

# Preparing Teachers for Inclusive Education: Pre-Service Teachers' Knowledge, Perceptions and Experiences of Inclusive Pedagogy from Teaching Practice

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Various scholars have questioned the effectiveness of teacher education programmes in preparing teachers for inclusive education. This study examines how teacher education programmes prepare pre-service teachers for inclusive education in terms of perceptions, knowledge and pedagogy. The study uses focus group discussions to examine pre-service teachers' knowledge of inclusive education and their experiences of inclusive pedagogy from teaching practice. The SACIE-R questionnaire tool assesses the perceptions of 187 pre-service teachers with regard to inclusive education. The findings indicate that pre-service teachers acquire theoretical knowledge with gaps in field-based knowledge that hinder their ability to link theory and practice, and to develop inclusive pedagogy. Moreover, pre-service teachers have a low level of sentiments and harbour many concerns and negative attitudes towards inclusive education. The findings of the study contribute insights that can inform the design and structuring of inclusive education courses in teacher education programmes.

**Keywords:** inclusive education, knowledge, pedagogy, perceptions, pre-service teachers

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## Priprava učiteljev na inkluzivno izobraževanje: bodoči učitelji ter njihovo znanje, zaznave in izkušnje, vezane na inkluzivno pedagogiko, izhajajočo iz pedagoške prakse

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Številni raziskovalci so se že spraševali o učinkovitosti programov izobraževanja učiteljev pri pripravi bodočih učiteljev za inkluzivno izobraževanje. Ta študija preučuje, kako programi za izobraževanje učiteljev pripravljajo bodoče učitelje na inkluzivno izobraževanje z vidika zaznav, znanja in pedagogike. Študija uporablja razprave v fokusnih skupinah, da bi preučila znanje bodočih učiteljev o inkluzivnem izobraževanju in njihove izkušnje z inkluzivno pedagogiko iz pedagoške prakse. S pomočjo vprašalnika SACIE-R so ocenjene zaznave 187 bodočih učiteljev v povezavi z inkluzivnim izobraževanjem. Ugotovitve kažejo, da bodoči učitelji pridobijo teoretično znanje z vrzeli v znanju iz prakse, ki jih ovirajo pri njihovi zmožnosti povezovanja teorije in prakse ter pri razvijanju inkluzivne pedagogike. Poleg tega imajo bodoči učitelji nizko stopnjo občutkov ter gojijo številne pomisleke in negativna stališča do inkluzivnega izobraževanja. Ugotovitve študije prispevajo spoznanja, ki lahko služijo kot podlaga za oblikovanje in strukturiranje predmetov inkluzivnega izobraževanja v programih izobraževanja učiteljev.

**Ključne besede:** : inkluzivno izobraževanje, znanje, pedagogika, zaznave, bodoči učitelji

## Introduction

Inclusive education has become a key issue in the provision of education globally. In most cases, concerns surrounding the vital roles of teachers in the implementation of inclusive education in schools have been the topic of discussion. Given the central roles of teachers in the implementation of inclusive education, teacher education programmes are expected, inter alia, to equip teachers with perceptions, knowledge and teaching practices that include all learners in the classroom (Drushlyak et al., 2023; Moriña, 2020; Knežević, 2024; UNESCO, 2023). The importance of training teachers for inclusion is emphasised by the United Nations (UN) (2006) and the World Declaration on Education for All (WCEFA) (UNESCO, 1994). In essence, teacher education requires a proper framework for policies, curricula, pedagogy, assessment procedures and other rubrics to prepare teachers who have positive perceptions of inclusive education and are well equipped with inclusive knowledge and pedagogical practices. The available literature shows that the perceptions, knowledge and classroom practices of teachers are among the most significant factors for the effective implementation of inclusive education (Boyle et al., 2020; Kunz et al., 2021; Sharma et al., 2023; UNESCO, 2023). Thus, teacher education programmes should effectively prepare pre-service teachers by developing their positive perceptions, knowledge and skills for the effective implementation of inclusive education.

## The Concept of Inclusive Education

As defined in the *Salamanca Statement*, inclusive education involves recognition of the need to work towards schools and classrooms for all, including every learner, and to celebrate differences, support learning and respond to individual needs (UNESCO, 1994). The term inclusive education refers to the kind of education that is offered by taking into account the diverse differences of learners, such as gender, race, ethnicity, religious beliefs, abilities, sexual orientation, social class, linguistic backgrounds and rural communities, as well as learners with disabilities and other learning challenges (Knežević, 2024; UNESCO, 2023). Inclusive education is founded on the idea that all learners have idiosyncratic characteristics, interests, abilities and learning needs. Thus, inclusive education is premised on the principle that learners with special educational needs must be treated equitably by being availed with learning services and facilities that match their needs in the general education system.

Inclusion in education has the potential to foster deeper learning among learners. Inclusion of learners results in learning gains, builds friendship skills

and peer models, develops problem-solving skills, builds a positive self-concept, and promotes respect between all students, with or without disabilities (Sharma et al., 2023). Inclusive education aims to change structures and content, including teacher education policies, curricula, pedagogy and assessment procedures, in order to remove barriers from educational settings (Chhetri et al., 2023; Losberg & Zwozdiak-Myers, 2021; Sharma et al., 2019; UNESCO, 2023). Education systems and programmes should therefore be designed to respond to the wide diversity of characteristics and needs of learners. Despite the importance of inclusive education in fostering learning, findings show that the majority of pre-service and in-service teachers have inadequate knowledge, skills and perceptions with regard to inclusive education (Chhetri et al., 2023; Sharma et al., 2019, 2023). According to Losberg and Zwozdiak-Myers (2021), teachers tend to lack effective strategies and techniques that are relevant to inclusive education. Furthermore, the lack of knowledge and skills, as well as the negative perceptions of teachers towards inclusive education, limit the ability of teachers to play their roles effectively as key implementers of inclusive education.

## **An Inclusive Education Knowledge Framework for Teacher Education**

Inclusive knowledge is reflected in the curricula and courses for teacher education (Cretu, 2023; Sharma et al., 2019). Cretu (2023) suggests that inclusive knowledge for pre-service teachers must include psychological preparation, conceptions of inclusive education, and dimensions of learners' diversity. Pre-service teachers should learn how to support all students in the classroom in order to promote their theoretical, practical, social and emotional learning (Cretu & Morandau, 2020; Florian & Camedda, 2020). Other scholars point out that both theoretical and practical aspects are important for the effective implementation of inclusive education (Drushlyak et al. 2023; Hockings, 2010). Thus, pre-service teachers may conduct field-based learning by engaging in real-life tasks and self-directed learning, such as research work (McCracken et al., 2023).

Some studies show that practical activities such as experiential learning and teaching practice positively impact pre-service teachers' knowledge and views about inclusion in education (Walker, 2021). Practising inclusion develops pre-service teachers' ability to link theory and practice, thus enabling them to apply the acquired knowledge after their transition from college. Field-based learning enables pre-service teachers to solve various problems related to inclusive teaching, as it gives them a chance to reflect on their teaching actions and reconstruct their inclusive teaching knowledge (Dignath et al., 2022; Yang & Yu,

2021). However, there is research evidence indicating that pre-service teachers tend to have limited practical knowledge, which may impact the effectiveness of their inclusive teaching practices (Kunz et al., 2021; Sharma et al., 2023; Zabeli et al., 2021). As such, Zabeli et al. (2021) suggest that pre-service teachers should do more practice in an inclusive classroom and engage in field work in order to develop competence in inclusive teaching practices.

## **An Inclusive Pedagogy Framework for Teacher Education**

In structuring inclusive pedagogy, there is a need to train pre-service teachers to identify and address the learning needs of all learners by creating a welcoming learning environment for all learners (Knežević, 2024; Losberg & Zwodziak-Myers, 2021). Inclusive pedagogy requires teachers to apply a variety of teaching techniques, strategies and learning activities in the classroom (Florian & Black-Hawkins, 2011; Moriña, 2020). Inclusive pedagogy is guided by teachers' actions that are not pre-determined or planned, as teachers must respond to the diverse needs of learners. Unfortunately, various studies report that pre-service teachers do not get adequate orientation on inclusive pedagogical practices (David & Brown, 2022; McCracken et al., 2023). Moreover, David and Brown (2022) note that pre-service and in-service teachers are sometimes oriented towards inclusive education practices that do not function optimally in the teachers' specific contexts.

Pre-service teachers may grasp and master inclusive pedagogical practices if they engage in field-based learning under the guidance of knowledgeable teacher educators (Cotán et al., 2021; Drushlyak et al. 2023; Massouti, 2021; Walker, 2021). Field-based learning incorporates reflexive dialogue between teacher educators and pre-service teachers. Evidence from various studies indicates that field-based learning is an effective way of orienting pre-service teachers to inclusive teaching practices (Kunz et al., 2021; McCracken et al., 2023; Moriña, 2020; Walker, 2021). Field-based learning should be based on a cycle of knowledge creation in which teacher educators and pre-service teachers interact, reflect and challenge each other on inclusive thinking and practices.

Studies such as Drushlyak et al. (2023), Jiang et al. (2022) and UNESCO (2020) suggest that inclusive pedagogy should be integrated with digital technology to enable pre-service teachers to develop the ability to effectively teach students with diverse needs. Drushlyak et al. (2023) note that the use of digital technology in inclusive classrooms helps to balance the socialisation of learners with special needs in education. The use of digital tools, software and devices

plays an important role in creating an inclusive classroom environment by stimulating learners' curiosity and enhancing their participation, hence contributing to better learning and comprehension (Kaimara, 2023). However, technology is hardly used by teachers due to a lack of appropriate teacher education programmes, poor digital and technological infrastructure in schools, and poverty in low-income countries (David & Brown, 2022; Jiang et al., 2022; UNESCO, 2020). As well as orienting pre-service teachers on the use of digital technology in teaching, there is a need to equip them with assessment skills that enable them to meet the specific requirements of all learners. The assessment procedures used in schools are reported to be standardised and not in conformity with the diversity of learners in terms of its procedures and structure (Hanesworth, 2019; Zabeli et al., 2021). This underscores the need for inclusive assessment to be tailored in such a way that its procedures and structure do not marginalise some learners in the classroom (Gaunt et al., 2021; UNESCO, 2020). Pre-service teachers who are trained through inclusive courses that incorporate appropriate teaching strategies and assessment guidelines develop the ability to assess learners with diverse needs.

### **Pre-Service Teachers' Perceptions of Inclusive Education**

The present study uses the Forlin et al. (2011) framework of perceptions, which includes the constructs of sentiments, attitudes and concerns. This framework, which has been used successfully in various contexts, fits the present study due to the fact that it was developed to identify pre-service teachers' perceptions of inclusive education. According to Forlin et al. (2011) and McCracken et al. (2023), sentiments explain pre-service teachers' acceptance of learners with different support needs, or their comfort levels when interacting with learners with disabilities. Pre-service teachers develop sentiments when they have regular contact with learners who have disabilities and diverse needs (Kunz et al., 2021).

The construct of concerns explains pre-service teachers' worries about inclusive education and can be influenced by the effectiveness of teacher education and frequent exposure to diverse classrooms during practical sessions (Sharma et al., 2019). Pre-service teachers who receive adequate inclusive knowledge and pedagogical orientation during their training tend to express fewer concerns than those who do not (McCracken et al., 2023). In essence, teachers with adequate knowledge and pedagogical skills have favourable attitudes and fewer concerns and worries with regard to inclusive education, and are able to implement inclusion successfully (Nijakowska, 2022).

The construct of attitudes towards inclusive education has attracted more attention in research recently. However, research findings on this matter vary considerably, with some indicating positive attitudes and others negative ones. For instance, Guillemot et al. (2022) found progressively positive attitudes among pre-service teachers towards diverse learners' achievements, while other studies revealed poor progress of pre-service teachers' attitudes towards inclusive education (Chhetri et al., 2023; Kunz et al., 2021; McCracken et al., 2023). Various factors are reported to influence the attitudes of teachers towards inclusion, including the level of development, cultural differences, the existing policy and laws, and the organisation of the education system (Miesera & Gebhardt, 2018; Saloviita, 2015). Other relevant factors include the age of teachers, gender, the level of teaching, personal-related factors, the time dedicated to pre-service teachers' practice of inclusion, and personal contact with diverse students (Knežević, 2024; Kunz et al., 2021; McCracken et al., 2023). Guillemot et al. (2022) add that the availability of physical facilities and support from teacher educators influence pre-service teachers' development of attitudes towards inclusive education. Teachers' positive attitudes towards inclusive education have a significant influence on the success of inclusive education (Boyle et al., 2020; Chhetri et al., 2023; Kunz et al., 2021; Nijakowska, 2022).

## **Inclusive Education in Tanzania**

In Tanzania, various strategies have been implemented, including the 2018–21 National Strategy for Inclusive Education, and the Partnership Compact 2021/22–2025/26 Towards Improved Inclusive Student-Based Teaching for Quality Learning (Ministry of Education, Science and Technology [MoEST], 2017, 2022). The strategies were aimed at defining and maintaining standards of curricula, pedagogy and environment to ensure all learners have access to quality education. In defining the standards of inclusive practices, the National Strategy for Inclusive Education was designed to strengthen the capacity of teacher training at all levels by developing teachers' capabilities and providing pedagogical support.

Following the demands of the improved curriculum, the University of Dar es Salaam, including the Dar es Salaam University College of Education (DUCE) campus, is teaching inclusive education courses (Tanzania Commission for Universities [TCU], 2019). DUCE offers two courses: the Psychology of Exceptionalities (EP 307), and Counselling and Special Need Education (EP 306). EP 307 is taken by third-year pre-service teachers pursuing a Bachelor of Education, while EP 306 is offered to third-year pre-service teachers studying

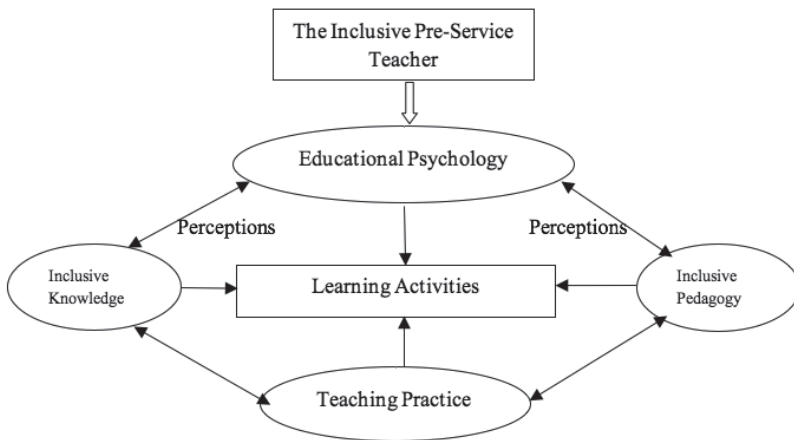
for a Bachelor of Arts with Education (B. A-Ed) and a Bachelor of Science with Education (B. Sc-Ed). In addition, pre-service teachers take pedagogy and methodology courses that are related to their subjects of specialisation. Studies indicate that orienting teachers towards inclusive education practices has been a challenge in Tanzania (Kisanga & Richards, 2018; Milinga et al., 2023; Westbrook & Croft, 2015). Hence, the ability of Tanzanian teachers to practise inclusive education in their classrooms remains weak (MoEST, 2017) and is associated with negative inclusive practices (Kisanga & Richards, 2018). Furthermore, Westbrook et al. (2018) found that teachers were using random inclusion practices due to contextual, attitudinal, structural, pedagogical and curricular barriers.

## Conceptual Framing Model

The study employed a modified version of Cretu's (2023) conceptual model of incorporating inclusive education in the curriculum for initial teacher education. The model has six elements, as shown by Figure 1.

**Figure 1**

*An infusion-based approach for embedding inclusive education in the curriculum for initial teacher education (Cretu, 2023)*



The model postulates six components of inclusive teacher education: educational psychology, inclusive knowledge, inclusive pedagogy, learning activities, perceptions and teaching practices. The pre-service teacher preparing to

teach inclusively is taught educational psychology courses that cover, inter alia, the conceptualisation of inclusive education and the diverse needs of learners. These courses are intended to develop inclusive knowledge and inclusive pedagogy among pre-service teachers through learning activities. Learning activities are based on educational psychology, inclusive knowledge, inclusive pedagogy and inclusive teaching practices. Pre-service teachers' perceptions (sentiments, concerns and attitudes) are influenced by their inclusive knowledge and pedagogical skills.

## **Purpose and Research Questions**

There has been a call for more research on the effectiveness of teacher education in preparing teachers for inclusive education (Chhetri et al., 2023; Kunz et al., 2021; Losberg & Zwozdiak-Myers, 2021; McCracken et al., 2023; Sharma et al., 2023). The present study examines the preparation of pre-service teachers for inclusive education in terms of inclusive knowledge, pedagogical skills and perceptions. Pre-service teachers develop inclusive pedagogical skills as they experience teaching during their teaching practice in actual school contexts. The study sought to answer the following research questions:

1. What knowledge do pre-service teachers have on inclusive education?
2. What are pre-service teachers' experiences of inclusive pedagogy from teaching practice?
3. How do pre-service teachers perceive inclusive education?

## **Methods**

### *Participants*

The study was conducted at the University of Dar es Salaam (UDSM), which was purposefully selected from government universities that train teachers, as it is the oldest and largest public university in Tanzania. From its three campuses that train teachers, Dar es Salaam University College of Education (DUCE) was conveniently selected. At DUCE, a sample of 187 pre-service teachers was selected randomly from a population of 348 third-year students taking bachelor degrees in education. This sample size was based on the Statistical Power Analysis sampling procedure at a confidence level of 95% and a margin of error of 5%. Random sampling is regarded as the best way of sampling for inclusive and special education (Rumrill et al., 2020). Third-year (B. Ed) pre-service teachers were selected because they were in their final year of study and were enrolled in the inclusive course of Psychology of Exceptionalities (EP 307)

as well as taking more pedagogical courses compared to B. A-Ed and B. Sc-Ed programmes.

### *Instruments and Procedures*

The study used the Inclusive Education-Revised Scale (SACIE-R) questionnaire tool by Forlin et al. (2011) to examine the perceptions of 187 pre-service teachers on inclusive education. A total of 177 questionnaires were completed and returned. The SACIE-R scale internal reliability measured in this study indicated three subscales of sentiments ( $\alpha = .78$ ), attitudes ( $\alpha = .89$ ) and concerns ( $\alpha = .87$ ). Each subscale had five items, making a total of 15 items. The tool is measured in a four-level Likert scale of 1 = *Strongly Agree*, 2 = *Agree*, 3 = *Disagree*, and 4 = *Strongly Disagree*. Furthermore, 36 pre-service teachers were conveniently selected from the random sample to participate in Focus Group Discussions (FGDs). The data from the questionnaires were analysed using the Statistical Package for Social Science (SPSS) version 26. Descriptive data, including mean, median and standard deviation, were obtained to determine the pre-service teachers' perceptions of inclusive education with regard to the aspects of sentiments, attitudes and concerns. The interpretation was based on a decisive factor of 2.5, whereby means below 2.5 indicate agreement and above 2.5 indicate disagreement with regard to the three aspects. In addition, the recorded data from the FGDs were transcribed verbatim and imported into MAXQDA software. With the help of MAXQDA, the FGD data were grouped into similar themes and then analysed based on the research questions of the study.

### *Research Design*

This study involved pre-service teachers pursuing a Bachelor of Education (B. Ed) who were in their third and final year of study and were taking an inclusive education course entitled Psychology of Exceptionalities (EP 307). The selection of these pre-service teachers was based on the premise that they had taken other pedagogical courses apart from EP 306, which might have influenced their inclusive pedagogical practices. The study employed both quantitative and qualitative methods. The quantitative methods were used to analyse the pre-service teachers' perceptions of inclusive education, while the qualitative methods were used to examine their inclusive knowledge and experiences of inclusive pedagogy from teaching practice. The data were collected during the 15<sup>th</sup> week of the pre-service teachers' final semester. The timing of the data collection process was deliberately planned to enable the researcher to examine what the pre-service teachers had achieved in terms of knowledge

and perceptions, as well as their inclusive pedagogy experiences from teaching practice. Six FGDs were conducted, each involving six participants and with a duration of 60–80 minutes.

## Results

### *Inclusive Education Knowledge among Pre-Service Teachers*

The findings obtained from the FGDs revealed that the pre-service teachers surveyed had an understanding of inclusive education and defined it as education that includes all learners in the classroom despite differences such as sex, disabilities, speech disorders, learning difficulties, giftedness, etc. The participants' added that inclusive education is education that includes all students regardless of their diversity. However, the findings of the FGDs indicated that the inclusive knowledge acquired by the pre-service teachers is more theoretical than practical and covered only a few aspects of learners' diversity. During the FGDs, one pre-service teacher stated that:

What is taught is too little compared to the reality of learners' diversity in school settings. Learners' needs are widely diverse, but the course focuses more on disabilities than on other diversity aspects such as gender, culture, ethnicity, gifted, learners with learning difficulties and so forth. (2FGDs-PST 3)

Another pre-service teacher added that:

The course has not adequately prepared us to implement inclusive education, as it is more theoretical than practical. We studied the course in the final year of our programme and we did not get the opportunity to put into practice what we learned in the real classroom context. (5FGDs-PST 1)

The participants added that they were not exposed to practical learning and argued that, since they took the inclusive course in their final year of study, they were not able to link theory and practice during their teaching practice. They therefore suggested that inclusive courses should be taken from the first year to the third year, in order to give pre-service teachers more opportunities to practise inclusive teaching in real classroom contexts. In one FGD, one of the pre-service teachers commented, "...there is a need for inclusive education courses to be taught throughout the programme from the first to the third year, and it should be compulsory in all programmes". (1FGDs-PST 4)

### *Pre-Service Teachers' Experiences of Inclusive Pedagogy from Teaching Practice*

During the FGD sessions, the participants were asked about their experiences of inclusive pedagogy from teaching practice. Several of them stated that they faced various challenges in teaching learners inclusively. Despite the assistance they received from their host teachers in identifying learners who had learning problems, the majority of the participants reported that they failed to identify learners with learning challenges. One of the pre-service teachers in an FGD made the following comment regarding this issue:

During my second-year teaching practice, I met a student who was hard of hearing. It was difficult for me to identify the student as a student with special needs until the other students told me about him. It was difficult for me to explain the concepts I was teaching, as my inclusive teaching skills were limited. (5FGDs-PST 1)

In addition, the participants reported that they faced a challenge caused by the placement of students in classes based on their academic abilities. Gifted students and learners with learning difficulties were placed in different classes, as one of the pre-service teachers affirmed by saying, "I think categorising learners into classes according to their abilities is against inclusive education. In inclusive education, all learners are supposed to learn in one class regardless of the differences in their abilities" (1FGDs-PST 4). The participants said that they faced challenges in teaching gifted learners separately from those with learning difficulties because they did not have the pedagogical skills to teach these specific groups. Moreover, the findings from the participants showed that pre-service teachers face a challenge in assessing learners with disabilities. This was elaborated by one of the pre-service teachers in an FGD:

Assessment practices should consider learners' diversity. I met a visually impaired learner during my first-year teaching practice and it was difficult to give him the same test given to other students, which consisted of matching items, since visually impaired learners find it difficult to solve matching items tests. (2FGDs-PST 6)

However, some of the participants reported positive inclusive experiences: they used drawings and diagrams for hearing impaired students, voices recorded on their mobile phones for the visually impaired students, and repetition and extra time for learners with learning difficulties. The participants added that they used demonstrations to engage hearing-impaired students and recorded voices to engage visually impaired learners. In addition, the participants

reported the use of real objects available in the school environment, as elaborated by a pre-service teacher who was teaching Geography: “[...] during my teaching practice, I used real objects in the class to teach students soil texture to ensure that a visually impaired learner was fully engaged in the lesson” (6FGDs-PST 6). Another pre-service teacher added, “I exposed learners to learning in a natural environment when I was teaching parts of a flower (biology subject) in order to engage the hearing-impaired learners in my class” (4FGDs-PST 3). However, the participants said that their inclusive teaching practices were hindered by a shortage of teaching and learning facilities, inadequate digital and ICT devices, and crowded classes.

### *Pre-Service Teachers’ Perceptions of Inclusive Education*

The pre-service teachers’ perceptions of inclusive education with regard to the aspects of sentiments, attitude and concerns are indicated in Table 1.

**Table 1**

*Pre-service teachers’ perceptions of inclusive education*

	Sentiments ( $\alpha = .78$ )	Attitudes ( $\alpha = .89$ )	Concerns ( $\alpha = .87$ )
<i>N</i>	177	177	177
Mean	2.16	2.84	2.12
Median	2.10	3.20	2.00
Std Deviation	.67	.68	.62
Minimum	1.00	1.00	1.00
Maximum	4.00	4.00	4.00

The findings in Table 1 indicate an average sentiments score of 2.16, a median of 2.10 and an *SD* of .67 below the decisive factor of 2.5 criterion mean and median for the 4-point Likert scale. This implies that the majority of the pre-service teachers surveyed have a low level of sentiments and a low comfort level when interacting with diverse learners. The pre-service teachers are predominantly uncomfortable looking learners with disabilities straight in the face and even less comfortable with the prospect of having disabilities themselves, as Table 2 below indicates.

**Table 2***Pre-service teachers' sentiments of inclusive education by items*

Sentiments	N	Min.	Max.	Mean	Std Dev.
I find it difficult to overcome my initial shock when meeting people with severe physical disabilities	177	1	4	2.11	.84
I am afraid to look a person with a disability straight in the face	177	1	4	2.08	.99
I tend to make contacts with people with disabilities brief and I finish them as quickly as possible	177	1	4	2.18	.91
I would feel terrible if I had a disability	177	1	4	2.12	.96
I dread the thought that I could eventually end up with a disability	177	1	4	2.33	.93
Valid N (listwise)	177				

Regarding concerns about inclusive education, the findings indicate an average score of 2.12, a median of 2.00 and an *SD* of .62, which means that the majority of the pre-service teachers surveyed have many concerns and a high level of distress regarding inclusive education. The pre-service teachers have more concerns about not having the knowledge and skills required to teach students with disabilities and fewer concerns about students with disabilities being accepted in their classes, as Table 3 indicates.

**Table 3***Pre-service teachers' concerns about inclusive education by items*

Concerns	N	Min.	Max.	Mean	Std Dev.
I am concerned that my workload will increase if I have students with disabilities in my class	177	1	4	2.11	.69
I am concerned that it will be difficult to give appropriate attention to all students in an inclusive classroom	177	1	4	2.20	.81
I am concerned that I will be more stressed if I have students with disabilities in my class	177	1	4	2.29	.74
I am concerned that students with disabilities will not be accepted by the rest of the class.	177	1	4	2.36	.76
I am concerned that I do not have the knowledge and skills required to teach students with disabilities.	177	1	4	1.67	.89
Valid N (listwise)	177				

Regarding the pre-service teachers' attitudes towards inclusive education, the findings indicate an average score of 2.84, a median of 3.20 and an *SD* of .68. This means that the majority of the pre-service teachers had negative

attitudes towards inclusive education. They mainly disagree with the inclusion of students who have difficulty expressing their thoughts verbally in regular classes, and fewer negative attitudes towards having students who frequently fail exams in regular classes, as Table 4 indicates.

**Table 4**

*Pre-service teachers' attitudes towards inclusive education by items*

Attitudes	N	Min.	Max.	Mean	Std Dev.
Students who have difficulty expressing their thoughts verbally should be in regular classes	177	1	4	3.22	.91
Students who frequently fail exams should be in regular classes	177	1	4	2.63	.87
Students who need an individualised academic programme should be in regular classes	177	1	4	2.83	.86
Students who are inattentive should be in a regular classes	177	1	4	2.78	.75
Students who require communicative technologies (e.g., Braille and sign language) should be in regular classes.	177	1	4	2.72	.76
Valid N (listwise)	177				

## Discussion

The findings indicate that pre-service teachers are able to define inclusive education correctly, but that they have inadequate knowledge of inclusive education, confined to a few aspects of learners' diversity. Moreover, the knowledge they possess is more theoretical than practical. The inclusive course is offered to pre-service teachers during the final year of study, so they do not have an opportunity to apply their knowledge during teaching practice. These findings are consistent with the findings of various studies indicating the failure of teachers to implement inclusive education due to limited knowledge (Chhetri et al., 2023; Sharma et al., 2019, 2023). Other studies with similar findings have reported on the failure of teacher education programmes to effectively connect the theoretical and practical aspects of learning (Kunz et al., 2021; Sharma et al., 2023; Zabeli et al., 2021). The findings underscore the role of inclusive education courses in teacher education programmes to prepare teachers for inclusive education. Inclusive education courses should be improved by incorporating the theoretical and practical requirements in a balanced manner. Moreover, there is a need to teach inclusive education courses by using practical and field-based learning strategies. In field-based learning, pre-service teachers are closely

guided by their teacher educators to ensure that they gain practical knowledge of inclusive education. Considerable research indicates that teaching inclusive courses by using field-based study equips pre-service teachers with practical knowledge and positively shapes their perceptions towards inclusive education (Cotán et al., 2021; Dignath et al., 2022; Drushlyak et al., 2023; Hockings, 2010; Walker, 2021; Yang & Yu, 2021).

The findings on pre-service teachers' experiences of inclusive pedagogy during teaching practice conducted in their first and second years of study indicate that they faced various challenges. The participants reported that it was difficult for them to identify the diverse needs of learners, to teach students with diverse needs placed in separate streams, and to assess students who have disabilities. Miesera and Gebhardt (2018) and Saloviita (2015) note that any education system that separates streams and classes for learners with special educational needs undermines the implementation of inclusive education. Similarly, standardised assessment procedures and structure in schools do not accommodate learners' diversity (Hanesworth, 2019; Zabeli et al., 2021). It is likely that pre-service teachers face teaching challenges due to limited inclusive knowledge, as reported in the present study. Similarly, pre-service teachers may face challenges due to inadequate field-based learning, as inclusive teaching skills are developed through field-based learning (Cotán et al., 2021; Drushlyak et al. 2023; Hockings, 2010; Massouti, 2021; Moriña, 2020; Walker, 2021). In order to effectively equip pre-service teachers with inclusive pedagogical skills, there is a need for inclusive education courses to be offered on a continuous basis, from the first to the last year of study. This gives pre-service teachers an opportunity to develop inclusive pedagogy practices, as also suggested by Dignath et al. (2022), Drushlyak et al. (2023) and Yang and Yu (2021). As well as offering prolonged learning, inclusive courses should address the identification of learners' diversity and incorporate fundamental aspects such as assessment procedures and structures that do not marginalise learners in the classroom. Inclusive education courses that incorporate teaching strategies and assessment guidelines develop the ability of pre-service teachers to assess learners with diverse needs (Gaunt et al., 2021; UNESCO, 2020).

Despite the challenges encountered by pre-service teachers during their teaching practice, some of the surveyed pre-service teachers were able to include learners using the knowledge acquired from pedagogical courses. However, they were limited by a shortage of teaching facilities and technological devices. Some of the pre-service teachers used their mobile phones to record audio to reach all learners, as well as using demonstrations, real objects and the real environment. The shortage of teaching facilities and technological devices

has been a challenge to inclusive teaching, especially in low-income and poor countries (David & Brown, 2022; Jiang et al., 2022; UNESCO, 2020). Sometimes, pre-service teachers are required to understand that the challenges they encounter are professional challenges that require them to find alternatives and solutions, such as using their mobile phones to teach and using the teaching resources available in the context. When pre-service teachers learn how to use technology in teaching, they are able to balance the socialisation of learners (Drushlyak et al., 2023) and create an inclusive classroom environment by stimulating learners' curiosity and engagement (Kaimara, 2023; UNESCO, 2020).

The study findings reveal that the majority of pre-service teachers have negative perceptions of inclusive education regarding their sentiments, concerns and attitudes. The questionnaire items indicate that the majority of pre-service teachers are uncomfortable looking at learners with disabilities straight in the face and are concerned about not having the knowledge and skills required to teach inclusively. The low level of sentiments and many concerns reported by the pre-service teachers might be due to the inadequacy of their inclusive knowledge and the lack of opportunities to engage in field-based learning. Similar findings on pre-service teachers' low level of sentiments have been reported by Kunz et al. (2021) and Yang and Yu (2021), while similar findings on the many concerns about inclusive education have been reported by Nijakowska (2022) and Sharma et al. (2019). Pre-service teachers' inclusive knowledge and clear understanding of inclusive education has an influence on their sentiments and the level of their concerns regarding inclusive education (Kunz et al., 2021; McCracken et al., 2023; Nijakowska, 2022; Sharma et al., 2023). Again, regular exposure of pre-service teachers to field-based learning and contact with diverse students in real classroom contexts increases their sentiments and reduces concerns regarding inclusive education (Cretu, 2023; McCracken et al., 2023; Moriña, 2020; Walker, 2021).

The findings on pre-service teachers' negative attitudes towards inclusive education reported in the present study corroborate various studies that show that pre-service teachers tend to have negative attitudes towards inclusive education (Chhetri et al., 2023; Losberg & Zwozdiak-Myers, 2021; McCracken et al., 2023; Westbrook et al., 2018). The revealed negative attitudes of pre-service teachers towards inclusive education are likely to be due to inadequate inclusive knowledge and less engagement in field-based learning during teacher training. Previous studies indicate that exposing pre-service teachers to field-based learning enables them to develop positive attitudes towards inclusive education (Dignath et al., 2022; McCracken et al., 2023; Walker, 2021). Another reason for pre-service teachers' negative attitudes towards inclusive education lies in

the system of secondary education in Tanzania, which separates gifted learners from learners with learning difficulties. Any education system that separates schools or classes for learners with special educational needs affects pre-service teachers' attitudes towards inclusion (Miesera & Gebhardt, 2018; Saloviita, 2015). Correspondingly, pre-service teachers' experiences of practising teaching in schools where classrooms are overcrowded and teaching resources are limited may influence their attitudes. According to Guillemot et al. (2022) and Miesera and Gebhardt (2018), the availability of teaching and learning resources in the classroom influences pre-service teachers' attitudes towards inclusive education.

## Conclusion and Implications

Based on the findings, the study concludes that pre-service teachers are not adequately prepared for inclusive education due to inadequate acquired knowledge, insufficient experiences of inclusive pedagogy during their teaching practice, and negative perceptions of inclusive education. The underlying reasons for this are related to the lack of rounded training of pre-service teachers with regard to inclusive education, including the identification of learners' diverse needs, as well as the system of separating students with different abilities, the poor assessment structure and inadequate field-based learning. As indicated in the conceptual framework, pre-service teachers' inclusive knowledge, pedagogy and perceptions influence one another. Inclusive education courses should incorporate learning activities with educational psychology, inclusive knowledge, pedagogy, perceptions and teaching practice sessions for the effective preparation of pre-service teachers to teach inclusively. The more pre-service teachers understand inclusive education, the more they are likely to have inclusive pedagogical practices, a high level of sentiments, fewer concerns and positive attitudes towards inclusion, which will lead to the successful implementation of inclusive education.

The conclusions have implications on how inclusive education courses in university teacher education programmes should be designed and structured to integrate important elements. The key elements can include a holistic understanding of inclusive education knowledge, which covers psychology, a clear conception of inclusion and dimensions of learners' diversity (Cretu, 2023; Cretu & Morandau, 2020; Florian & Camedda, 2020). In order to encourage inclusion, it is necessary to integrate field-based learning and prolonged learning of inclusive courses (Dignath et al., 2022; Knežević, 2024; Kunz et al., 2021; McCracken et al., 2023; Sharma et al., 2023; Walker, 2021), a favourable

classroom teaching environment (David & Brown, 2020; Guillemot et al., 2022; Jiang et al., 2022; UNESCO, 2020) and favourable education policies (Miesera & Gebhardt, 2018; Saloviita, 2015). The present study contributes insights to the existing knowledge on structuring inclusive education courses in preparing pre-service teachers for inclusive education. However, the study focused on a small number of pre-service teachers, so research covering a larger population of pre-service teachers is recommended.

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