

1. What are student-teachers' attitudes toward classroom participation?
2. How do student-teachers differ in attitudes toward classroom participation based on their diversity?
3. What are the reasons for student-teachers' attitudes toward classroom participation?

2. Literature review

2.1. Theoretical base

This study used the Diversity Pedagogy Theory (DPT), which recognises students' active learning roles [30]. The theory maintains that, regardless of teachers' importance, students can easily and consistently be unwilling and ignore to participate during classroom talk due to their differences which sabotage their learning and minimise their significance. The students are encouraged to become conscious of diversity, which will help them examine their prejudices and attitudes and be more accepting of differences in themselves and others. The DPT views the act of engagement in teaching and learning tasks as a function closely induced by the student's cultural constituents, such as norms, values, and competencies students learn in their homes and communities. In turn, these constituents present essential insights about them (student-teachers), including their actions and knowledge. In the vein of DPT, this study delves into students' willingness or unwillingness to participate due to their diversity and how students can become conscious (reasons) of their diversity to help them examine their attitudes and accept their difference for successful classroom participation.

2.2. The Notions of diversity and classroom participation

The Global Education 2030 Agenda defines diversity as 'people's differences which may relate to their race, ethnicity, gender, sexual orientation, language, culture, religion, mental and physical ability, class, and immigration status [3], p. 7. Diversity is defined as 'the presence of differences within a given setting which may include gender, race, ethnicity, religion, nationality, sexual orientation, place of practice, and practice type' [31], p. 31. Usually, students' diversity is represented by students' under-representation, disadvantage, or vulnerability [32]. Students' diversity is considered beliefs, perspectives, and attitudes of discrimination or similarity among groups [29]. This study defines diversity as student-teachers' differences within a classroom setting. The study focuses on three

aspects of diversity, including gender, year of study, and programme of study. These aspects are considered vital for active student-teachers' classroom participation during teaching and learning in the Tanzanian context, as the connotation of diversity depends on cultural context [33].

On the other hand [26], define classroom participation as students' engagement in the classroom that expresses their active task involvement by showing focused attention, active, quick, and intense effort, verbal participation, persistence, and positive emotion. It is also "considered as paying attention, being on task, and responding to questions" [10,26,34] classified classroom participation into activities such as students' asking and answering questions, giving explanations, discussing, making dialogues, and presentations. In this study, classroom participation is viewed as an active student-teachers' engagement in the teaching and learning process through involvement (asking or answering questions, making comments) and cooperating in groups during the teaching and learning process. Although teachers' pedagogy and classroom situation during teaching and learning determine students' participation quality and magnitude [7,35], students can consistently become unwilling to participate actively because of their inherent or assumed differences.

Classroom participation enables students to attain multiple positive learning results, including academic achievement and educational aspirations [26,36]. Classroom participation improves students' logical thinking and metacognition activities [15], creates enjoyment and satisfaction in sharing ideas [37,38], improves students' persistence in schools and colleges [39]. Moreover, it shapes students' educational experiences [17]. Classroom participation motivates students, supports their learning, improves communication, and promotes higher-order thinking skills [34]. However, studies indicate that most students are reluctant to participate for several reasons [10,11,16,40]. Research indicates that students who actively and frequently participate in classroom activities perform better on the examinations than those who rarely do or do not [41]. Therefore, all students in the classroom need to participate in teaching and learning to improve their educational performance.

2.3. Students diversity and classroom participation

Previous researches provide mixed feelings on the role of diversity in predicting students' participation. For instance Ref. [42], summary in a meta-analysis indicates that male students dominate verbal participation compared to female students. In addition, research conducted in Norway found a gender classroom participation gap favouring males. However, the country is one of the highest ratings for gender equality in the world [43]. Similarly [44–46], indicate that females are less likely to ask questions, and there was high participation of male students than females.

However, other studies found no in-class participation gender gaps, suggesting that classroom characteristics likely influence the presence and size of gender gaps [47]. Findings also reveal that females were more likely to participate [27] for functional reasons and males for sycophantic reasons [48]. Female students were predicted to prefer the minority and small groups composed only of females [49,50]. [43] investigated the effect of various classroom characteristics on gender disparities in participation and found that class size had an enormous impact. The conflicting findings on the sex aspect could be measured from a biological perspective rather than a social and psychological construct [47]. Focusing research on student-teachers' participation concerning sex comes up with different social and psychological perspectives.

Research also indicates that the course of study may pose a particular stance on student readiness and willingness to participate actively in classroom processes [51]. indicate that students pursuing natural science courses are more likely to ask questions during teaching than arts or social sciences students. On the contrary [52], indicate that students in the arts and social sciences are likelier to talk for longer than natural sciences students. Further [52], assert that the confidence gained through frequent participation in classroom teaching processes creates an experience that influences willingness to participate. The literature also notes that lower-class levels are less likely to participate in class than higher ones [52,53]. Lower-class participation is likely based on limited experience compared to the upper classes that are more experienced [54,55].

2.3.1. Determinants of students' classroom participation

Various reasons may determine students' classroom participation. For instance Refs. [10,47,53], and [56] have identified students' personalities and traits, including cultural background, little knowledge of what is taught, attitude, friends or peers, no interest in the topic, the course, language skills, lack of confidence, fear, and self-efficacy being among the reasons. In addition, these authors indicate that environmental factors determine classroom participation, including class size and seating arrangement. Another determinant is instructors' practices, including teaching methods, relationship with students, motivation, feedback provision, and course materials. Regarding class size [52], comment that larger classrooms encourage anonymity among students but raise the level of fear as they know they have to contribute before a larger crowd, resulting in a more considerable amount of disapproval from peers [52]. add that classrooms with over 40 students do not have enough time for high participation among the students.

In exploring determinants of classroom participation [34,57], categorised the reasons into internal and external. The authors indicate that the internal reasons include students' motivation, interest, confidence, responsibility, inclination, ability, knowledge, physical and learning disability. They also indicate that the external reasons include peers, teachers' behaviours, parental support, curriculum environment, and classroom climate. In line with students' external factors, classroom participation is influenced by social and collective inclusion of student diversity, such as class and gender [37,53,54]. Students' classroom participation is also a function of preconceptions that students bring into the classroom [6,57]. The present study focused on internal and external reasons influencing student-teachers' classroom participation.

3. Methods

This study was informed by a mixed-method research approach (MMRA). The approach enabled quantitative and qualitative data to be integrated to examine student-teachers' diversity and attitudes toward classroom participation. The concurrent triangulation design was used to collect comprehensive data for cross-validating and corroborating the findings [58–60]. From Quantitative data, attitudinal differences between student-teachers toward classroom participation concerning the selected aspects of student diversity were examined. Qualitative data were used to determine student-teachers' reasons for the attitudes toward classroom participation. Two research designs were employed: multiple embedded case study and an explanatory cross-sectional survey.

The study was conducted at a Tanzanian public university that has been preparing student-teachers for a long time and has several teacher education programmes [61]. The university also has colleges exclusively preparing teachers, thus providing a fertile ground for practical information on student-teachers' diversity in classroom participation. Bachelor of Education (B. Ed.) student-teachers in the second and third were involved because they were trained as prospective teacher educators for Teacher Colleges and had more chronological experience at the university.

3.1. Participants

The population for this study consisted of 2265 University Bachelor of Education student-teachers (Arts and Science). They were in the second and third years of study. The expected sample size (on a random sampling basis) was 1282 student-teachers, as indicated in Table 1 and based on Cohen et al. (2011) sampling procedure.

Out of the expected sample, 771 student-teachers assented to participate, and those who participated in filling and returning the questionnaire were 701. Despite the lower sample than expected, it was sufficient for quantitative statistical computations and qualitative analysis [60]. The participants for qualitative data were nest sampled from the prior randomly selected sample for the questionnaire. Twenty-four student-teachers were selected from each year of study to make 48 participants for FGDs. Six FGDs, each containing eight student-teachers, were conducted. Participation in the discussion sessions was voluntary after requesting participants during questionnaire filling.

3.2. Data collection and analysis

Data were collected through self-administered questionnaires and FGDs for quantitative and qualitative data, respectively. Regarding quantitative data, the study adapted the What Is Happening In this Class (WIHIC) data collection tool by Fraser et al. (1996) and validated by Kim et al. (2000) with a reliability of 0.88–0.97. The tool was adapted because it measures students' attitudes toward various educational aspects in the classroom environment, including students' classroom participation. Among other elements, the tool has subscales with acceptable Cronbach's alpha values for measuring students' involvement (0.82), cooperation (0.67) and equity (0.82). Before using the tool for data collection, it was piloted to 350 student-teachers of similar characteristics who were not part of this study. Cronbach's alpha values for the pilot were 0.82 (involvement), 0.79 (cooperation), and 0.80 (equity), which indicated higher internal consistency of subscale items. The Likert scale values ranged from 1 (*almost never*) to 5 (*almost always*). The scale values were computed into three groups during analysis to make them more precise and meaningful. In this case, *almost never* and *rarely* merged to form the first group (i.e., rarely*), sometimes* remained as a second group, and *almost always* and *often* formed a third group (i.e., often). The data collected were converted into continuous data to obtain descriptive data and make inferences of differences for gender, year, and programme of study. Regarding qualitative data, Six FGDs, each containing eight participants, were conducted. The discussion took 60–90 min, and each participant actively contributed. The discussions were voice recorded after the participants had assented to be recorded.

The quantitative (questionnaire) data were analysed using a Statistical Package for the Social Science (SPSS) Version 26. Descriptive data (percentage, mean, and standard deviation) were obtained to determine student-teachers' attitudes toward classroom participation. Inferential statistics were also obtained to determine the difference in student-teachers' participation based on gender, year, and programme of study. In particular, the independent samples *t*-test was used to determine the differences in classroom participation. The data were interpreted by using t-values, degree of freedom, mean differences and significance levels (Sig.), and confidence level of 0.05. Three assumptions guided the interpretation: (1) "female student-teachers do not participate in the classroom teaching as male student-teachers"; (2) "second-year student-teachers do not participate in classroom teaching as Third-year student-teachers"; and (3)"Arts student-teachers do not participate in classroom teaching as Science student-teachers." The differences were considered significant if the observed sig. Value and sig. (2) was $\leq$0.05. The FGD's voice-recorded data were primarily transcribed verbatim into texts from the recorded voices and then imported into the MAXQDA software. The transcriptions were organised into

Table 1
Population, sampling, and sample size.

Year of Study	Science		Arts		Population	Sampling Method	Science		Arts		Sample Size
	M	F	M	F	Total		M	F	M	F	Total
2 nd year	362	228	131	317	1038	Random	187	144	98	174	603
3rd year	373	253	249	349	1224		190	153	152	184	679
Total	735	481	380	666	2262		377	297	250	358	1282

groups of similar themes depending on their meaning per the study's objectives, particularly determining the reasons for student-teachers' attitudes toward classroom participation.

3.3. Ethical considerations

The research clearance was obtained from the office of the Vice Chancellor at the University of Dar es Salaam (UDSM) in Tanzania. The clearance was directed to the Regional and District Administrative Secretaries and the University Colleges, where data was collected. This procedure enabled the researchers to access the study areas without logistical or administrative barriers. Under Tanzania government circular letter Ref. No. MPEC/R/10/1 dated July 4, 1980, the Vice Chancellor of UDSM is empowered to issue research clearance to UDSM staff members and students on behalf of the government and the Tanzania Commission for Science and Technology (COSTECH). Apart from the research approvals, data collection was preceded by seeking participants' consent in which they signed the consent form to indicate their voluntary participation. Moreover, All the sources of information have been acknowledged accordingly.

4. Findings and discussion

4.1. Student-teachers' attitudes toward classroom participation

Student-teachers' attitudes toward classroom participation were analysed in three aspects, involvement, cooperation, and equity, as indicated in Table 2.

Table 2 indicates that the mean for cooperation (working in groups) was higher (M = 2.70) than equity (M = 2.65) and involvement (M = 2.22). Similarly, participants indicated that they often cooperated (82.3%) and were treated equitably in the classroom processes (72.5%). The involvement part (asking or answering questions, making comments) demonstrated the lowest percentage (42.8%) compared to other aspects, whereby most student-teachers were uncertain about involving themselves during the teaching and learning process (44.9%). The focused group discussion had similar findings where students indicated being positive in almost all aspects of participation except asking or answering questions in the classroom. The reluctance is testified by an excerpt from a focus group discussion expressing that "*it is crucial to participate in class personally, but it is frightening to stand before the whole class and give views. … when it is in a group context, there is no problem with that because few colleagues can challenge the given views* (DU- 2ST-4, May 15, 2021).

4.2. Student-teachers' classroom participation diversity

The findings indicated variability in student-teachers' classroom participation in gender, programme, and year of study.

4.3. Gender differences

It was assumed that *female student-teachers do not similarly participate in the classroom as male student-teachers do*. An independent-samples *t*-test was conducted to compare three aspects of classroom participation for male and female student-teachers. Table 3 shows the results.

The results in Table 3 indicate no statistically significant difference in classroom participation between male student-teachers (M = 2.22, SD = 0.624) and female student-teachers (M = 2.22, SD = 0.606); conditions: t (699) = −0.04, p = .966 on the aspect of involvement. The observed sig. p-value (0.966) was >0.05, indicating that male and female student-teachers were uncertain about involving themselves in asking questions, answering questions, and giving comments during the teaching and learning process. Contrary to involvement, the cooperation aspect indicated a statistical significance difference between male student-teachers (M = 2.67, SD = 0.494) and female student-teachers (M = 2.74, SD = 0.434); conditions: t (699) = −2.00, p = .046. The observed sig. p-value (0.046) was <0.05, implying that female student-teachers often work in groups more than male student-teachers during the teaching and learning process. There was no significant difference in the equity aspect between male student-teachers (M = 2.64, SD = 0.486) and female student-teachers (M = 2.66, SD = 0.442); conditions: t (699) = -0.72, p = .470. The observed sig. p-value (0.470) was >0.05, implying that male and female student-teachers were often treated equitably in classroom participation during teaching and learning. In the FGDs, student-teachers, regardless of their sex, agreed that male student-teachers participate more than female student-teachers. Some FGDS comments from the female and male sides revealed:

Table 2
Student-teachers' attitudes by involvement, cooperation, and equity (N = 701).

Participation	Minimum	Maximum	M	SD	Percentage (%)		
					Rarely	Sometimes	Often
Involvement	1.00	3.00	2.22	.616	12.3	44.9	42.8
Cooperation	1.00	3.00	2.70	.472	3.4	14.3	82.3
Equity	1.00	3.00	2.65	.468	3.9	23.6	72.5

Table 3
Classroom participation by gender.

	Gender	*N*	*Mean*	*SD*	*Sig.*	*t-value*	*df.*	*Sig (2-tailed)*	*M. difference*
Involvement	Male	413	2.22	.624	.29	−.04	699	.966	−.002
	Female	288	2.22	.606					
Cooperation	Male	413	2.67	.494	.03	−2.00	699	.046	−.072
	Female	288	2.74	.434					
Equity	Male	413	2.64	.486	.10	−.723	699	.470	−.026
	Female	288	2.66	.442					

> "Though all student-teachers are given equal opportunity to ask or answer questions, female student-teachers rarely show up to voluntarily participate in the classroom discussion. … Frankly speaking, it is not that we do not participate, but we do when pinpointed, which is not bad anyway!" (DU-6ST-5, 14 May 2021).

4.4. Differences in the programme of study

An independent-samples *t*-test was conducted to compare three aspects of classroom participation for B. Ed. (Arts) and B. Ed. (Science) student-teachers. The assumption was that "*B. Ed. (Arts) student-teachers do not similarly participate in the classroom as B. Ed. (Science) student-teachers*". Table 4 indicates the results.

The results in Table 4 indicate a statistically significant difference in classroom participation between B. Ed. (Arts) (M = 2.31, SD = 0.603) and B. Ed. (Science) (M = 2.15, SD = 0.616); conditions: t (699) = 3.505, p = .000 on the aspect of involvement. The observed sig. p-value (0.000) was <0.05 indicating that B. Ed. (Arts) student-teachers were uncertain about involving themselves in asking, answering, and giving comments during the teaching and learning process. Contrary to involvement, the cooperation aspect indicated no statistically significant difference between B. Ed. (Arts) (M = 2.71, SD = 0.468) and B. Ed. (Science) student-teachers (M = 2.68, SD = 0.475); conditions: t (699) = 0.800, p = .424. The observed sig. p-value (0.424) was >0.05, implying that B. Ed. (Arts) and B. Ed (Science) student-teachers often work in groups during the teaching and learning process. There was a statistically significant difference in the equity aspect between B. Ed. (Arts) (M = 2.89, SD = 0.441) and B. Ed. (Science) student-teachers (M = 2.62, SD = 0.485); conditions: t (699) = 1.980, p = .048. The observed sig. p-value (0.048) was <0.05 implying that B. Ed. (Arts) were often treated equitably in classroom participation during teaching and learning.

However, the results from the FGDs did not wholly support the statistical findings. It was revealed that B. Ed. (Science) student-teachers participate more than B. Ed. (Arts) student-teachers in the classroom by asking and answering questions and commenting on the teacher's instructions. B. Ed. (Arts) student-teachers affirmed that their counterpart participates more than they do. One of the advantages the student-teachers associated with the participation of the B. Ed. (Science) student-teachers is the nature of their disciplines which demands them to demonstrate problem-solving skills regularly. Such a stance is testified in the following excerpts from one of the FGDs: … in our recachers feature more than we do, but this does not mean we are weak and they are superior. They are forced by their subject, such as mathematics, you see! For example, if they do not ask about Mathematics and Science formulas, they eventually understand little or nothing… yes there you are! Our subjects are less complex such that we need to listen than argue. (MU-7ST-1, June 7, 2021).

4.5. Differences in the year of study

An independent-samples *t*-test was conducted to compare three aspects of classroom participation for the second-year and third-year student-teachers. The assumption was that "*second-year student-teachers do not participate in the classroom as the third-year student-teachers do*." Table 5 summarises the findings.

The results in Table 5 indicate no statistically significant difference in classroom participation between Second Year (M = 2.23, SD = 0.463) and Third Year (M = 2.20, SD = 0.474); conditions: t (699) = 0.556, p = .579 on the aspect of involvement. The observed sig. p-value (0.579) was >0.05, indicating that Second Year and Third Year student-teachers were uncertain about involving themselves in asking questions, answering questions, and providing comments during the teaching and learning process. The cooperation aspect also indicated no statistically significant difference between Second Year (M = 2.70, SD = 0.478) and Third Year (M = 2.69, SD = 0.465); conditions: t (699) = 0.168, p = .867. The observed sig. p-value (0.867) was >0.05, implying that second and third-year student-

Table 4
Differences in classroom participation by programme of study.

Participation	Prog. of Study	*N*	*Mean*	*SD*	*Sig.*	*t-value*	*df.*	*Sig. (2-tailed)*	*M. differences*
Involvement	B.Ed. Arts	291	2.31	.603	.805	3.505	699	.000	.164
	B.Ed. Science	410	2.15	.616					
Cooperation	B.Ed. Arts	291	2.71	.468	.940	.800	699	.424	.029
	B.Ed. Science	410	2.68	.475					
Equity	B.Ed. Arts	291	2.89	.441	.055	1.980	699	.048	.071
	B.Ed. Science	410	2.62	.485					

Table 5
Differences in classroom participation by year of study.

Participation	Year of Study	*N*	Mean	SD	Sig.	*t-value*	*df.*	Sig. (2-tailed)	*M. differences*
Involvement	Second Year	363	2.23	.463	.628	.556	699	.579	.026
	Third Year	338	2.20	.474					
Cooperation	Second Year	363	2.70	.478	.349	.168	699	.867	.006
	Third Year	338	2.69	.465					
Equity	Second Year	363	2.67	.463	.738	1.118	699	.264	.040
	Third Year	338	2.63	.474					

teachers often work in groups during teaching and learning. There was also no statistically significant difference in the equity aspect between Second Year (M = 2.67, SD = 0.463) and Third Year (M = 2.63, SD = 0.447); conditions: t (699) = 1.118, p = .264. The observed sig. p-value (0.264) was >0.05, implying that Second and Third Year student-teachers were often treated equitably in classroom participation during the teaching and learning.

The findings from FGDs corroborated the statistical findings from the questionnaire. The two categories of students explained that classroom participation depends mainly on someone's personality, like confidence and understanding. It was revealed that a student-teacher would contribute to the discussion if one had earlier prepared with the topic discussed in the class. They further indicated that a student-teacher would not bother to ask questions if the content taught was well understood. Delving into the arguments, one can safely highlight that the year of study is relatively insignificant for classroom participation. However, the quality of participation (which is not part of this study) may differ based on the chronological experience, that is, years of study. Third-year student-teachers are more experienced than their colleagues to warrant their participation with high quality. The quality of participation notion recurred in the FGDs, and one of the groups concluded that "*participating when in Third-year was better than when in Second-year*" (MU-7ST-4, June 7, 2021).

5. Reasons for student-teachers' attitudes towards classroom participation

Based on the FGDs, the findings revealed various reasons concerning student-teachers' attitudes toward classroom participation. Firstly, it was reported that student-teachers' past experiences were among the reasons for student-teachers' attitudes toward classroom participation. The discussion in almost all FGDs revealed that student-teachers were not used to active participation in their lessons in primary and secondary schools. They mostly listened and assimilated the teachers' talk with less or no refinement. A typical response from one of the FGDs verifies this:

> *Teachers have been talking to us; we write notes they have prepared … only that! So, participation in secondary or primary schools is not something one can think about; it is a new practice when seeing our university teachers trying to make us contribute to their lecture presentations as if we equally understand what they do. … it is fascinating!* (DU- 5ST-2, 14 May 2021)

The FGDs discussions also revealed that the student-teachers' prior knowledge about university education was somewhat misleading and contributed to their reluctance to participate actively in classroom teaching and learning. Some student-teachers believed that university education was provided through lectures only, and students should be attentive and read more after that. A typical response from one of the FGDs was that "*the understanding was that students at the university were not supposed to ask questions in lectures; they attend lectures and do extra readings for understanding*" (DU-2ST-2, 4 June 2021). The response may imply that student-teachers' prior knowledge before joining teacher education programmes influences future teachers' classroom behaviours and professional practices.

Secondly, student-teachers reported cultural elements (religion, tribe, and family orientation) influencing their attitudes toward classroom participation. Without pinpointing a specific denomination, religion was frequently mentioned in five FGDs as a factor that discouraged women from speaking up before men. It was religious indoctrination to humans to let men speak and provide a final decision. Women could be considered disobedient if they voiced out before men. Therefore, some female student-teachers have developed a fear of asking or answering questions or contributing to classroom sessions to maintain their religious beliefs. The finding somewhat draws attention to the credibility of such religious beliefs.

Besides religious beliefs, student-teachers also reported family orientation as a reason for student-teachers' attitudes toward classroom participation. Several student-teachers in four FGDs acknowledged that passive behaviour in the families was the unwritten principle that guided children across many Tanzanian families regardless of their tribal origin. One student-teacher in one of the FGDs said: *"I developed reticence during my childhood because my parents and elders never let me contribute my views on family issues."* Principally, families are the primary sources of children's socialisation. They set a strong base for children's future socialisation in other social groups. Some family orientations assist in developing self-determination and self-confidence, thus making them see it essential to actively participate in the teaching sessions. One of the typical responses from the FGD was as follows:

> *I am free to ask or answer questions during classroom talk. I have developed this confidence in my family, where every member can question and answer any family issue accordingly. So, I find it more or less the same as in the classroom because classes are like students' families and teachers to parents and other family members* (MU-3ST-2, 12 May 2021).

Thirdly, the language barrier was also reported to influence student attitudes toward classroom participation. Language

contributed to lower levels of participation, especially in asking and answering questions. Student-teachers feared speaking broken English and were unprepared to be laughingstocks before their colleagues. On the other hand, some students were shy of being too talkative in class. The following quotes from the FGDs testify:

> *"… asking-questions in the classroom is not my take … particularly when it demands asking in English" "… asking questions makes one be regarded as stubborn, so I usually asked and answered questions in my first and second year, but nowadays I do not do so to avoid being labelled"* (DU-3ST-4, 10 May 2021).

Fourthly, the findings also revealed inappropriate lecturers' pedagogical practices as one of the reasons for student-teachers' attitudes toward classroom participation. Student-teachers indicated that though most were not ready to engage in classroom participation, lecturers were also not ready to engage them in classroom discussions. Some did not ask questions or invite student-teachers to ask them questions. The discussions in the FGDs revealed a tendency of some lecturers' teaching practices to discourage student-teachers' participation. *They teach participation by lecturing, how do you practice?', 'now you get my point … that is what I meant because several lecturers do not make us practice what they advocate in teaching* (DU-3ST-4, 11 May 2021).

Finally, student-teachers reported the teaching context as another reason for the attitude toward classroom participation. They indicated that large classes were not readily supporting participation. In one of the FGDs, it was said: *what kind of participation can we expect when our class size is more than 400 student-teachers? Without saying, the class size automatically repels participation in many aspects!"* (MU-2ST-3, 12 June 2021).

6. Discussion

The study has revealed that university student-teachers are reluctant to participate in classroom talks and discussions. Most of them prefer working in groups to classroom discussions. In a real sense, there has been seen as challenging to implement LCP due to poor students' classroom participation during teaching and learning [12–14]. The findings are almost similar to what was reported by Refs. [10,11,40], and [16], who noted that students at various levels of education were reluctant and inactive in participating during classroom talk. Similarly [24,34], and [25] noticed poor students' readiness, interest, and active participation in teaching and learning. Though student-teachers were revealed to prefer working in groups to asking or responding to questions, active and quality classroom participation also involves students giving opinions, discussing in groups, and making dialogues [26,34]. If student-teachers focus only on cooperative learning and decline individual involvement, comprehensive learning may be far to reach. Cooperative learning may encourage lazy student-teachers' poor or no contributions. Sometimes, lazy student-teachers may avoid the tasks hoping their colleague will accomplish them. Student-teachers' hesitation to active classroom participation may lead to poor metacognition, educational experiences, and lack of confidence and self-determination. Active classroom participation, which involves all aspects of engagement, improves students' higher-order thinking and metacognition [15,34], creates enjoyment and satisfaction in sharing ideas [38,53]. Active classroom participation also shapes students' educational experiences [17]. Individual involvement assists student-teachers' development of confidence and self-determination. Students who actively and frequently participate in classroom activities perform better on examinations than those who rarely do or do not [38,41]. The findings have implications on how student-teachers may be encouraged to engage fully in classroom participation in order to attain comprehensive learning for their effectiveness as future professional teachers.

The study has also revealed a different level of diversity in student-teachers' classroom participation in gender (favouring males) and programme of study (favouring B. Ed. Science). The variability in student-teachers' participation was previously pointed out in the DPT by Ref. [30], explaining that students can consistently resist participating in classroom talk due to their differences, which may considerably affect their learning. Similar findings are explained by Ref. [43]. Further [44–46], observed that females are less likely to ask questions, and there was high participation of male students than females. There is a need for educational institutions to make efforts that will enable equal classroom participation among male and female student-teachers. For instance Ref. [47], suggested that classroom characteristics such as size and inclusive pedagogy may influence the gap in classroom participation between male and female students. In other words, an appropriate class size supported by inclusive pedagogy will likely attract balanced student-teacher participation. Female students are more likely to participate in the classroom with minority and small groups [27,43,49,50]. Achieving this type of class size will be a response to the Global Agenda 2030 goal four. It calls for education to encourage male and female students to participate [3]. Contrary, the gap in classroom participation between males and females hinders the provision of meaningful quality education to all students. If the status remains, the aspired education, as stated in Tanzania Development Vision 2025, would be difficult to reach [20].

The current study's findings differ from Ref. [52] findings on years of study [52]. noted the difference in years of study whereby lower classes were less likely to participate in class than higher class levels. The reported reason was that the lower classes had limited experience than the higher classes. The chronological experience is debatable when other motivation factors for participation intervene. For example, students can hardly participate for the sake when they have limited knowledge of what is being presented. For that matter, preparation for participation before classroom instruction is fundamental. Similarly [53], contend that although the motivation for student participation is diverse, an enabling environment set up by the teacher plays a significant role. It may safely be put that classroom participation depends on one's perception and ability concerning matters under discussion; thus, the chronological experience becomes secondary.

Regarding the programme of study, the findings of this study appear to reiterate the findings reported in Ref. [47]. Roca reports that natural science students are more likely to ask questions than arts or social sciences students. On the contrary, other earlier studies report different findings [51]. indicate that students in the arts, languages, and social sciences are likelier to talk and participate during

classroom discussions than those in the natural sciences. Similarly [52], reports that language students are credited for higher participation because their language fluency privileges them in classroom contributions. Programme taken by the students may influence their classroom participation in various ways [10,56]. Although the results between the current study and some previous ones seem to vary, a take-off point is that interdisciplinary deference emerges as one of the driving forces for student-teachers' classroom participation.

Further, this study has revealed that student-teachers' attitudes toward participation are associated with their inaccurate knowledge of the university, cultural aspects, linguistic barrier, lecturers' mediated reasons, and teaching context. The findings on knowledge inaccuracy are consistent with [53] that a low level of contextual knowledge attracts passivity among students in the classroom. In other words, student-teachers fear contravening the inaccurately perceived university education and do not demonstrate their full potential in classroom participation. The scenario is also supported by Refs. [10,56], and [37], who report that sometimes students are reluctant to participate in the classroom and become passive in the discussion because of fear, lack of self-efficacy, and confidence in breaching the prior setup classroom logistics.

Cultural elements, such as religious indoctrination, family orientations, and linguistic barrier, were the leading reasons for students' attitudes toward classroom participation [57]. Students enter the classrooms with preconceived information from religious indoctrination and how they were oriented at a family level. Adopting religious indoctrination in academic matters may be a misplaced act. Such an act may deter learning equality among student-teachers [20], thus hampering some MDGs, particularly Goal 3 concerning gender quality and women empowerment [3]. Family orientation's effect on students' attitudes toward classroom participation was also reported in Ref. [53] study as a source of students' passiveness in class because they tend to sit down and concentrate on writing notes. They associate the habit with students' family socialisation because most involved students admitted they did not prefer asking questions since childhood. Such students would instead request a friend to ask questions on their behalf. Besides, the linguistic barrier appears to be a close limitation for students to participate actively in the classroom. These findings are consistent with [37,62] that students' self-limitation, such as linguistic ability and self-efficacy, influences their perceptions of participation in classroom engagements. Self-limitation inculcates a sense of passivity such that most of the arguments others initiate are considered perfect and accepted unquestionably. Students with the self-limitation effect rarely consider knowledge sharing as a key to learning [47,57]. English language limitation in education has been an endemic topic of discussion in Tanzanian literature, indicating that students' less competence in the language creates a challenge to education provision. The status quo makes student-teachers sail in the same boat of difficulties in classroom participation.

The reasons for students' attitudes toward classroom participation are also associated with inappropriate lecturers' pedagogical practices. Similarly, educators are reported to use unidirectional teaching methods, which hardly allow interaction during teaching and learning and limit student participation [15,16]. Conducive teachers' pedagogical and teaching practices create a good participatory climate for classroom members in a particular lesson and determine students' participation quality and magnitude [35,47]. For that matter, lecturers can build a positive or negative relationship with students by the amount of respect, speech tone, and feedback they demonstrate to students. Classes with friendly, supportive, respectful, and positive lecturers promote constructive classroom discussion, while the opposite discourages it.

Finally, the teaching context was one of the reasons for student-teachers' reluctance to engage in the classroom actively. An equivalent observation was reported by Refs. [22,23], and [14] in terms of the class size's adverse effect on students. They note that a larger class size creates fear and anxiety among students as they have to participate before a larger crowd, resulting in much criticism from peers. Considerable class size promotes higher levels of student-teacher participation as it creates comfortability and enables lecturers to reach every student-teacher in the lecture rooms.

7. Conclusion, implication and recommendation

This study examined the student-teachers' attitudes and their differences toward classroom participation. It also examined the reasons for classroom participation. Findings indicated that student-teachers' were reluctant to participate in classroom talk and discussion. The participation slightly differed based on gender and year of study. The reasons for the attitude toward classroom participation are associated with factors within and beyond student-teachers. Based on the findings, three conclusions can be made. Firstly, the university student-teachers' free and active classroom participation is challenging as many hesitate to participate. Secondly, the gender aspect plays a significant role in classroom participation, whereby cultural circumstances disadvantage female student-teachers' participation due to family orientation and religious indoctrination. Thirdly, being in a different year of study is likely to influence student-teachers differently in classroom participation, favouring Science student-teachers over Arts student-teachers.

The study has various implications for student-teachers and lecturers' teaching techniques in the classroom. The lecturers are informed of the importance of teaching techniques that attract student-teachers' active involvement and participation. The techniques are expected to accommodate gender and programme of study differences while integrating students-teachers' internal and external mediating factors to create an interactive classroom environment. It should be noted that classrooms become the richest when various voices from lecturers and student-teachers merge in constructing and sharing knowledge. When student-teachers are passive in the classroom, it is pertinent for the lecturers to encourage them to participate actively. The current competency-based education being promoted globally in the 21st century requires student-teachers' active involvement in the instructional process.

For further research, it is recommended that interested researchers may conduct a similar study but focus on a wide area of study to include more universities. Widening the area of study broadens the power of generalisation. Further, researchers in the future may conduct a comparative study among various universities of different countries. The recommendation is based on the fact that this study

involved one university, which does not allow the findings to be safely generalised beyond the studied area.

Author contribution statement

Innocent Buberwa Rugambuka: Conceived and designed the experiments; Analysed and interpreted the data; Contributed reagents, materials, analysis tools or data; Performed the experiments; Wrote the paper. Blandina Daniel Mazzuki: Conceived and designed the experiments; Performed the experiments; Analysed and interpreted the data; Contributed reagents, materials, analysis tools or data.

Data availabsility statement

Data will be made available on request.

Declaration of competing interest

The authors declare no competing interests.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.heliyon.2023.e16364.

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