

BLACK PRE-SERVICE SCIENCE TEACHERS' EXPERIENCES OF SOCIAL JUSTICE IN A SOUTH AFRICAN UNIVERSITY

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ABSTRACT—The prevalence of social justice in teaching and learning is regarded as one of the most profound ideals that education should address. In societies such as South Africa where historical events indicate racial segregation, social justice should be promoted in education to address these past issues. For teachers to be able to foreground social justice during their teaching, they should be introduced, exposed and experience social justice during their training. In one South African university, effort has been placed on how pre-service teachers may be trained in ways that afford them social justice. This qualitative study aims to explore black pre-service science teachers' experiences of social justice in their training. These students are enrolled for a Bachelor of Education degree specialising in Physical Science Education. There are higher incidences of failure in their science core modules. Semi-structured interviews and focus group interviews were used to collect the data. The interview data were then analysed using content analysis. The pre-service science teachers indicated that they are being discriminated against by the system. Their justification for this view is based on what they regard as the authorities' negative attitude towards the issues that affect their training. The researcher concluded that the teacher training system in the university disregards social justice, though the policy stipulates it.

Keywords: Social justice; Pre-service Science Teachers; Racial Segregation; Training System; Policy.

1. INTRODUCTION

The issues of social justice have occupied the literature on South African education since the days of apartheid and before. A lot of focus has been put on how the successive governments have been enacting policies that sought to work on the social justice of the education system in the country (Mncube, 2008). The analysis of the social justice issues have continued into the current democratic governments since 1994. Within the education sector, the issues surrounding social justice have to be analysed from two focal points: from teacher training and from how those trained teachers go on to implement social justice-driven approaches in their teaching when they qualify as teachers. The focus in this paper, on the analysis of the extent to which black pre-service teachers experience social justice is based on the historical background of how black teacher training was conducted during apartheid in South Africa. The paper as such seeks to find the extent to which social justice is embedded in the training of the black science teachers given that the higher education policies stipulate that it is mandatory to do so (Badat, 2010).

In general the implementation of social justice in education yields advantages including the associated inclusive teaching of all learners (Pantić & Florian, 2015) which caters for individual learning attainment abilities, it also promotes both equity and equality in teaching and learn (Scherlen & Robinson, 2008), it addresses individual learning needs at individual pace (Miller, 1999), and it gives and distributes learning opportunities to previously disadvantaged groups and minorities (Ballard 2012; Florian 2009; Villegas & Lucas 2002; Zeichner 2009). Based on the foregoing merits and many others, this paper seeks to explore the social justice experiences of pre-service black science teachers. The intention is to explore the extent to which the stipulated policies emphasising social justice both in the constitution and the in the institutional policies are being experienced by the students themselves. The objective of this exploration would be to recommend ways through which science teacher training might be implemented with sufficient emphasis on social justice. In the South African context, this would be

important given the scenario that the previous training of science teachers was planned in a manner that denied the pre-service science teachers social justice. To achieve this, the study is informed by the following research question:

What are the self-reported social justice experiences of black pre-service science teachers in a South African university?

2. CONCEPTUAL FRAMEWORK

2.1 Social Justice in Context

The issue of social justice in society has occupied a central position since issues of equality have become central in social discourse. Though the meaning of both equality and social justice are debated in the literature (Scherlen & Robinson, 2008; Venieris, 2013) scholars have come to agree that the concept of social justice is much broader and more applicable to society. This view is alluded to Organization for Economic Cooperation and Development (OECD) (2011) when it comments that the boundaries of social justice are in flux and its boundaries keep changing due to the influences of cultural and cultural factors. OECD has gone further to define social justice as a collective aim within society that seeks to realise, observe and maintain equal opportunities and privileges in terms of life chances to all members of the society. One of the key proponents of social justice Rawls (2003: 58) has defined social justice as the distribution and redistribution of goods that “citizens need as free and equal persons living a complete life; they are not things it is simply rational to want or desire, or to prefer or even to crave”. In this definition, therefore, it is clear that the concept of social justice, whilst having political undertones, may not be easily separated from the concept of equality. In his Rawls’ (2003) further elaboration that these goods include amongst the most basic:

- The basic rights and liberties: freedom of thought and liberty of conscience, and the rest;
- Freedom of movement and free choice of occupation against a background of diverse opportunities, which opportunities allow the pursuit of a variety of ends and give effect to decisions to revise and alter them;
- Powers and prerogatives of office and position of authority and responsibility;
- Income and wealth, understood as all-purpose means (having an exchange value) generally needed to achieve a wide range of ends whatever they may be; and
- The social bases of self-respect, understood as those aspects of basic institutions normally essential if citizens are to have a lively sense of their worth as persons and to be able to advance their ends with self-confidence.

From another social justice perspective, Young (2000) has mentioned that for social justice to manifest, there is a need to establish institutionalised and structuralised approaches that seek to promote the development of two key attributes within societies and amongst its members: self-determination and self-development. Young goes on to explain that if these two attributes fail to emerge and be observed society will face domination and oppression. The development of domination and oppression which is mostly related and possessed by the authorities in society, would lead to social injustice.

Nussbaum (2000) has also looked at social justice. She reiterated that social justice involves the prevalence and maintenance of systems that allow collective and collaborative processes of problem-solving, critical dialogue, inclusion of diverse perspectives and an uncensored willingness to listen and consider other individuals’ views, perceptions and ways of life regardless of whether they differ from one’s own. She explains further that social justice is about respecting the self and the-other and avoid contempt and prejudice of the views belonging to others. She explains further that the ultimate goal of social justice is the observance that all humanity is of worth.

In their analysis of the concept of social justice, Arthur, Collins, McMahon and Marshall (2009) have argued that apart from its emphasis on the need for equality and redistribution and distribution of common goods and services, the concept of social justice comprises of three principal components viz:

- Fair and equitable distribution of resources and opportunities
- Direct action to ameliorate oppression and marginalization within society
- Full inclusion and participation of all members of society in a way that enables them to reach their potential.

An analysis of the views mentioned so far with regards to social justice indicates that the concept's central focus is mostly on the presentation of equality of opportunities, privileges, goods and services to all people without segregation. There is an implication that the concept concedes to the need to take cognisance of individual and collective views and perceptions regarding commonality, and the need to observe difference in opinion or status.

2.2 Social justice and education

The consideration of social justice in education could possibly be traced back to critical theorists, such as Freire (1972). This philosophical foundation of education has tried to analyse how education and society have influenced each other. Other prominent scholars who have looked at the relationship between education and social justice include Bourdieu (1986). Bourdieu (1986) has analysed how the lack of cultural capital from home leads to marginalisation and social injustice in education settings. According to his view, learners from disadvantaged backgrounds go to school whilst already at a disadvantage due to their lack of the pre-requisite foundational knowledge, attributes, traits and skills that would be required for them to learn and acquire scholarly knowledge (Bourdieu & Passeron, 1977). The views of Bourdieu and Passeron (1977) correspond to what Nussbaum (2000) refers as the failure of education to promote an individual's capability as its key goal. Her argument is that education should be structured in a manner that foregrounds the development of their capabilities and not to restrain them. Nussbaum elaborates further that this would lead to the development of and manifestation of social justice through education.

The development of social justice through education has also been explained in terms of how the fairness of the system would eventually lead to the development of personal agency (Arendt, 1977). The development of personal agency has been reported to lead to the development of a fulfilling life which Grant (2012) says is responsible for just and sound personal life. Such a life leads to the attainment of satisfaction (Furbish, 2015) of which is a manifestation of social justice. This view is alluded to by Du Bois (1905/2005) who argues that through education social justice can lead to the development of free minds and self-discovery. He regards this as the development of enlightenment.

2.3 Social justice in science education

The issue of social justice in the South African education system been alluded to above situation has been reported in the literature to have been influenced by the apartheid government policies which institutionally sought to disadvantage black learners. The situation is best described by the following paragraph from one of the apartheid Ministers of Native Affairs which was also responsible for Native education:

When I have control over Native education I will reform it so that the Natives will be taught from childhood to realise that equality with Europeans is not for them. People who believe in equality are not desirable teachers for Natives... What is the use of teaching the Bantu child Mathematics when it cannot use it in practice? That is quite absurd (Verwoerd, 1953: 3585).

The foregoing statement says a lot about social justice in South African education. First it makes it clear that the education system would not have equality as one of the principles underlying it. Secondly, the

statement makes it clear that teachers who were to teach Bantu learners were supposed to be avid supporters of racism and inequality. Thirdly, it makes it quite clear that certain subjects were not to be taught to these learners. A summative analysis of this statement gives the impression that overall the system disregarded social justice for black learners.

The nature of the social injustice is also made quite clear from the following statement from one of the apartheid academies and authorities:

Blacks are retarded as regards visual-perceptual development that in contrast with Whites they reveal an inability to report depth perception and to interpret 3-dimensionality; that their concepts of space differs radically from that of white; that they experience problems in perceiving pictures and figures analytically; that they do not have a clear understanding of concepts like circumference, length and width and generally find arithmetical concepts difficult to master (Groenewald, 1976: 46).

An analysis of this statement gives an overall prejudicing of the capabilities of the black learners. This clearly indicates that the system had an ingrained racism and social injustice. The statement contradicts sharply with the views of Nussbaum (2000) which advocated for the support of the development of capability rather a systematic restrain of it. If such negative perceptions were found amongst the people who were training black teachers, it might be necessary to explore the extent to which the democratic government dispensation was able to reform the system to cater for the social justice needs of the black pre-service teachers.

3. METHODOLOGY

3.1 Data Collection and Analysis

The present study used a case study methodology. This research is located within the design-based paradigm. It intended to distil principles that may be used to promote the emphasis and realisation of social justice during the training of science teachers. As mentioned by Reeves (2000), one of the advantages of design-based research is that it allows interaction and collaboration with the participants. Moreover, the approach is normally used to find solutions to some issues that the participants would be facing. Figure 1 shows that this paradigm has four stages (Reeves, 2000):

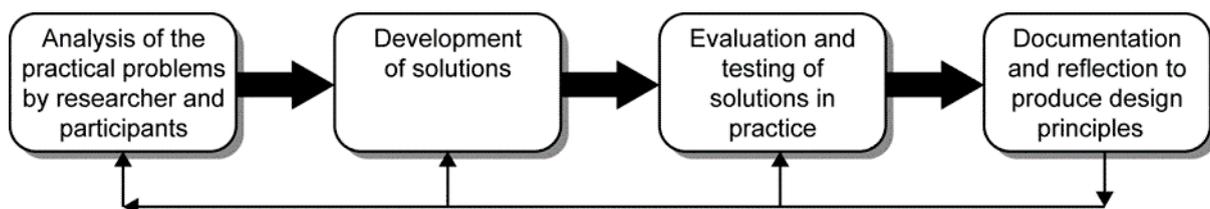


Figure 1: Design-based research stages followed in the study

To contextualise this study, the following steps were followed. The planning of the stages was informed by the Reeves (2000) model illustrated in Figure 1 above:

- (a) Analysis of the pre-service science teachers' experiences of social justice.
- (b) Development of solutions collaboratively with the pre-service teachers.
- (c) Evaluation and testing of solutions in practice during training.
- (d) Collaborative documentation and reflection to produce design principles.

This paper will only focus on the first stage: the analysis of the pre-service science teachers' experiences of social justice in their training.

10 pre-service third year Physical Sciences teachers in a South African university participated in the study. The researcher employed purposive and convenient sampling (Cohen, Manion & Morrison, 2000; Jupp, 2006; Palys, 2008). Under purposive sampling, the selection of the participants is controlled

and determined by the researcher using some pre-set criteria (Tongco, 2007). The ready availability of the participants helped to minimise costs incurred in the research. Two group interviews and five individual interviews were implemented. The individual interviews lasted between 20 and 45 minutes while the group interviews lasted for about 30 minutes each. Two interview schedules were written, one for the group interviews and the other for the individual interviews. All the interviews were recorded after permission was granted by the individual participants. The interview data were transcribed and the analysis followed Saldaña’s approach (Saldaña, 2009) as illustrated in Figure 2 below.

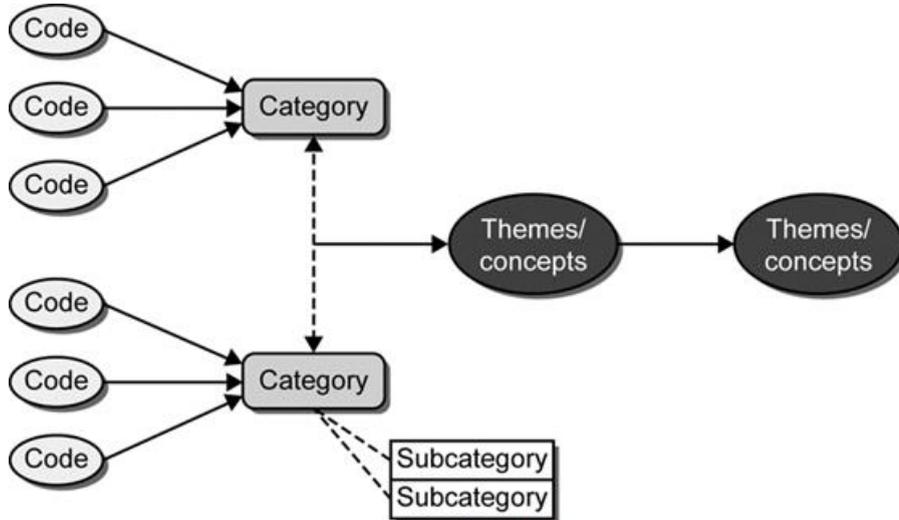


Figure 2: The Saldaña model (Saldaña, 2009)

Following the Saldaña (2009) model, the data in the interview transcripts were coded, related codes were clustered into categories, and finally, related categories were clustered into themes (Saldaña, 2009). In order to avoid any bias during the analysis of the data, the data from the interviews and the focus groups were read and coded several times. This approach follows what Hsieh and Shannon (2005) regard as conventional content analysis. During this process, coding categories are directly derived from the text in an inductive manner. To improve the validity and reliability of the data analysis, the interview transcripts were coded and recoded three times. In addition to that, three experienced senior researchers were asked to check the accuracy of both coding and the analysis processes. The researchers suggested that some modifications such as recoding be done, which were then implemented.

4. RESULTS AND DISCUSSION OF RESULTS

Seven themes emerged from the data analysis, and under this, all of the data were addressed. To improve the validity and reliability of the data analysis, three experienced senior researchers were asked to check the accuracy of the analysis process. The researchers suggested some modifications, which were then implemented. The themes are then discussed in the form of assertions (Mamutse, 2015).

As mentioned earlier, the findings from the study are given in terms of assertions. The assertions are: unfair deployment during school practicum; unfriendly learning environments; unfair use of language; denied audience.

4.1 Unfair deployment during school practicum

The participants complained that for their school practicum experience, they are being deployed to inner-city schools and other poor schools with the intention of denying experience in the former Model C schools. The race to get appointed at the later schools is to do with the experience that the students

will get in preparation for their final jobs when they complete their studies. The students complained that no white students are deployed in inner-city and in township schools, and as such, the implication is that the institution is strategically training them according to social classes. The students' views are expressed in the following verbatim extracts:

In my view the faculty is simply training us according to who we are. I mean that school experience is part and parcel of our training and why is that we the blacks are mostly deployed to black schools with no facilities such as laboratories (S4).

The office for that deals with our deployment should make sure that there is a rotation in terms of the types of schools to which we are deployed in terms of school experience. I mean they should make sure that one gets experience in a township school, in a suburban school and in a former model c school. It is not fair that we are just scattered in poor schools (S7).

The students' complains pertaining to how their social classes are used as a determinant for their deployment into schools has been explained by Bourdieu (1986) in terms of how cultural capital is used as a determinant for the progress of the students. The issue can also be related to Rist's (1977) theory which looks at how systems segregate learners through viewing them and categorising them into pre-meditated classes.

4.2 Unfriendly learning environments

The students mentioned that the learning environment is generally not friendly to them. They explained that the way the lecturers treat them is demeaning and unfair. They talked about how their courses emphasises on the need to be inclusive yet no traces of inclusion are exhibited by those who train them. They reiterate that the relationship between their training and what they find in the schools and what they are expected to do is not positive. Their sentiments are indicated below:

When you walk into the lecture room, you find a very unfriendly environment awaiting you. Even the way the lecturers communicate with us would be expressing utter dislike of our presence. This is mostly true with our faculty of science modules (S5).

We are made to feel as if we are aliens in the lectures. It is clear we are not wanted there. We just have to hang on there. What can we do? (S9)

The way we are treated makes some of the modules very challenging. We are afraid of asking questions when we do not understand things. It looks like they want us to fail (S2).

The issues raised by the students have been raised elsewhere in the literature (Ainscow & Miles, 2008; Bandyopadhyay, 2006). Such trends have been reported as common especially in multicultural societies where learners and students from marginalized groups are exposed to unfriendly learning environments so that they may drop from the education systems. In a study carried out by Simone (2012) he found out that the marginalised students are regarded as deficit in terms of their thinking. Due to this view, the authorities would tend to show them negative attitudes, consequently frustrating their efforts to perform highly in their work. Balibar (2005) has referred to such trends as internal exclusion, where the education system tends to latently discriminate against certain students from within the system. As explained by Leonard (1984: 181) such marginalisation leads to the exclusion of the individuals from the 'the major arena of capitalist productive and reproductive activity'.

4.3 Unfair use of language

The students indicated that one of the key issues that they face is unfriendly and inappropriate language. They mentioned that in certain cases, they are given instructions in a language that they do not understand. According to them, the intention would be for them not to understand the

instructions. The students also complained that in some cases, a student who speaks the same language as the lecturer would ask a question in that language and the lecturer would respond to them in the same language. In that case, the majority of the students would be left without understanding the content under discussion. The students feel that the policy that English language is the official language in the institution is just for record purposes and on the ground it is not closely monitored and consequently it is not implemented. Some of the students' concerns are captured below:

In a number of cases the language that is used is not clear to us. It might be some few words during an explanation but obviously it affects our understanding (S10).

The worst scenario is when somebody asks a question for instance in Afrikaans and then the lecturer will go ahead and answer the question in Afrikaans. We are left in the cold under those circumstances. It is just like us asking questions in IsiZulu when there are people who cannot understand IsiZulu. We feel like this is meant to deny us from understanding certain content. We have no problems with the use of any language but we however feel that the lecturer should at least translate to us so that we may also understand (S4).

In South Africa, the Bill of Rights makes it clear that the use of language should not disadvantage any one be it in education anywhere else where there would be the need to use a common language (Goldstone, 1997). In the literature scholars such as Gauci and Grima (2013) have analysed how codeswitching could be used productively in multicultural classes. This alludes to the students' askance for the lecturers to translate languages for the benefit of all the students.

4.4 Denied audience

Participants expressed concerns over cases whereby they are denied audience when they have issues that they would want to present. Such issues include cases where they have grievances pertaining for instance to the structure of their programmes. A typical case given was when the administrators were discriminating with regards to which student would be allowed to continue or which one would be forced to drop from a program after they have failed to meet the minimum requirements. The students expressed concerns that there were cases when black students were denied opportunities to repeat their programs when students from other races being allowed despite all of those students having failed to meet the minimum requirements. They mentioned that when they raised the issue they were denied an audience by the authorities. Their concerns are stated verbatim below:

Every time that we have a problem and we ask for audience with the authorities we are thrown from pillar to post. We are referred from this authority to the other. Last year we almost went for a strike for that (S5).

When we have problems we are shown the attitude that we are being unreasonable. We are expected to follow instructions without asking anything. One day is one day we shall rise against that (S1).

We face a lot of problems here. Nobody listens to us. This is totally unfair (S8).

The students' views correlate with the findings of a study that was carried out by Croft and Schmader (2012) where they found out that the failure to listen to students goes further to even include cases where regular feedback is withheld by the authorities. Similar sentiments have been shared by Tuan (1998) when he made recommendations on how listening to students would avoid the development of negative attitudes and stereotypes by authorities and thus lead to inclusive teaching.

5. Conclusion and recommendations

The study has found out that the pre-service teachers generally experience social injustice from the authorities, the institution, and the system at large. The students' views give the impression that the system marginalises them by denying them fair opportunities to achieve in their studies. Though the students' sentiments augured well with the literature from earlier studies, it is quite clear that the authorities need to foster the implementation of social justice in their teacher training. The essence of this is so that when these teachers qualify they would be in a position to include social justice in their teaching. The study has categorically managed to make it explicit that the training of preservice science teachers needs to be reorganized. The reorganization could include the need for the authorities to make consultations with the lecturers so that they may be able to make them understand the expectations needed to be met during the training of not only academically competent teachers, but teachers who would be able to cater for the individual needs of the learners irrespective of their ethnic origin. It is also recommended that the authorities might need to occasionally have meetings with the students or their representatives so as to ensure that their concerns are addressed in time. Given the segregatory history of the South African education system it is essential for the authorities not to take anything for granted in terms of how students feel and the way their training is conducted. This in essence might be the basis of a strong foundation for the implementation of transformation in education. Failure to foster the implementation of social justice would tantamount to bringing back Bantu Education under a new name.

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