

PRE-SERVICE LIFE SCIENCES TEACHERS' PERCEIVED PRACTICES IN ADDRESSING GENDER ISSUES COMMON IN CLASSROOMS

Lydia Mavuru

*Department of Mathematics, Science and Technology Education,
University of Johannesburg (South Africa)*

Abstract

Tolerance, resilience, perseverance, and tenacity are some of the expectations young people are raised to believe in. Whilst these positive psychological, emotional, and behavioural character traits or strengths enable learners to withstand embarrassment in classrooms, teachers should not turn a blind eye when a learner feels discriminated against by peers. This is more so in the Life Sciences classrooms, where some topics or concepts taught are controversial as they open room for scrutiny on one's appearance, behavioural traits, or unfavourable choices one makes in the eyes of peers. Informed by critical theory, the study determined how much prepared pre-service teachers were to manage classrooms in which episodes of discrimination erupt in their classrooms. A class of 120 pre-service teachers in their final year of study at a university in South Africa, who were enrolled for the Life Sciences methodology module, were given a scenario where they had to come up with strategies to handle the issue of menstruation, in which a learner messed her dress, chair, and her surroundings, attracting ridicule from her classmates. They worked in groups of five and submitted their reports, which formed data sources. Qualitative analysis of the participants' submissions revealed that, firstly, the scenario presented is a common occurrence in classrooms, as some of them had witnessed it in their own classrooms as learners and as pre-service teachers during practicum. Secondly, the findings showed that teachers may unintentionally reinforce typical gender stereotypical behaviours whilst teaching the topic of menstruation, which may be harmful to learners. The findings show curriculum-related shortcomings, such as the lack of inculcating values like empathy and respect when teaching.

Keywords: *Biological processes, gender issues, life sciences, pre-service teachers.*

1. Introduction

Gender inclusivity and sensitivity should be prioritised in everyday classroom teaching and learning. To realise gender responsiveness, teachers need guidance on how to address learner behaviours that marginalise others based on gender, including discrimination linked to biological processes beyond learners' control.

In a study investigating teachers' use of gender-responsive practices to promote gender equality in science classrooms, Canuto and Espique argued that gender responsiveness begins with lesson preparation and extends to the selection of teaching and learning materials, the use of gender-responsive language, and the teaching strategies and activities employed during lesson implementation.

Gender-related issues such as bias, stereotypes, inequality, exclusion, and discrimination continue to manifest in classrooms (Hernandez & Cudiamat, 2018). Researchers such as Wigati view schools as important spaces for addressing and reducing gender disparities. This raises an important question: if schools and science classrooms are expected to address gender inequality, how should teachers respond to discriminatory gender-based behaviours in the classroom?

1.1. Problem statement

The persistent underrepresentation and marginalisation of female learners in STEM education remain a critical educational and social justice concern. Although efforts have been made globally and locally to promote equity in STEM fields, male domination continues to be reproduced within classroom environments where teachers adopt gender blind teaching practices. The Forum for African Women Educationalists (FAWE) refers to such practices as gender blind pedagogy, where teachers fail to recognise and respond to the different social, emotional, and educational experiences of learners based on

gender. As a result, female learners often lag behind their male counterparts in classroom participation, confidence, and performance in STEM subjects (FAWE, 2016).

The problem is further exacerbated in classroom contexts where female learners experience challenging biological and developmental processes that expose them to ridicule, exclusion, and antagonism from peers. In some cases, even fellow female learners participate in discriminatory behaviours, reinforcing hostile learning environments. Despite the prevalence of such incidents, teachers often remain silent or fail to intervene meaningfully, thereby normalising gender discrimination within the classroom. This absence of teacher support reflects a lack of gender responsive pedagogical practices that are necessary to foster inclusive and equitable STEM learning spaces.

Empirical studies across different contexts confirm the persistence of this problem. In Tanzania, Seni (2026) found that teachers frequently adopt gender blind instructional approaches that inadvertently reinforce gender discrimination in classrooms. Similarly, in India, Kumar (2024) highlighted the importance of gender responsive pedagogy in creating inclusive and empowering classroom environments. Within the South African context, van der Merwe (2026) further notes that transgender learners continue to experience systemic discrimination, including harassment, misgendering, and exclusion in schools.

Despite the growing body of literature on gender inequality in education, there remains insufficient understanding of how teachers' gender-blind pedagogical practices contribute to the continued marginalisation of female learners in STEM classrooms. Consequently, there is a need to investigate how gender responsive classroom management can be used to create inclusive, supportive, and equitable STEM learning environments that enhance participation, belonging, and academic success for all learners.

1.2. Purpose of study

The purpose of this study was to determine pre-service Life Sciences teachers' preparedness to tackle gender issues in the classrooms once they qualify. This is pertinent considering that the Curriculum and Assessment Policy for Life Sciences envision a classroom where all learners are supported to reach their full potential regardless of gender or sociocultural backgrounds (Department of Basic Education, 2011).

2. Literature review and theoretical framework

To unravel the sociohistorical inequities embedded within society, the current study was grounded in critical social theory (Kincheloe & McLaren, 2011). Critical social theory seeks to explain social realities while simultaneously promoting practical action aimed at addressing social injustices. According to Kincheloe and McLaren (2011), social inequality persists not only through visible structures of power, but also because oppressed groups may internalise their marginalisation as normal or unavoidable. Such internalisation becomes a powerful mechanism of oppression, enabling systems of privilege to continue unchallenged. By presenting dominance and inequality as natural, the existing social order is preserved, and opportunities for critical interrogation are suppressed. Kincheloe and McLaren's perspective, therefore, calls on teachers and researchers to critically expose and challenge these internalised hierarchies rather than accept them as permanent realities. In this study, the injustices under scrutiny relate to the marginalisation or discrimination of some learners based on their gender and behaviours, and the limited guidance available for creating gender-responsive teaching and learning environments in science classrooms.

3. Methodology

The study followed a qualitative case study research design, which explored not only pre-service Life Sciences teachers' perceptions about gender responsiveness in their classrooms but also their capabilities in implementing gender-responsive classroom management practices. Cresswell (2018) refers to a case study as a phenomenon bounded by a timeframe that involves an in-depth exploration of a programme, event, activity, process, or individuals. McMillan and Schumacher (2014) asserted that this approach combines several individual cases into a single, comprehensive study that provides extensive data and an in-depth understanding. The study was underpinned by the interpretive paradigm, which "assumes a subjectivist epistemology, relativist ontology, a naturalist methodology, and a balanced axiology" (Kivunja & Kuyini, 2017, pp. 33).

3.1. Selection of participants

The study involved 120 purposively selected participants who were in their fourth (final) year of training as Life Sciences teachers at a public university in South Africa. These pre-service teachers had completed multiple school practicum placements and were on the verge of entering the teaching profession as qualified teachers. As a result, they were considered well-positioned to identify and reflect on gender-related issues that manifest in Life Sciences classrooms, drawing on their direct observations and teaching experiences during their practicum placements in diverse school contexts.

3.2. Data collection

Over the course of the year, the participants had been exposed to content on gender issues in Life Sciences teaching and learning. This content included topics such as gender stereotypes, gender-stereotypical language, and gender-responsive teaching and learning strategies. Thereafter, the participants were presented with a scenario in which a female learner experienced a menstrual accident during a Life Sciences (Biology) lesson, which required the pre-service teachers (students) to show how they would handle the issue. The scenario reads:

Whilst you are teaching your Life Sciences lesson, you notice commotion at the back of the classroom. A girl has spoiled her skirt and the chair she is sitting on as she is menstruating. Boys are laughing, but at the same time, screaming at the girl, telling her how disgusting she is. On the other hand, some girls are shouting at the girl, telling her that she is embarrassing them.

The participants were required to propose strategies for addressing the situation. Working in groups, they reflected on the scenario and submitted their responses, which constituted the qualitative data for the study. In total, 24 group submissions were collected.

The qualitative data were subjected to thematic analysis guided by Braun and Clarke's (2006) six-step framework. The participants' responses were coded, categorised, and organised into themes to identify recurring patterns and significant insights. The resulting themes enabled a structured understanding of the ways in which the participants envisioned appropriate management of their classroom environments.

Ethical clearance was obtained from the researcher's affiliated institution before data collection. Informed consent was obtained from all participants before data collection.

4. Research findings

Data analysis yielded three themes, and the findings are presented under each theme.

4.1. Understanding the context of the Life Sciences classrooms

The participants raised issues regarding the importance of knowing and understanding the classroom context in which one teaches. This includes the community and the kind of society the learners come from. Of note is the need for Life Sciences teachers to be knowledgeable about the issues that arise in a typical Life Sciences classroom to plan for mitigation. They also raised the need for teachers' awareness of gender-stereotypical language, behaviours, and practices prevalent in society, and how these play a role in shaping learners' behaviour in class. They argued that learners are given different expectations based on their gender, like females behaving better than boys or boys being better at science, all of which are based on culturally fueled misconceptions, which will affect how learners think of themselves and thus affect their performance.

The participants bemoaned that when these stereotypes are reinforced in schools, they negatively impact learners' development, forcing them into socially constructed limitations. In their submissions, the participants appreciated the exposure to the gender-responsive theme covered in the Life Sciences methodology, as they wished their primary and high school teachers had been trained on this. In the words of one group's submission,

Some of us suffered during school years when our teachers were actually part of the perpetrators of gender discrimination, whether male or female, due to their own sociocultural upbringing.

As part of understanding the context of one's classroom, the participants suggested that Life Sciences teaching requires examining the content being taught and finding out what possible stereotypes may be brought up through the content, along with any nuances that are shown through the written context. By doing this, you can prepare a plan to address these gender issues before their occurrence. In terms of the scenario, the participant reflected that the inappropriate remarks and responses from the boys arose from their ignorance and misconceptions of the menstruation cycle, and as for the other girls' shame of a natural process, it was uncalled for.

4.2. Suggested immediate responses to the scenario

The first reaction that was proposed by the participants was that the teacher should calm the learners and use biological knowledge to help them understand that menstruation is a normal part of life. In many societies, menstruation remains highly stigmatised and is often not recognised as a natural bodily function. Therefore, the teacher should handle the situation discreetly and sensitively, reassuring the female learner of her worth and affirming that menstruation is a normal and natural process.

The learner's comfort and dignity should be prioritised throughout interaction. For this reason, the teacher's reassurance, empathy, and offer of support are essential. Participants further suggested that the teacher should calmly but firmly address and reprimand any disruptive behaviour from other learners. It should be clearly communicated that mocking or humiliating another learner for something beyond their control is unacceptable and will not be tolerated. Such behaviour violates the learner's right to dignity and may negatively affect her self-esteem and confidence.

The participants also emphasised the importance of providing practical support to the learner. In this regard, a few supportive female learners could be asked to accompany her to the bathroom, while assistance is sought to provide sanitary products if needed.

4.3. Practical strategies for managing the scenario

Because a school should be a sanctuary where learners are free from any form of marginalisation, the participants suggested the need for an immediate response to the commotion in the classroom. This response includes securing a safe place for the learner in question where she would get help. Thereafter, the class needs to be addressed to make them realise their insensitivity to their peer in question.

The participants suggested that the teacher should explore together with the learners the myths, stereotypes, and cultural beliefs about menstruation. Whilst this may not be a topic scheduled to be taught at the time, the participants regarded this as a learning moment, either to discuss the new content or revisit the content if already covered at the grade level or in the previous grades. They argued that if a teacher does not address this, they will be unintentionally reinforcing typical gender stereotypes that may be harmful to learners. These stereotypes are reinforced in schools, which negatively impact the learner's development, forcing them into a socially constructed limitation that has been curated over many years of cultural expectations.

The participants suggested that the teaching of values should be integrated into the teaching of regular curriculum content, particularly in Life Sciences. They described values as behavioural norms and principles that are primarily taught within the family and community, shaping individuals' understanding of what is considered right and wrong. According to the participants, incorporating shared societal values into classroom lessons could help teachers bridge the gap between the prescribed curriculum content and learners' everyday experiences and understanding. Furthermore, they believed that integrating values education into Life Sciences lessons could promote the development of positive moral principles, which may assist learners in making informed decisions and exercising sound judgement in different life situations. In addition, participants argued that such an approach could encourage learners to recognise and appreciate gender differences without perceiving them as limitations, thereby fostering acceptance, respect, and gender equity among learners.

5. Discussions

The participants indicated that an immediate response to the issue would be to ensure the safety and dignity of the learner concerned by preventing further ridicule while simultaneously calming the class. Such a response highlights the importance of the teacher exercising discretion and sensitivity when addressing issues related to menstruation in the classroom. According to Findlay (2015), the use of discretion enables authority figures to manage sensitive situations in ways that minimise unnecessary external influences and disruptions. In this context, discretion refers not only to protecting the learner from embarrassment and humiliation but also to managing the reactions of the broader class in a manner that maintains respect and order.

Furthermore, it is important to recognise that learners come from diverse sociocultural backgrounds, each with different beliefs, values, and expectations regarding sexuality and menstruation. These sociocultural influences may shape how learners perceive and respond to menstruation-related incidents in the classroom. Teachers, therefore, need to adopt culturally responsive approaches that acknowledge and respect these differences while fostering an inclusive and supportive learning environment. This finding resonates with Thomas and Melendez-Torres (2024), who argue that menstruation continues to be associated with shame, embarrassment, and negative emotions despite being a significant global public health issue. Consequently, teachers play a critical role in challenging stigma,

promoting empathy among learners, and creating safe classroom spaces where sensitive issues can be addressed with care and professionalism.

6. Conclusions

In conclusion, the findings of this study reveal that gender-responsive pedagogy extends beyond the use of teaching and learning strategies, language, instructional approaches, and learning materials. It also requires teachers to possess the expertise to effectively manage classroom environments and learners' behaviours in ways that promote equity and inclusion. Promoting gender-responsive classroom management in STEM education is essential for encouraging and motivating girls to participate in STEM subjects and pursue related careers. Such efforts have the potential to increase female participation and meaningful contribution to the scientific, social, and economic development of communities and the nation, particularly in fields that have historically been dominated by males.

References

- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://psycnet.apa.org/doi/10.1191/1478088706qp063oa>
- Canuto, P. P. & Espique, F. (2023). Gender equality in science classrooms: Examining the implementation of gender responsive approach and its impact on science education. *International Journal of Learning, Teaching and Educational Research*, 22(6), 659-678. <https://doi.org/10.26803/ijlter.22.6.33>
- Cresswell, J. W. & Cresswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th Ed.). Thousand Oaks: SAGE Publications.
- Department of Basic Education. (2011). *National Curriculum Statement (NCS) Grades 10–12: Curriculum and Assessment Policy Statement (CAPS) for Life Sciences*. Pretoria: Government Printers.
- Findlay, N. M. (2015). Discretion in student discipline: Insight into elementary principals' decision making. *Educational Administration Quarterly*, 51(3), 472-507.
- Hernandez, T. A., & Cudiamat, M. A. (2018). Integrating gender and development (GAD) in the classroom: The case of Lucsuhin National High School, Department of Education-Philippines. *KnE Social Sciences*, 3(6), 1135. <https://doi.org/10.18502/kss.v3i6.2430>
- Kincheloe, J. L. & McLaren, P. (2011). Reflecting on critical theory and qualitative research. In: Hayes, K., Steinberg, S.R., Tobin, K. (Eds.). *Key works in critical pedagogy. Bold visions in educational research*, vol 32. Rotterdam: Sense Publishers. https://doi.org/10.1007/978-94-6091-397-6_24
- Kivunja, C. & Kuyini, B. (2017). Understanding and applying research paradigms in educational contexts. *International Journal of Higher Education*, 6(5), 26–41. <https://doi.org/10.5430/ijhe.v6n5p26>
- Kumar, A. (2024). Gender-responsive pedagogy: Towards cultivating inclusivity in the classrooms. *International Journal of Development Research*, 14(06), 65889–65891. <https://doi.org/10.37118/ijdr.28394.06.2024>
- McMillan, J. & Schumacher, S. (2014). *Research in education: Evidence-based inquiry* (7th Edition). London: Pearson.
- Seni, A. J. (2026). Utilisation of gender responsive pedagogy in classroom instructions among secondary school Mathematics and Science subjects in Tanzania. *Cogent Education*, 13(1), 1-22. <https://doi.org/10.1080/2331186X.2026.2616870>
- Thomas, C., & Melendez-Torres, G. J. (2024). The experiences of menstruation in schools in high-income countries: A systematic review and line-of-argument synthesis. *Psychology in the Schools*, 61(7), 2820-2844. <https://doi.org/10.1002/pits.23192>
- Van der Merwe, D. M. (2026). A whole-school approach to the inclusion of transgender learners. *South African Journal of Psychology*, 1-21. <https://doi.org/10.1177/00812463261448344>
- Wigati, I. (2019). The social aspects of gender-responsiveness in schools. *Sawwa: Jurnal Studi Gender*, 14(2), 147–162. <https://doi.org/10.21580/sa.v14i2.4523>