# Popular conceptions of democracy in a mathematics teacher-education programme

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While the meaning of democracy remains multi-faceted centuries after the concept was first conceived of and subsequently formulated, democratic principles have spread to the extent of bringing about democratisation in all fields of education. Thus, with this study we sought to examine the popular conception of democracy in mathematics-education programmes at South African universities. A qualitative research approach and a case study research design were used in this study. Six mathematics teacher educators and 75 second- to fourth-year mathematics education student teachers from 3 different universities constitute the sample for the study. The findings from the study revealed that participants had a contested notion of democracy, since the majority understood it as involving deliberative participation, a shared decision-making process, as well as freedom of expression. Based on the findings of the study, it was concluded that participants were aware of what democracy should look like and were willing to live according to democratic tenets. This understanding was, however, greatly influenced by their experiences and way of life in a democratic South Africa.

**Keywords:** decision-making; democracy; freedom; mathematics education; participation

## Introduction

Globally, democracy is deemed to have both a direct and an indirect effect on freedom and, notably, on citizens' levels of income (Gründler & Krieger, 2016). This perception is reflected in the finding that 79% of people would prefer to reside in a state or nation which identifies itself as democratic (World Value Survey Association, 2014). Among those surveyed in the aforementioned undertaking were citizens of countries such as the United States of America, Chile and Ecuador; African nations such as Zimbabwe and Rwanda; Islamic states such as Malaysia and Pakistan; and Asian countries such as China and South Korea – many of whom have long embraced democracy (Gründler & Krieger, 2016). According to Gründler and Krieger (2016), there seems to be a general belief in the positive contributory effect that democracy has on citizens' livelihoods and the economic growth of their countries. Related literature on democracy has been summarised by Gerring, Bond, Barndt and Moreno (2005) who conclude that, over the past five decades, democracy has had a positive indirect effect: not only is there a nexus between democracy and income levels (Gründler & Krieger, 2016) but as Acemoglu, Naidu, Restrepo and Robinson (2019) also note, it has an important and robustly positive effect on a nation's gross domestic product (GDP). Democracy is responsible for boosting future GDP by promoting education, attracting investment, refining the provision of public goods, encouraging economic transformation and decreasing social unrest (Acemoglu et al., 2019).

Other studies, however, found no positive link between democracy, growth and income. For instance, Murtin and Wacziarg (2014) scrutinised the economic attributes associated with deepening democracy through a historical overview of education, democracy levels and income for the period 1870 to 2000. The findings of their study revealed that, to some extent, per capita income levels and primary schooling were strong contributing factors in determining the quality of a country's political institutions, and showed some (albeit not marked) evidence of a connection between democracy, education and income (Murtin & Wacziarg, 2014). Similarly, Jacob and Osang (2017) examined whether democracy had a direct effect on economic growth. By contrasting the growth effect of institutions, system stability, geography, openness and macroeconomic policy variables, the authors deduced that democratic mechanisms were less important than measures aimed at boosting economic growth (Jacob & Osang, 2017).

Over the years, education for democracy and democratic citizenship has gained momentum across the globe. According to Roh (2004), this phenomenon is closely linked to global change, which has seen most developed countries pursue democracy as a value and entrench democratic systems in the course of the latter half of the 20th century. This confirms that most countries are deeply concerned about how democracy can be created and implemented in their communities, with many considering the education of democratic citizens to be a national priority (Roh, 2004). Likewise, of direct significance to democracy is the design and inclusion of political indicators of development (Harber & Mncube, 2012), strongly influenced by the ideas of Amartya Sen (1999), who argues that "development requires the removal of major sources of unfreedom: poverty as well as tyranny, poor economic opportunities as well as systematic social deprivation, neglect of public facilities, as well as the intolerance or overactivity of repressive states" (p. 3). As such, Sen (1999) argues that freedom relies on various determinants which include social and economic factors, as well as political and civil rights, viewing development in terms of "the substantive freedoms of people has far-reaching implications for understanding the process of development, as well as the ways and means of promoting it" (Sen, 1999:33). Therefore,

reconstructing and problematising democracy and citizenship for each generation is vital, so that public schools can contribute to the never-ending task of preparing individuals for self-governance in a constantly changing social environment (Giroux, JJ 1995). This is because, as Sen (1999) argues, public schools are capable of promoting such development while teaching students the values and skills necessary to administer, protect and perpetuate a free, democratic society.

## Literature Review: Democracy and its Contested Notions

As previously stated, the term "democracy" has various meanings. Its conception, contextualisation and realisation are all dependent on the proponents' ideas and philosophies, and their social, economic, political and cultural perspectives (Bassiouni, 1998). Provenzo and Renaud (2008) argues that democracy and education are inseparable in practice and in social thought, because historically and contemporarily, democracy has played (and continues to play) an essential role in shaping the way we conceive of education and society. This simply means that education takes precedence in a democracy since it is a prerequisite for the latter's survival and development given that education instils in people a democratic mindset such as liberty, equality, justice, individual dignity, cooperation, and shared responsibilities, among many others. To this day, how public education is understood, scripted and transmitted is debated along philosophical, programmatic and pedagogical lines, in relation to the contested notion of democracy (Provenzo & Renaud, 2008).

Gastil (1994) defines democracy as a comprehensive process of making decisions which afford all citizens an opportunity to make their views known and to deliberate on political agendas in order to reach a meaningful and collective decision. According to Apple (1988), the definition of democracy is both contested and confusing. Apple (p. 2) states that "one can understand, for example, how claims for democracy could be used to promote movements for civil rights, expanded voting privileges, and [the] protection of free speech." For Apple (1988), in America especially, the ideal of democracy is used to further the causes of free-market economies and school-choice vouchers (a certificate of government funding for learners at a school chosen by them or their parents) and to defend the dominance of the two main political parties (where, at any given time, one holds the majority in the legislature and is deemed the governing party, while the other is referred to as the opposition party). All people employ the term "democracy" extensively, even several times a day, often to justify almost everything they want to do: "Hey, we live in a democracy, right?" (Apple, 1998:2). Clearly, depending on the society, democracy works in different ways.

Forbrig (2005) defines democracy as the rule of the people, or a system in which the people who must follow the rules make the rules. It denotes a certain kind of social and political structure. Today, most people and countries believe that democracy is the only legitimate and viable form of government. Forbrig (2005) posits that democracy rests on two fundamental principles, namely, individual autonomy and equality (i.e., equal opportunity to make and influence decisions that affect people's lives). Alshurman (2015) argues that although the word seems familiar to many, the concept still remains unclear, misunderstood and often misused by single-party regimes, military leaders or dictators who seek the support of large swathes of people.

Although some countries wish for democracy, "they often find themselves at a loss of how to define it, let alone implement it; thus, the practice of democracy does not, ipso facto, follow the desire for it, it has to be learned" (Sigel, 1991:3). Davies (1999) posits that democracy is one of the most difficult concepts to define, therefore it may be better understood by taking an opposing perspective – what is an *un*democratic society? In applying this to a classroom context, Davies (1999) explains that although a teacher may not fully understand what a democratic classroom looks like, s/he knows exactly what an undemocratic classroom looks like. This is because such space disengages students from democratic living and fails to foster democratic principles such as inclusiveness, voice, student participation and representation. Thus, failure to share power in a class or in society at large can be attributed (at least in part) to a lack of recognition of what "participation" means, especially in traditionally diverse societies (Davies, 1999:138).

According to Osborne (2001:33), traditional explanations for democracy frequently confine their scope to the defining of a certain political agenda, which is usually focused on putting "self-rule into practice." Critical conceptions from the 20th century, on the other hand, view democracy as a "dedication to self- and social empowerment ... that commands respect for individual liberty and social fairness" (Giroux, H & McLaren, 1986:224). Democracy, in this view, is linked to transformational discussion and action that can "alter the oppressive conditions in which life is lived" (p. 226). Hence, this shift in understanding from traditional to critical definition transforms democracy from a purely political aim to a transformative tool for reimagining the society (MacMath, 2008; Westheimer & Kahne, 2004). Democratic principles such as equality, participation in the social and political spheres, the freedom to vote, and an unwillingness to use

violence to achieve social and political goals, have prompted many nations to embrace a democratic form of governance (Westheimer & Kahne, 2004).

A study of the democratic evolution of South Africa and the effect of colonisation (in which indigenous knowledge systems such as the ethics, principles and practices that the native people brought to daily life and were cheapened by colonialists in favour of Western values and methods) revealed that understandings of democracy are rooted in a host of conditions (Kubow, 2009). These include sociocultural, economic and political conditions that have shaped the character of the citizenry and nation-building in a marked way (Kubow, 2009). It cannot be fair to expect teachers, who question their own sense of self and are not familiar with the practices of democracy due to the aforementioned conditions, to somehow know how to act democratically (Davids, 2018).

In a study by Mattes, Davids and Africa (2000), the results from the Southern African Democracy Barometer show that while South Africans exhibit modest levels of understanding of, and support for, democracy, overall support levels have not increased in any substantial way and in fact lag significantly behind what was found in many neighbouring countries. The findings of that study further revealed that, during South Africa's first 5 years of democracy, the country's democratic culture did not progress to a level that would allow it to consolidate its new democratic government (Mattes et al., 2000). As such, the process of bargaining and negotiating the South African constitutional design, as well as institutional innovation, left behind the majority of the citizens (Mattes et al., 2000). Msila (2013), in a study that sought to assess democratic education through the perspective of the poor and appraise the post-apartheid experience, argues that democracy is regarded as a remedy for many social issues, including unequal education. Hence, after years of democracy, the majority of South African citizens continue to be affected by a crippling history and are unable to benefit from freedom and democracy. Some would argue that these negative effects should not be blamed on democracy, but rather on those who manipulate it (Msila, 2013).

For Dewey (1916a:para. 2), however, democracy is a "way of life", based on individual and community beliefs, assumptions, and common experiences. Democracy is therefore not a static concept – it is dynamic, active and ever-changing. Subba (2014) adds that democracy is built on the belief that every human being has dignity and worth, which means that the goal of democratic education must be the full, holistic development of each individual's personality. Such an education serves to initiate learners into the art of living in vibrant, multifaceted communities. It is self-evident that no single person can live and grow in isolation. Hence, no education is worth the name unless it instils the qualities that citizens require in order to coexist in a good, harmonious, and efficient manner (Subba, 2014).

Solhaug (2018) posits that a democratic education system is dependent on the knowledge, skills and attitudes of those charged with the primary responsibility of educating others. Put differently, while a variety of experiences and sources influence young people's perspectives on democracy, politics, and citizenship, school education is one of the society's main attempts to equip the youth with knowledge, skills, attitudes, and values deemed appropriate and necessary for them to care about and contribute to their society (Solhaug, 2018).

A democratic way of thinking, being, and acting cannot merely be taught; it must also be visible in the interactions and engagements in the classroom. It is pointless for a teacher to claim to be cultivating a democratic classroom if he or she humiliates students when they appear to make mistakes in class, because learners bring to class what they learn in the world around them (Biesta, 2011). The atmosphere in the classroom has the ability to influence learners, because it represents one corner of their world (Biesta, 2011). Curricular reform thus cannot solely focus on preparing teachers to help develop content knowledge. Rather, it should be accompanied by a united effort to reconcile learners' displaced identities, which were splintered by apartheid and failed to teach them how to act responsibly, what it means to belong, or what accountability entails (Davids, 2018).

As Vithal and Skovsmose (2012) note, in the triad of democracy, development and mathematics education, the first two terms remain deeply contested. The challenges which affluent nations face in this regard are, of course, also present in the context of societies described as "developing." A country such as South Africa has to engage simultaneously with mathematics education and its role and function in deepening and strengthening democracy, and also with enabling and sustaining key areas of development. This is because, if a country like South Africa will embrace mathematics education and its fundamental role in equipping people with knowledge and skills, the country will be able to achieve the targeted economic growth rates, combat poverty and high rate of inequality (Vithal & Skovsmose, 2012). This explains the need to investigate the conception of democracy in teacher-education programmes at South African universities.

*The state of democracy in South Africa*
In the quest for truth and reconciliation in the post-apartheid era, the enactment of the new

Constitution of the Republic of South Africa, 1996 (Republic of South Africa [RSA], 1996) (hereafter the constitution), was a milestone in the establishment of a democratic society. However, South Africa's constitutional values are undermined by political cultures that often practice the opposite of what the constitution purports to promote in "civic" education. As a result, vital democratic values such as accountability, non-sexism, free debate as well as non-racism are often disregarded by political leaders (Moodley & Adam, 2004). The constitution (RSA, 1996), in theory, embodies an updated version of Athenian democracy and citizenship – a concept that promotes robust debate on future education policies that foster critical, inquiring, and active citizens capable of building, strengthening, and upholding South Africa's democracy (Mathebula, 2009). In practice, however, it "tends toward a 'transformed' citizen able to overcome the apartheid divide, i.e., race and ethnicity-based contested notions of citizenship in South Africa, without committing to the provision of the tools necessary for such transformation (both internal/personal and external/political), in pursuit of a modified version of the prototypical concept of democratic citizenship" (Mathebula, 2009:109–110). Based on the above contention, there is tension between a transformative and a substantive conception of democracy in the South African context and, as such, a democratic society such as South Africa still continues to face the challenges of educating successive generations of young people for responsible citizenship.

Theoretical Framework
This study is underpinned by Dewey's (1946) democratic theory. Dewey (1946) makes rational assumptions by investigating whether schools and democracy have an interconnecting relationship. In this view, schools are "successful in building up the machinery of a democracy of mind", but they fail to be "conscious of the ethical principle upon which it rests" (Višnovsky & Zolcer, 2016:55). Dewey (1946:248) submits that the cure for the "evils of democracy" lies in "more thorough-going democracy." With teachers in mind, Dewey (1916, in Višnovsky & Zolcer, 2016:58) questions whether

> the individual is to have a share in determining the conditions and the aims of his own work; and that, upon the whole, through the free and mutual harmonizing of different individuals, the work of the world is better done when planned, arranged, and directed by a few, no matter how wise or of how good intent that few.

Dewey's sustained optimism and his critical notions of democracy in education and society brought him closer to a more convincing theory when thinking about "education in an industrial democracy" (Dewey, 1916a:232). He describes

political democracy as "a form of government which does not respect the well-being of one individual or class above that of another" but serves "the happiness and interests of all as upon the same plane" (Dewey, 1916b:232). Moral or social democracy he defines as "a state of social life where there is a wide and varied distribution of opportunities" along with "social mobility […], free circulation of experiences and ideas […], recognition of common interests […], and mutual support between social organisations and their members" (Dewey, 1916b:232).

Hence, from Dewey's perspective, education and democracy differ only in one significant respect: democracy is an ultimate social framework for any idea which society advances to accomplish its mission, which is just a possibility that might not be realised, while education is a certainty and an expected requisite within which societies can survive (Višnovsky & Zolcer, 2016). Society thus exists through a process of transmission, which is similar to how biological life is sustained (Dewey, 1937). The same is true of any social group's life: even after a member of the group dies, the group's way of life is passed down through the generations. Similarly, education is a method of transmitting knowledge within a social group or community, whether it is the transmission of beliefs, hopes, or knowledge (Dewey, 1937). In this way, a young member of a social group may learn the group's skills, practices, and values from older members of the group. Education is thus a means of ensuring social stability, and is an essential condition for continuity. Therefore, a member's every experience in society may require that s/he learn something. In fact, an individual's existence in a society involves some form of education (Višnovsky & Zolcer, 2016).

Dewey (1937) emphasises the importance of formal education for preserving society, yet warns about the flaws that exist in both formal and informal methods of education: the former "easily becomes remote and dead – abstract and bookish, [indicative of] depreciation" (Dewey, 1888:98); it may even become artificial, with more emphasis placed on teaching learners abstract ideas rather than putting them into practice. When this happens, more important social interests are hidden from view. As formal education tends to overemphasise the academic aspect of education (Dewey, 1888), it does little more than fill learners' minds with information to be memorised (Višnovsky & Zolcer, 2016). By contrast, those educational experiences designated by Dewey as "informal" (Višnovsky & Zolcer, 2016:66), cannot be avoided – this is because Dewey (1888) regards informal education as primary experiences enabled by the social environment. That is "the unconscious influence of the environment that is so subtle and pervasive that it affects every fiber of

character and mind" (Dewey, 1888:98). In this, Dewey (1888) includes language learning, manners and aesthetic appreciation as experiences in an informal education which is mostly not intentional but incidental. He, therefore, advocates that the educational experience in complex cultures should be formalised and enhanced. This is because, as the complexity of a social group grows, informal education is no longer sufficient, necessitating a more formal education, which necessitates the establishment of a school system (Višnovsky & Zolcer, 2016).

Dewey's theory of democracy, when effectively combined with his notion of education, has numerous inferences. At school level, teaching for participation and involvement allows learners to initiate those practices which will help to form their mental and moral character. When learners share their experiences, they cultivate social abilities such as honesty in dealing with others, a helping disposition, self-sacrifice, sympathy, unity, harmony, and a sense of social justice and accountability. This underscores the importance of Dewey's (1985) conceptualisation and theorisation that education has to connect a school's curriculum to life in the local community.

**Methodology**
Underpinned by an interpretivist paradigm, we employed a qualitative research approach and a case study research design in this study to investigate the conception of democracy in teacher-education programmes at South African universities. To this end, six mathematics teacher educators and 75 pre-service mathematics student teachers were selected from three traditional South African universities using a purposive sampling technique. Purposive sampling was found suitable for the study because it gives the researchers the opportunity of selecting knowledgeable participants who possess an in-depth understanding of the phenomenon under investigation (Leavy, 2017). Also, factors such as mathematics student-teachers' low enrolment, limited number of mathematics teacher educators, and limited time and expenses inform the number of study participants. Similarly, these three traditional universities were chosen specifically to provide unique and fascinating information on democratic citizenship and preparation of mathematics teachers.

Thus, data were gathered using semi-structured interviews to analyse participants' understanding of democracy. This type of interview gave participants ample opportunity to express themselves, but more attention was focused on the set questions, to avoid aimless rambling (Datko, 2015). A major benefit of this approach to data collection was that it enabled the participants to contribute by expressing their understanding of democracy, rather than asking about external factors (Anderson, 2013). Using thematic data analysis, the three higher education institutions (HEIs) visited for this study were assigned pseudonyms, namely, University X, University Y, and University Z to distinguish them. To get a holistic view of the participants' responses, the data from the interviews were compared to the interview questions and raw responses received from participants affiliated with those universities. University X, Y, and Z had two mathematics teacher educators each making up a total of six and were assigned pseudonyms ME 1 and ME 2. Similarly, the 25 mathematics student teachers at each university were coded as ST 1 to ST 25, followed by University X, Y, or Z, making up a total of 75 pre-service teachers.

**Results and Discussion**
To examine the popular conceptions of democracy as it manifested themselves in mathematics teacher-preparation programmes, participants were asked "What is your understanding of the word 'democracy'?" The results and discussions are presented under the following themes:
- Democracy as deliberative participation
- Democracy as a shared decision-making process
- Democracy as freedom of expression

Theme One: Democracy as Deliberative Participation
The research findings revealed that the participants referenced several democratic characteristics such as participation, shared decision-making, and freedom of speech/choice/expression. The participants affirmed that participation is at the heart of democracy, and similar words were used to emphasise free and voluntary participation, as indicated in the following response:

> *Democracy is when people are allowed to express themselves freely and* […] *allowed to freely participate in any activities they wish, in which their voices are and can be freely heard and* [they] *are also permitted to participate in the decision-making process. On the issue of voices to be heard, it means that people must be given equal opportunity to participate and contribute positively. And people who are given the opportunity to participate represent the interest*[s] *of others without any form of bias, gender or racial discrimination.* (ST 3; University Z)

From the findings of the study, it became evident that the majority of the participants had an understanding of what democracy entailed. For instance, their responses revealed that democracy embraces citizens' right to make decisions in their chosen sphere through active participation. During the interview sessions, the participants mentioned various ways in which they participated in decision-making processes, including classroom debates, engagement in social and educational activities organised by different political parties, and the activities of the student representative

council (SRC). The participants' conception of participation afforded insight into their understanding of what democracy means. For them, participation through engagement informed mutual or joint decision-making. According to Pietrzyk-Reeves (2006), the participatory model of democracy stresses the significance and importance of citizens' participation in various decision-making processes. It suggests that, in order to improve the democratic process of decision-making, citizens' opinions (not polls or votes) should be the determining factor.

According to Bergmark and Westman (2018), a sense of belonging and being active participants in education have an impact on decision-making, while for students in particular, participation creates engagement and impetus for learning. Participation, therefore, has an integral value beyond merely promoting assessable results where democratic values, engagement and learning for a future profession are supported. Hence, freedom and equal participation contribute to public decision-making and support the practices of democracy (Mafeje, 1995). Since the White Paper on Education and Training (Department of Education [DoE], 1995) places significant emphasis on collective participation, it signifies the need for wide representation in education-related policy processes in South Africa.

Freire (1998) states that the more people participate in the construction of their own educational systems, the more they participate in the development of their own selves; the more people become conscious of themselves, the better/stronger their democracy becomes. Dewey (1916a) adds that teaching for participation and involvement affords learners an opportunity to initiate the practice of forming their own mental and moral characters. Therefore, when they engage in the action of exchanging ideas and experiences, they cultivate social abilities such as honesty in their dealings with others, a helping disposition, self-sacrifice, sympathy, unity, harmony, a sense of social justice and accountability. Wonnacott (2011) believes that, in order to support democracy, boost participation (social, political or academic), increase levels of tolerance and strengthen social cohesion for democratic citizenship, mathematics education should promote social fairness and justice.

In a democratic classroom learners and teachers are, therefore, encouraged to actively engage in collaborative planning and to make decisions together in order to arrive at answers which address the concerns, goals and interests of both parties (Apple & Beane, 1999). This type of democratic planning represents a genuine determination to honour both learners' and teachers' right to participate in the process of decision-making, which after all, directly affects their lives (Apple, 1988).

## Theme Two: Democracy as a Shared Decision-making Process

The study participants acknowledged the need for shared decision-making as a tenet of democracy. They frequently used the term "joint decision-making", as is evident from this participant's view:

> Democracy is an overloaded term which means a lot of things and requires a lot of things, it is more about freedom, people being free to do what they have to do, it's about procedures and structures, democratic structures for example, it is also about people being involved in joint decision-making, especially decisions that concern them, and also about respecting each other's opinions and rights. (ME 1; University Z)

The research findings revealed that participants believed in collaborative decision-making as a basic principle of democracy. In my opinion, joint decision-making as a democratic principle inspires communication, which is vital for developing both active citizens and democratic environments. Furthermore, democracy thrives on excellent communication and, especially, the open exchange of ideas that guide sound decision-making, which necessitates active participation by all. Relevant here is Mafeje's (1995) argument that democracy is an exercise and a practice of community engagement that defines how people communicate with one another in debating certain issues. Harber (1997) points out that democracy underscores collective decision-making, open-mindedness and justice, and the practices of temperance, collaboration, negotiation, concession and accommodation.

For Gutmann and Thompson (2004) the aim of democracy is to encourage tolerance, inspire humanitarian views on public matters, and encourage polite negotiation and dialogue. Therefore, education which endorses these democratic philosophies will contribute to a fundamental ethos that supports the principles of acceptance and mutual respect, which simply means treating everybody equally, irrespective of race, sexual orientation or ethnicity (Gutmann & Thompson, 2004). Hence, according to the political democratisation theory that underpins this study, schools should increase learners' voice and participation in the decision-making process, because the learning opportunities made available to develop all stakeholders' commitment to democracy are (frustratingly) both provided and limited by schools and communities (Agyemang, 2012). As Davies (1999) notes, issues of governance and policymaking – the task of committees, councils and other relevant stakeholders – must be promoted in democratic schools through participation.

We are convinced that democracy, which necessitates the participation of students and

learners in decision-making processes, requires a citizenry that is inquisitive. This is an essential aspect of critical thinking which mathematics educators can inculcate in their student teachers. Arguably, when mathematics student teachers are taught the importance of democracy, how it works and how important their own role is in inculcating democratic principles, they will become engaged citizens who can actively participate in decision-making on issues affecting their lives. Thus, Apple (1988) advocates for a democratic teacher-education programme which empowers student teachers to voice their views, participate in making decisions, make meaning from their experiences and build a community that is both of the school and of the immediate, surrounding community.

### Theme Three: Democracy as Freedom of Expression

Aligned with decision-making and active participation is freedom, which most study participants used interchangeably with "right(s)":

> *Democracy goes with freedom, participation and security, whereby people are being treated equally without any form of discrimination and are able to voice their concerns or whatever that is bothering them. Also, it means that I have the right to be the human being that I am and […] I need to accept the views and opinions of other people that are different, through exhibiting respect.* (ST 4, University Y)

Admittedly, rights and freedom are two concepts that overlap to a certain extent. While freedom is the ability to live one's life as one sees fit without the interference of others, it is also the absence of compulsion or restriction in one's choice or actions (Patrick, 1999). A right, by contrast, is an individual's privilege (either legally or morally) to have or do something. As such, it is one's rights that ensure and protect one's freedom (Kymlicka, 2004). The study participants were of the opinion that freedom of choice and expression are key features of democracy. The findings revealed that, for democracy to thrive, citizens must have freedom of expression, because it is in this way that they will be able to actively and deliberately contribute to decision-making at various levels. Gay (1997) clearly points out that expressing one's views is linked to the democratic concept of freedom of speech and the right to actively participate in shaping one's own destiny.

H Giroux and McLaren (1986) state that creative democracy, "undertaken at the beginning of the 20th century, signifies a commitment to self and a social enablement that commands respect for individual freedom and social justice. In this sense, democracy is connected to transformative negotiation and action that can alter the dominant conditions in which life is lived" (p. 226). Hence, there is a need for freedom of expression for democracy to thrive, also in mathematics teacher-education classrooms. For that reason, I believe that the freedom of expression contributes to deliberative participation, because it allows the free flow of ideas and information.

Freire (1968:36) encourages teaching for "conscientisation" that develops deep understanding and critical reasoning, to allow learners to become active, creative agents capable of remaking and transforming their societies. The key concepts underpinning Freire's (1968) liberation theory are freedom, democracy, and critical participation. Freire (1968) rejects the top-down authoritative approach and proposes that a deep mutuality be introduced into our thinking of teacher-learner and learner-teacher relationships. For Ellis and Malloy (2007), the freedom and skill needed to enhance democracy for such a relationship to thrive can be achieved if learners learn mathematics through active participation, and interact freely with their peers and their teachers. Wright (2016) argues that if student teachers learn about democracy and democratic practices within and beyond mathematics, they can be democratised in their own communities, thereby providing opportunities for debate, while adopting and using skills that boost their self-esteem by linking mathematics and social problems – that way they will develop into effective mathematics teachers (Ellis & Malloy, 2007; Vithal, 1999; Wright, 2016).

Ideally, the three themes of democracy derived from the participants' responses come closer to the model of democracy wished for in South Africa, as the preamble to the Constitution states that the Constitution intends to "lay the foundations for a democratic and open society in which government is based on the will of the people and every citizen is equally protected by law" (RSA, 1996:1243). As such, "the democratic state has made impressive gains over the past 20 years in establishing an architecture for accountability and public participation; this is evident in the policy and legislative framework, and the creation of numerous statutory bodies, structures and programmes to give effect to the ambition to inculcate a participatory democracy" (Van der Byl, 2014:15). Similarly, the Bill of Rights in Chapter II of the Constitution emphasises democratic principles which include freedom of expression and association. The notion of democracy in South Africa is informed by these basic foundations.

### Conclusion

The study participants' conceptions of democracy reflected the values they ascribed to democratic principles. The research findings suggest that democracy signifies a sense of responsibility in exercising one's freedom and enjoying one's rights. Common threads included democracy as

deliberative participation, democracy as a shared decision-making process, as well as democracy as freedom of expression. From this it can be deduced that the participants were aware of what democracy should look like, and were willing to live according to democratic tenets. Although some referred to democracy as rule by the government, the idea of participation in decision-making remained a recurring theme. Clearly, the participants' understanding of democracy had been greatly influenced by their experiences and way of life in a democratic South Africa.

## Authors' Contributions
Olawale BE wrote the manuscript, collected data, analysed and reviewed the final manuscript. Vusi Mncube and Clive Harber: Supervised, reviewed, and edited the final manuscript.

## Notes

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