

## **PRESERVICE LIFE SCIENCES TEACHERS' CONCEPTUALISATION OF GENDER EQUALITY IN THE CLASSROOMS**

**Lydia Mavuru**

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

### **Abstract**

Gender equality has become a rhetorical phrase in today's modern societies where women are challenging the societal gender stereotypical practices particularly in the African context. Such vibrancy however is not evident in research to provide empirical evidence of how issues of gender equality can be promoted in different fora. The school context is an ignored stakeholder considering that schools are extensions of the lives in the homes and communities, yet this is where the future leaders are developed. In Life Sciences (Biology), there are topics which could be used as opportunities for teaching gender equality to the young learners. The current study sought to determine how preservice Life Sciences teachers conceptualised gender equality and the need for teachers to be gender sensitive. A questionnaire with only three open ended questions was administered to 90 pre-service teachers (50 enrolled for a Bachelor of Education and 40 enrolled for Postgraduate Certificate in Education) as a google form. The questionnaire sought participants' understanding of what gender equality in the science classrooms entails, topics that invoke gender issues, and reasons for the need for teachers to be gender sensitive when teaching such concepts. This information was pertinent as the lecturer (researcher) planned to introduce gender responsive pedagogy as a theme in the following year's module. Through deductive and thematic analysis of the data collected, three themes emerged: 1. Preservice teachers' understandings of what gender equality entails is based on their sociocultural practices and beliefs; 2. Gender equality issues arise from topics that evoke emotions in the Life Sciences classrooms; and 3. Teachers of Life Sciences have a duty to protect and embrace every learner despite their differences. The findings also revealed that there were preservice teachers who declined to give responses to the questions. When quizzed outside the lecture, two participants (separately) pointed out that such a topic is sensitive to them, and they declined to elaborate. Based on the findings, the researcher surmised that such a topic cannot be brought into the classroom without preparing the participants emotionally as previous experiences or encounters at home or in society may interfere with open mindedness to learn. The findings provided an important basis for further research and for teacher development.

**Keywords:** *Gender equality, Life Sciences, pre-service teachers, teachers' conceptualisations.*

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### **1. Introduction**

What happens in the classroom does not stay there but it permeates into the different societal platforms such as the family, the community, church, and relationships. As early as 2011, Aikman, Halai, and Rubagiza advocated for a deeper scrutiny of the gender biased nature of the school system. Their argument was that to improve the quality of education at classroom level, gender equality should not just focus on the fair distribution of resources but consideration of nature of educational experiences for both boys and girls is required. Quality of education requires that gender dynamics be analysed within the wider social context where boys and girls live (Aikman, Halai, & Rubagiz, 2011). A point to note is that the manifestation of gender discrimination can be obvious or subtle which Morley (2006) identified as occurring through "informal networks, coalitions, and exclusions, as well as by formal arrangements in classrooms and boardrooms" (p. 1).

Whilst teachers may seem to be aware of the existence of gender inequalities in society, previous studies have shown nonchalant behaviours and unwillingness to recognise such social ills in their classrooms (e.g. de Lange, Mitchell, & Bhana, 2012; Morrell et al., 2009). This is evident in the perpetual gender-based violence (GBV) in South African schools which sometimes go unnoticed nor challenged (de Lange, Mitchell, & Bhana, 2012) and teenage pregnancy (Panday et al., 2009). The authors argue that the source and foundation of GBV is gender inequality. Thus said the current study is premised on the

argument that the vibrancy displayed in social and human rights organisations in South Africa is not evident in schools and in the classrooms, yet schools are extensions of the lives in the homes and communities. The study therefore sought to determine how preservice Life Sciences teachers conceptualised gender equality and the need for teachers to be gender sensitive. The following research questions guided the study: 1. How do preservice Life Sciences teachers conceptualise gender equality in the classrooms? 2. What are their views about addressing gender inequalities through the teaching of some Life Sciences topics? Preservice teacher development provides for an opportunity to equip teachers with the knowledge and skills to address the pertinent issues in the contemporary science classrooms where learners are caught in the crossfire due to societal issues and injustices. Notably the preservice teachers are also students who may be subjected to the same gendered ill experiences.

## **2. Literature review**

In the context of higher education, an early study by Morsley (2006) revealed that females experience covert discriminatory practices. The discrimination ranges from exclusion from career developmental opportunities, gender-insensitive pedagogical processes, prejudice regarding the women's academic capabilities and intellectual authority, poor equality in implementing policy and unwarranted criticism and facing stigmatisation due to being recipients of affirmative action opportunities (Morsley, 2006). In other studies women reported being subtly treated differently or as 'second citizens' in some gendered corporate cultures even when they performed competitively with their male counterparts. In other words, their intellectual capital is undervalued. Such practices were well explained thirty years ago by Bourdieu and Wacquant (1992) who argued that power thrives when people recognise cultural privilege and power as ascribed rather than achieved.

Whilst such nasty experiences were reported in adult professional women, one can imagine how young females in universities and schools get disheartened on realisation of such marginalisation, injustices, and prejudices. In the classrooms gender inequality has been found to manifest through teacher implementation of gender-insensitive pedagogy, allowing males to dominate in terms of time, space and the content taught (Eliassona, Karlssona, & Sørensen, 2017). There is need to develop teachers as role models who can champion in mitigating gender inequalities. This is because schools are misrepresented as places where there is only rational teaching, learning, and engagement in meaningful activities, yet it is also a place where there is power struggle amongst various stakeholders (Morrell et al., 2009). Notably, a study by de Lange, Mitchell, and Bhana (2012) which investigated the voices of women teachers about gender inequalities and gender-based violence in rural South Africa revealed that the participants saw "the reciprocal influence of home, school, work and society on each other" (p. 504).

## **3. Methodology**

The study adopted an interpretive paradigm and employed a qualitative case study research design. The interpretive approach enabled the researcher to make sense of the preservice teachers' conceptualisation of gender equality in Life Sciences classrooms and their view of how certain topics can be used to address gender inequalities during the teaching and learning process. A qualitative case study (Creswell, 2014) enabled the participants to freely share their conceptions and views within their contexts.

### **3.1. Section of participants**

Using purposeful sampling technique (Patton, 2002), 90 preservice Life Sciences teachers were selected from a South African University to participate in the study. These participants were enrolled for a Bachelor of Education (50 participants) and for Postgraduate Certificate in Education (40 participants).

### **3.2. Data collection and analysis**

A questionnaire with only three open ended questions was designed by the researcher and piloted to fellow researchers in the department to check for plausibility and clarity of items. The questionnaire sought participants' understanding of what gender equality in the science classrooms entails, topics that invoke gender issues, and reasons for the need for teachers to be gender sensitive when teaching such concepts. It was administered to 90 pre-service teachers as a google form and a 100% response was attained considering that this was administered during the normal teaching and learning time where attendance was guaranteed. The purpose of such a study was made clear to the participants that the information was meant to assist the lecturer (researcher) in planning for the introduction of gender responsive pedagogy as a theme in the following year's module. Data was subjected to deductive and thematic analysis (Blum, Stenfors, & Palmgren, 2020).

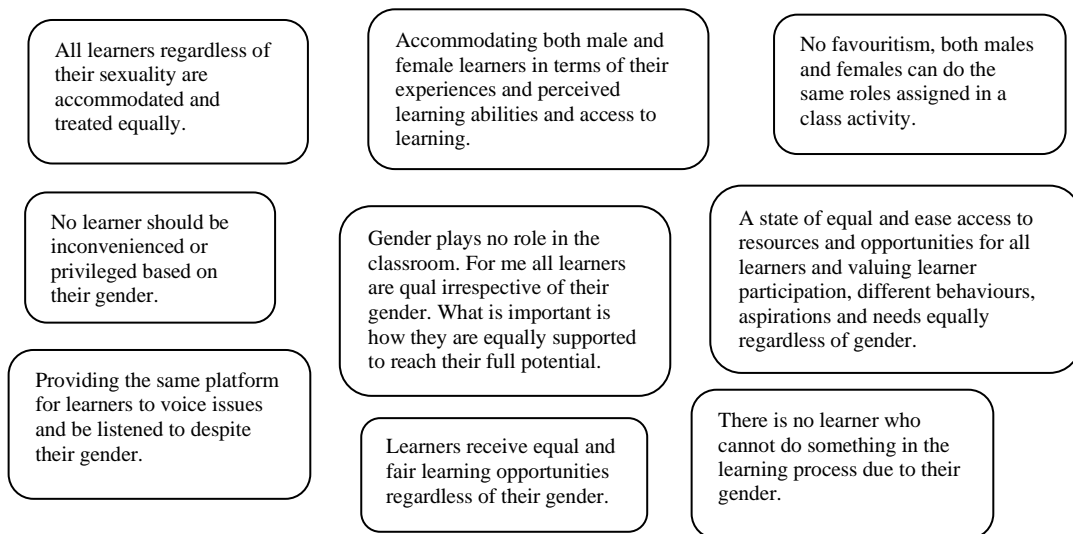
## 4. Findings

From the analysis of the data collected, three themes emerged: 1. Preservice teachers' understandings of what gender equality entails; 2. Gender equality issues arising from topics that evoke emotions in the Life Sciences classrooms; and 3. Life Sciences Teachers' duty to embrace every learner in their classrooms. Each of the themes is discussed below.

### 4.1. Preservice teachers' understandings of what gender equality entails

The participants had various conceptions about what gender equality entails in the Life Sciences classrooms. Figure 1 shows some of the direct quotes in response to the question: what is your understanding of gender equality in the Life Sciences classrooms?

*Figure 1. Preservice teachers' conceptualisation of gender equality in Life Sciences classrooms.*

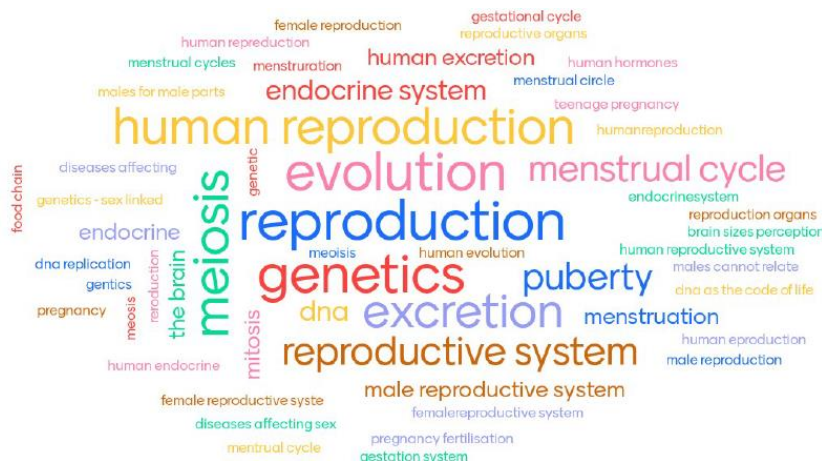


From the responses, it shows that preservice teachers' understandings of what gender equality entails is based on their sociocultural practices, experiences, and beliefs. There were some who felt that gender should not even be an issue in the classroom as all learners need equal support. Such a view evokes discussions and arguments on whether such teachers are genuine, or they are shying away from the existing issue of some learners being marginalised due to their gender. An important aspect on the sexuality of learners also arose from the responses which has been a prevalent issue in South African schools where homophobic teachers have been found to discriminate learners who did not conform to ascribed groups such as male or female. In terms of pedagogical aspects, the preservice teachers touched on fair distribution of resources, nurturing learners' aspirations, and providing opportunities for all learners to participate in class activities rather than the teacher assigning roles based on the learners' gender. They pointed out that where such gender inequality practices exist in the classrooms, some learners are left behind and fail to develop certain manipulative skills particularly in science practical work or investigations.

### 4.2. Gender equality issues arising from Life Sciences topics that evoke emotions

Figure 2 shows a word web showing some of the topics identified by preservice teachers in response to the question on Life Sciences topics that invoke gender issues when teaching such concepts.

Figure 2. shows the topics that preservice teachers identified.



Gender inequality issues arise from topics that evoke emotions in the Life Sciences classrooms. From the identified topics, it shows that concepts that deal with the human body and its systems were mostly identified as those suitable for teachers to address some of the gender inequalities pervasive in diverse communities. These topics have a bearing on reproductive systems such as puberty, menstruation, pregnancy, abortion, and contraception where there is a clear separation of males and females in terms of physical and physiological aspects. In some cultures reproductive health education is handled by the community elders who teach boys and girls separately about their sexuality. Topics such as meiosis and genetics require the teachers to be sensitive to the manner in which they tackle issues in class such as genetic diseases, sex determination, and paternity issues as some learners could be experiencing challenges associated with such issues in their families.

#### 4.3. Teachers’ duty to embrace every learner in their classrooms

When asked to give reasons why teachers should be gender sensitive when teaching the identified topics, the participants gave reasons based on their previous experiences as high school learners and also as university students. This was evident from the emotions ingrained in their responses. Some of the participants showed that the topic evoked emotions as they articulated how a school is a place fondly remembered by the majority of learners but despised by others depending on their experiences. An example of such a view comes from a participant who wrote, “The school should spark fond memories as learners remember their favourite mentors (teachers) whereas others view it as a place of discrimination which makes it hard for learners to pursue their dreams and attain growth.”

The participants indicated that teachers should understand that some learners are not comfortable to speak about issues that relate to sex, reproduction, and their bodies due to their sociocultural upbringing. When teaching puberty for instance teachers should show impartiality especially when discussing physical and physiological changes evident in their high school learners. The preservice teachers indicated that these sexual changes happen in everyone hence no learner should be made to feel disgraced or exposed. Pointing or emphasising on some obvious physical appearance for particular learners may make them uncomfortable and hence they become a subject of ridicule thereby impacting negatively on their self esteem and ultimately on their participation and performance in class.

The participants emphasised that male and female reproductive systems may be uncomfortable to learn for some learners hence teachers should be understanding. This can be sensitive and difficult for some learners who will take offence easily, for instance girls going through menstruation. They indicated that to help learners feel comfortable in the classrooms teachers should employ pedagogical strategies and employ a classroom environment which promotes learners to share ideas and experiences freely. The following are some of the excerpts from the participants’ responses.

Participant 1: It helps learners to be able to work on their own knowing that they can approach their teacher with every matter.

Participant 2: In a case where the teacher is a male and the concept is female reproductive system, it becomes more sensitive for the teacher to teach freely a class of both male and females, some learners may think that the teacher is verbally assaulting them. Reproduction mainly focus on the female and male sex organs and the learners might feel embarrassed or scrutinised as if their bodies are somehow exposed in the public because things like sex organs should be private.

Participant 3: To ensure gender inclusivity in the classrooms teachers should avoid harsh expressions.

Another topical issue raised by the participants was that gender inequality results in learners being prone to bullying and might lead to social ills such as suicide. One of the preservice teachers expressed how lack of gender sensitivity in the Life Sciences classroom when teaching issues about pregnancy, teenage pregnancy and abortion come in when she said, “Teachers should be sensitive because females are not the only ones responsible for causing or preventing pregnancy, yet teachers tend to be biased as they emphasise on girls being irresponsible.” In addition one participant indicated that the teacher should be careful not to share their views when teaching these sensitive topics as this may be misconstrued by learners as imposing or overreaching. The findings also revealed that there were preservice teachers who declined to give responses to the questions. When quizzed outside the lecture, two participants (separately) pointed out that such a topic is sensitive to them, and they declined to elaborate. An interpretation of such a behaviour could be that the participants in question could be witnessing or experiencing such gender injustices in their homes, communities or even institution.

## 5. Discussion, recommendations and conclusions

From the findings it shows that indeed gender inequality practices can happen in the Life Sciences classrooms without the perpetrators’ knowing or intention. This is supported by Morsley (2006) who pointed out that females in particular experience covert discriminatory practices. The current study hence shares the same views as Aikman, Halai, and Rubagiza (2011) who advocated for a deeper scrutiny of the gender biased nature of the school system. Based on the findings, the researcher surmised that such a topic cannot be brought into the classroom without preparing the participants emotionally as previous experiences or encounters at home or in society may interfere with open mindedness to learn. The findings provided an important basis for further research and for teacher development. Such development could be in terms of teachers recognizing gender stereotypical nuances during classroom interactions since learners can be perpetrators as well. Teachers need help in identifying suitable pedagogical strategies to address gender inequalities when teaching specific Life Sciences concepts.

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