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Gender-Related Policy Guidelines' Impact on Rural Female Students' Participation in Sciences at Advanced Level

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Abstract: The number of rural female students participating in sciences at the Advanced Level in Zimbabwe, is conspicuously under-represented. It is in this context that this study was centred among others issues on identifying policy guidelines that are used to initiate rural female students' participation in sciences. In addition, this paper aims to show how these guidelines have been used to instigate rural female students' participation in sciences. These laid the ground for the paper to establish the impact of these policy guidelines on rural female students' participation in sciences at the Advanced Level. This idea was grounded in a methodological approach comprised of the transformative paradigm, and qualitative approach. The sample comprised of thirty participants who were purposively selected from rural female students doing sciences or other subjects at the Advanced Level. A content analysis was used in order to collect data generated through the document analysis, the focus group discussions, and in-depth personal interviews. One of the major highlights was that though there existed various gender-related policies guidelines (i.e., international treaties, national and school-based), participants had limited knowledge about them. In, addition, this study revealed that though these guidelines were in existence their application in promoting the participation of rural female students in sciences at Advanced Level was still not systematic. Thus, there existed a gap between policy intentions and the reality on the ground pertaining to the promotion of rural female students' participation in sciences.

This was more pronounced in the selected rural secondary schools where female students are under-represented in sciences at Advanced Level. Hence, the conclusion that though policy guidelines were recognized, they are yet to have an impact on rural female students' participation in sciences at Advanced Level. This creates the need to encourage rural female students to take a centre stage in all activities earmarked at empowering them.

Keywords: Advanced level, gender-related policy, participation; rural, female student, sciences

Introduction

In Zimbabwe, the participation of females in science education is a priority, realised and implemented from primary school to tertiary level through an all-inclusive approach. This is grounded in a philosophy of integrating gender-related policy guidelines in science learning process. The integration of these guidelines in science education allows for the creation of equal opportunities for all students irrespective of one's gender and social background. Thus, this creates the platform for rural female students to participate in the so-coined 'male dominated' sciences at Advanced Level. Though there have been efforts to engage females in the fight against injustices in different spheres of society, i.e., education, it is not clear how such commitments have been translated into the policy (Hill et al., 2010). Most of the studies (Chauraya, 2023; Marongedza et al., 2023; Vurayai, 2023) looked at gender issues in education covering areas like females' performance in science examinations, cultural barriers impeding their participation in education, etc. It's against this background that this paper aims to demonstrate the need to fight against inequalities in sciences at Advanced Level from a policy perspective. In this argumentation, the feminist and social learning thoughts acted as the basis for interrogating rural female students' under-representation in sciences (Biology, Chemistry, Pure Mathematics, Physics, and Statistics) at the Advanced Level.

Research Problem

In Zimbabwe's rural secondary schools like in most under-developed countries, the number of female students participating in sciences at the Advanced Level remains significantly low (Amirtham & Kumar, 2023; UNESCO Institute for Statistics, 2012). This so, despite the existence of gender-related policy guidelines, targeted at facilitating the advancement of females in the so-coined 'masculine' education and training fields (i.e., science, engineering, and mathematics) (Asongu et al., 2023; Gudyanga et al., 2015). It is in this regard that this paper shows the identified gap guided by the following question: How have gender-related policy guidelines impacted rural female students' participation in sciences at Advanced Level?

Research Focus

Gender-related guidelines have become one of the key directions for Zimbabwe's socio-economic transformation. Thus, it's a key component of the national policy guidelines on strengthening the ideals for equal access to opportunities in different spheres (i.e., education). Therefore, gender-related guidelines form part of the pillars for sustainable innovative development. In this sense, the participation of rural female students in sciences at the Advanced Level, accords them with the opportunity to be involved in the current and future demands of industry 4.0. It's through these guidelines those rural female students' dreams into reality when it comes to their participation in sciences at the Advanced Level.

Research Questions

From the above main research question the following sub-questions were derived:

1.What gender-related policy guidelines have been used to initiate rural female students' participation in sciences at Advanced Level?

2.To what extent have these policy guidelines been used to initiate rural female students' participation in sciences at Advanced Level?

Review of Related Literature

The economic and industrial achievements motivated most countries to embrace research and innovation in their education and training programmes (Jie, 2016). Consequently, research and innovation are the ripostes to the challenges being faced by most developing countries. However, the numbers of rural female learners involved in research and innovation activities at the pre-university level and above are suggestively low (Allen & Eisenhart, 2017). In Africa before the coming of Europeans, indigenous communities had already developed their education system; although it differed from one community to another had some similarities (Seroto, 2011). Hence, on the agenda of most countries, the education is considered a basic human right that is placed high on the governance agenda to link the division between social and cultural aspects in day-to-day interactions) (Ranganath et al., 2011). These treaties buttressed the need for underprivileged societies to place the issue of human rights at the core of their pursuit for the transformation of females' participation in education and training (Schwandt & Underwood, 2016). This resonates with the global move geared towards female empowerment anchored on most policymaking processes (Ogbeba et al., 2014). Thus, this promotion is considered as a conduit towards ending poverty, inequality, hunger, and violence; thereby embracing the principle of 'Education for All' (Mhembwe, 2019).

It is in this context Zimbabwe endorsed a policy position in all spheres of life, i.e., education that supports the empowerment of all students (Chikuvadze, 2022). It is in this context that education was assumed to have an immense contribution towards the elimination of poverty, and ignorance, and spur productivity (Reilly et al., 2017). However, it is widely acknowledged that rural male students' participation in sciences at Advanced Level surpasses that of female students with a similar background (Mandiudza, 2021). This is against the background that the science and technology atmosphere is at times considered male-dominated and highly detached (Morganson et al., 2010). Therefore, this calls for a renewed focus on rural female students' participation in education as well as ensuring that they receive high-quality and relevant education, which positions them for success in life (Sibanda, 2023).

Research Methodology

General Background

This paper draws its methodological lineages to non-linear accounts around the concept and structure of the 'gender stereotyping' semantics. The rationale for selecting the transformative paradigm and qualitative approach was the need to take seriously the critique of the language of 'gender stereotyping' in sciences at the Advanced Level (Creswell & Creswell, 2018). This facilitated a reflection on the sensitivity to issues concerning rural female students' participation in sciences at Advanced Level. This assisted in the generation of rural female students' experiences concerning gender policies' influence on their participation in sciences at the Advanced Level. Since the article aims to capture rural female students' experiences in sciences at Advanced Level, the study was conducted with the

participants in their natural setting (Opoku & James, 2021). This created the foundation for the capture of relevant information leading to a detailed narration of the salient issues (Olsen, 2011). In addition, it encapsulated the discussion of multiple realities in this study (Nikodemus, 2017).

Participants

For this study, thirty participants were purposively selected due to their participation either in sciences or other subjects at Advanced Level. From this angle, it gave the researcher an opportunity for an in-depth look at the issue under investigation. These selected participants were all females with ages ranging from 17–20 years and from different rural secondary schools with the selected province in Zimbabwe offering sciences and other subjects at Advanced Level involved in face-to-face interviews. These interviews were grounded in issues to do with the rural female students' conception of the influence of gender policies on their participation in sciences at the Advanced Level. Thus, their inclusion in this study was influenced by the need to include participants with varied experiences due to their diverse backgrounds to increase the latitude around the issue under investigation. The sample, though small was determined by data saturation (Coolican, 2004). In addition, two focus group discussions comprised of eleven participants each were formed. Thus, the first group was made up of participants pursuing science subjects (1–11) and the second one was composed of participants pursuing other subjects (12–22). Although it was not in the researcher's initial plan, four administration staff members in their different capacities were engaged in brief discussions and this enhanced the authenticity of data sourced from the rural female students. Therefore, the researcher's choice of participants was based on the belief that they had acquired enough experience around the issue under discussion.

Instrument and Procedures

In interrogating the issue at the centre of this study, the researcher was at the centre of data generation assisted by document analysis, and interviews (i.e., personal interviews and focus group discussions) (Tabassum & Nayak, 2021). These methods were included with the view to complementing each other (Daniel, 2016). During data generation, the selected participants interfaced with the researcher on their own (Tshelane, 2013). Themes that guided data generation through document analysis and interviews were centred on issues to do with the impact of gender-related policy guidelines on rural female students' participation in sciences at the Advanced Level.

Data Analysis

Data were analysed in a format that enabled the researcher to move forward and backward, in the attempt to capture the participants' experiences concerning the issue under investigation (Amao & Gbadamosi, 2015). This created the basis around which the researcher checked the trustworthiness of the generated data about the themes guiding the study. This calls for the use of interpretive content analysis with the view to triangulate information sourced from policy documents with what had emerged through interviews conducted. Thus, the researcher went over each personal interview and focus group discussion to ascertain and pick out statements acceptable to the defined themes. From these, the researcher was in a position to group the captured experiences according to their themes, and this led to the answering of the research question outlined earlier on.

Research Results

This section is geared towards deliberating the empirical answers to the issue under investigation. From the above statistics, it can be noted that there was near gender equivalence in the lower secondary school (i.e., Ordinary Level).

However, at the upper secondary level (i.e., Advanced Level), the enrolment was still skewed towards male dominance in sciences. Thus, there was a low rate of participation in sciences at the Advanced Level. This trend exists, despite the presence of policy guidelines targeted at promoting the participation of females in different spheres of life. It is in this context that subsequent sections attempt to interrogate the impact of gender-related policy guidelines on rural female students' participation in sciences at the Advanced Level.

Table 1

Enrolment Statistics of Rural Students in Sciences at Targeted Secondary Schools

Year	Enrolments					
	Lower secondary level			Upper secondary level		
	Total	(%) Male	(%) Female	Total	(%) Male	(%) Female
2020	1200	51,9	48,1	110	74,2	25,8
2021	1450	51,6	48,4	125	61,2	38,8
2022	1366	51,5	48,5	158	70,1	29,9

In this section, the researcher does not only perceive policy guidelines as having the decree but as an upshot of a process that legitimizes certain epitomes and clarifications. It was in this context that in the study the researcher requested from the school administration gender-related materials (i.e., policy circulars, etc.) guiding operations involving rural female students at selected secondary schools. A female teacher (Senior Lady C) responsible for handling rural female students' concerns says "*For all the years I have been teaching at this particular school, I don't remember coming across the so-called school-based gender-related policy material. If there are any, there should in either the school head or deputy's office. Due to my interaction with colleagues in the teaching fraternity, I managed to get soft copies of some key national policy documents.*" This inclines towards what was presented by Interviewee 13 (Female student doing Advanced Level sciences) who reported that *"Through our discussions in the Guidance and Counselling lesson I learned that there was a school gender-based policy guideline(s). I heard that it had something to do with the empowerment of vulnerable girl-child. But I cannot go beyond this in terms of the contents of the document*." This source of information during the study exposed that laudable progression towards equal opportunities in sciences at Advanced Level might be possible only if female students are under the guidance and protection of considerate policy guidelines. Therefore, the researcher noted that this gender equality insurgency has been subdued due to transformational incapacitation as a result of regressive beliefs within the patriarchal society. This tends to influence the continual existence of gender- related gaps in sciences at the Advanced Level. In this context the way these gender policies are implemented seems to be at cross purpose with their intentions, hence this

clarifies the contradiction in that despite these gender-related policy guidelines being put in place to get rid of gender inequalities in spheres such as education, the gender gap remains or continues to widen.

It is against this background that this trance of gender equality in sciences at the Advanced Level remains far-fetched since there are various forms of shortcomings. Therefore, it can be underscored that at times policy guidelines are not put into action as intended. This in a way has a bearing on their comprehension of what should be put into practice. In this regard, Interviewee 28 (A female student doing other subjects at Advanced Level) noted that "*Yes, I have heard of the existence of some policies [constitution, gender policy] around issues to do with gender [equality] but their fruits on the ground are non-existent. At our school, some of these issues are dealt with during the guidance and counselling sessions*." Resultantly, this leads to the widening of the existing gap between the goals of gender policy guidelines and what obtains in sciences at the Advanced Level. This might in a way go against the concerns of projected beneficiaries of these guidelines. This is further worsened by the top-down approach to the policy-making process, which results in procedures not being contextualised to the targeted society's beliefs. In support, Interviewee 15 (Female student doing Advanced Level sciences) says "*What are these so-called policies [affirmative action, school-based gender guidelines] for? Who benefits from them? Do they benefit us as a rural female student in our quest to participate in male-dominated subjects either at form 4 [Ordinary Level] or form 5 [Advanced Level*]?"

In this context, the participant's opinions are a hint to the existing policy barriers in tackling the vicious inequalities perpetuated by the societal hierarchy in rural settings. This thwarts rural female students' participation in crafting tools to overcome their insubordination. All this is happening 42 years after the attainment of independence and where gender policies have been changed to make possible rural female students' advancement in education. On the issue that gender-related policy documents were not readily available Interviewee 23 (Female student doing other subjects Advanced Level) affirms that "*In my interactions with other girls pursuing their tertiary education in urban areas, it donned on me that we can be enrolled in sciences with lesser points than our male counterparts. I am yet to verify the authenticity of this privilege*." In the same vein Focus Group Discussion Participant 1 (Female student doing Advanced Level sciences) highlights "*Through rumours, yes I have heard that there [new] policies that enacted to empower the girl-child. However, I am yet to come across either the soft or hard copies of these documents." In addition, Interviewee 19 (A female student doing other subjects at Advanced Level) says "At this school, there is no one or school-based policy guidelines motivating us to pursue sciences at sciences at Advanced Level and beyond.*" From these revelations, it is perceptible that there is something indisputably scarce about the processes of the gender-related policy guidelines conceptualised and implemented in marginalized secondary schools. In this context, Focus Group Discussion Participant 22 (Female student doing Advanced Level sciences) reveals that "*As for young rural females, there is a need to be at the centre of the gender policies crafting process is it at school, community, etc. As things stand, we are left out of all these activities. In most instances, the community looks at us only as recipients*." Another setback in the inculcation of equality and equity culture in marginalised schools is that the current National Gender Policy was for the period 2013–2017, with its evaluation set for the last quarter of the final year, but to the best of my knowledge, no report has been produced yet about its success and failure. This, therefore, is a clear basis to drive home the point that one of the intended beneficiaries (rural female students) in this case was neither consulted nor had any access to the revised gender policy document resulting in the participation of rural female students in sciences at the Advanced Level.

The Education Act and Rural Female Students' Participation in Sciences at Advanced Level

This section interrogates participants' contributions towards how the policy guidelines i.e., Education Act fosters equal opportunities in their participation in sciences at the Advanced Level. In this regard, Interviewee 10 (Female student doing Advanced Level sciences) notes that "*I heard that these gender policies are made in such a way that they advance our interests as rural females. However, I always wonder why the policymaking process is not inclusive*." Thus, though the Education Act has been amended several times, it still falls far short of being a true reflection of society's educational aspirations and does not take on board an all-compassing evidence-based gender policymaking approach. In this regard, policy makers need now to take into cognizance that perpetuated social inequalities can be detrimental to rural female students' participation in sciences at Advanced Level. On this basis, there is a need for an Amended Education Act, which incorporates the voices of the society spoken through the contemporary constitution, with specific reference to the rights of all students in marginalized schools. In these settings, we believe that even in the absence of an evaluation report; the government through the ministries responsible for education and training ought to organize gender equality advocacy meetings from the grassroots (rural school) cascading up to the national level. However, at times meetings that are called for at the school level understudy are seen in most cases as embedded in politics.

In this context, the consultative process ends up being polarised along political party lines, as those considered being against the policies or manifestos of the ruling party not attending for fear of victimization. In this regard, Focus Group Discussion Participant 13 (Female student doing Advanced Level sciences) says "In our village developmental activities are in most cases politicised. In other words, they are dominated by the ruling party, thereby making it difficult for those parents with a different political opinion to attend for example school meetings. In some instances, those who are courageous enough to attend or participate are called 'names." Further to this contribution, Focus Group Discussion Participant 3 (Female student doing other subjects at Advanced Level) highlights that "*The absence from crucial meetings by our parents results in them not being aware of happenings at school, let alone hindering their children's progression in areas that they could have supported, for example, participation in the so coined 'masculine' science*." From this, it can be deduced that the supposed gender-neutral policy guidelines are somewhat expected to be functional in a hostile political environment in most rural areas. This is a clear reflection of the existence of a polarised society, thereby making it difficult for its populace to reach a consensus in terms of policy procedure comprehension, interpretation, and implementation in spheres such as education and training. This line of action that mainly focuses on advancing the interests of those in power, in a way disadvantages rural female students' participation in sciences at the Advanced Level. Hence this is a clear indication that society is abandoning aspects of inclusivity as far as information sourcing for the crafting of gender-related policy guidelines is concerned. Therefore, School Head B notes that "*The gender policy crafting initiatives if not properly handled can be doubted by the intended beneficiaries from the onset. Hence, the need for wide consultation and all-hands on the deck approach to enable the eradication of bad habits in the policy-making process*."

From the above findings, it can be argued that though the state is committed to embracing the aspects of inclusiveness in its policymaking processes, the opposite still exists on the ground. Thus, some of these interactions might have an agenda with masked significance. Therefore, at times rural schools end up being political grounds, with school heads for fear of victimization ending up implementing the crafted guidelines at times with limited acquaintance and resource materials. However, there are some instances when attempts are made to engage villagers in the dissemination of gender-related information under the guidance of the village heads and other interested civic organisations. However,

Focus Group Discussion Participant 11 (Female student doing Advanced Level sciences) reports that "*When an invitation is extended to the villagers to attend a meeting to discuss gender issues, it's mostly old mothers who attend." In support of the above contribution, the Focus Group Discussion Participant 1 (Female student doing Advanced Level sciences) highlighted that* "Most fathers in our village consider these gatherings as 'feminine meetings' and have nothing to do with them."

From these opinions, it can be noted that some of the rural males are grounded in patriarchal mindsets since they feel uncomfortable participating in gatherings discussing gender-related issues. Hence, this creates a gap between rural females and males in terms of their contributions toward the formulation of a gender-inclusive society. In this context, the researcher, therefore, argues that the mindset of most rural males if ever deciphered into reality might have a negative influence on rural female students' participation in sciences at Advanced Level. It can be acknowledged that though gender- related policy guidelines can be understood well by both the teachers and students, their elucidations and implementation, tend to drift away from the aspirations of a society divided along gender approaches (i.e., rural females and males). Hence the need to look at gender issues beyond focusing on rural female students' participation in sciences at Advanced Level, but also how social structures empower the marginalised girl-child to achieve their aspirations (Müller, 2006) in different spheres such as Advanced Level sciences. In this regard, Interviewee 3 (Female student doing Advanced Level sciences) reveals that "*If what is outlined in these gender policies is followed in our school, males will not look down upon us in some areas such as sciences*."

Under such a scenario, it becomes a bit difficult for the marginalised schools to embrace gender-sensitive approaches for the advancement of the status of rural female students in sciences at the Advanced Level. In line with this afore-mentioned idea, School Head C highlights that "*I think that these policies should clearly outline the means and ways of achieving the set goals. Without an articulated strategy, their success is next to none.*" Through the interrogation of the participants' contributions, it can be acknowledged that to them the existence of gender-related policy guidelines at the targeted secondary schools was kept secret. This, in a way, inhibits the participation of rural female students in the formulation of school-based gender-related policy guidelines. In other words, due to limited information on equality and equity, they cannot contribute meaningfully to the formulation of the school-based guidelines. This concurs with, Interviewee 25 (Female student doing Advanced Level sciences) reports that "I am in the dark when it comes to guidelines targeting at propelling to participate inclusively in sciences at Advanced Level. In this regard, I am limited in terms of my contribution to issues to do with the creation of a favourable environment for the girl child's participation in sciences at Advanced Level.

From another angle, on the centralised policy-making process, Focus Group Discussion Participant 6 (Female student doing Advanced Level sciences) had this to say "It was through this occasion that was organised [guidance and counselling] at our school that I came to know issue to do with children's rights. On this awareness campaign day, some pamphlets were distributed. However, most of the facilitators were from outside our district and were not familiar with our day-to-day challenges. This made our interactions a bit difficult since they were using examples or statistics that were alien to us." In one of the discussions, a participant says:

"*Most of the policymaking decisions concerning us the rural females are mostly arrived at by those in urban areas. This means that our views [as rural female learners] are not considered or captured in the process. Under such conditions, we will always be on the side-lines of the policymaking process*." (Focus Group Discussion Participant 8, Female student doing Advanced Level sciences)

It can be revealed that despite the existence of gender-related policy guidelines in some of the selected schools, there seems to be limited information on how best these can be implemented in sciences at Advanced Level. In support, Interviewee 24 (Female student doing other subjects at Advanced Level) highlights that "*As [rural] females at times, we believe that the gender policymaking process can be done in a way that enhances a collective appeal. As opposite to the current format where policies are most crafted by those in higher offices or are influential in communities.* From this argument, the researcher noted that the existing approach to the formulation of gender-related policy guidelines favours the centre-periphery type of decision-making. This makes those in the periphery mostly the rural females to be less dominant in the echelons of authority. Thus, the process needs to be rooted in the emancipatory ideals that are geared towards transforming the status quo in the male-dominated sciences at Advanced Level. However, this continues to be hard to pin down as most of the rural secondary schools visited did not have in place school-based gender policies, aimed at making available answers to national demands relating to issues of gender equality in sciences at the Advanced Level. In this regard, the researcher calls for these secondary schools that were part of the study to craft clear mission statements on gender equality in learning activities. This concurs with a response from one of the participants who indicated that:

"I am new at this school so it's a bit tricky for me to either confirm or deny the availability of gender-related policy guidelines. I might need some time to confirm with my administration team [Deputy School head/senior master/senior lady] whether these documents are in existence at this school. But if you can scan through that school mission statement, you can notice that issues to do with equality are embraced." (School Head A)

According to the above-mentioned issue, the School Head D says "*In the year 2002 a ministerial circular guiding school on how best they can motivate female students to participate in the so-called 'masculine' subjects. However, that particular record is missing in our policies and circulars. I recommend that you can get in touch with other offices District Education Offices/Provincial Education Offices, there you can a copy of this circular.*" Thus, in this discussion, the participants acknowledged that policy guidelines (i.e., ministerial circulars, the constitution, etc.) are premised on the ideals of promoting equality and equity in various spheres of life such as education. However, from schools that were visited during the study, the conceptualization of issues to do with equality of opportunities when it comes to the participation of female students in sciences at the Advanced Level was cause for concern. In this context, Focus Group Discussion Participant 16 (Female student doing other subjects at Advanced Level) reveals that "*Generally, we have limited information in as far as gender-related policy documents to guide us on subjects' selection at different levels [Ordinary and Advanced]*." This was so, despite the existence of the policy guidelines (i.e., Circular P77/2006) which advocate for equal opportunities for both female and male students at both the Ordinary and Advanced Levels when it comes to the selection of career options. In this regard Interviewee 30 female (student doing Advanced Level sciences) were interviewed. They gloomily expresses that "*At our school, I do not remember holding any material articulating the possible combinations at Advanced Level. So, we are just making uninformed decisions to come up with some of these combinations [Chemistry, Physics, and Geography] at lover sixth form*." The above-mentioned contribution was in contrast to the proclamation that awareness campaigns were undertaken to conscientise the rural female students about the existence of various subject choices at both the Ordinary and Advanced Levels.

Therefore, the researcher acknowledged the necessity of a transformative approach targeted at emancipating rural female students from the domineering patriarchal measures in their participation in sciences at the Advanced Level. This is expected to succeed in settings where gender-related policy

guidelines are only figurative, and posturing is an indication that to some extent underscored on paper in the form of policy circulars but side-lined in the procedure.

Discussion

In this study the researcher assumed that there were numerous resemblances among the genders, hence all rural students have equal potential to participate in sciences at Advanced Level (Kirai & Kobia, 2012). However, social relations and externally endorsed boundaries tend to have a bearing on the modifications in the recognition of rural female and male students' potential in education (Dzvimbo et al., 2018). It is against this background that in this section generated data is interrogated through a framework comprised of feminist and social learning theories. This perspective provided the researcher with an opportunity to conduct a comprehensive analysis and discussion of the participants' experiences regarding their participation as rural female students in sciences at the Advanced Level. It is in this context that this discussion is centred on gender-related policies' impact on female students' participation in sciences at Advanced Level. Therefore, gender-related policy guidelines are critically analysed in order to expose the underlying regulative codes in terms of their implementation in education, which are then compared to the participants' captured experiences.

It can be noted that though the idea of being excluded from the gender policy-making process lingers in their minds, despite the existence of various conventions and policies, researchers agree to a larger extent with findings from studies by various researchers (Chikuvadze, 2020; Ngwenya, 2020) who advanced that instituting pertinent gender policies does not guarantee the marginalized female students' participation in sciences at Advanced Level. Therefore, single-handedly these policies are not enough to authorise rural female students, lest dynamic societal practices strengthen their effective portrayal in sciences at Advanced Level. In support, Chauraya (2013); Samkange and Dingani (2013) highlighted that though some female students are aware of the existence of gender-related policy guidelines, not much has been done in terms of their implementation in some marginalised societies. In support Steinmann et al. (2023) noted that though aspects of equality and equity have been giving a lot of prominences in gender-related policy guidelines, these are expected to be implemented in a society deeply grounded in patriarchal beliefs. This is so because some of those who are expected to implement these policy guidelines may feel as being side-lined from as early as the designing phases (Ncube et al., 2014). This is an indication that in the absence of participants' extensive engagement in policy recognition, it is too easy to ignore imperative hints, bringing about an insincere indulgence in these policy guidelines, including the existence of a gap in their realization (Chikuvadze, 2020; 2022).

This goes along with Dekeza and Kufakunesu (2017) who illustrated that it is an accepted piece of evidence that there is an aperture about how these guidelines are comprehended and enacted amongst the cities or towns and marginalised areas, with the gap orientated against the latter. In the same manner, Gudyanga (2016) advances that despite the existence of policy guidelines pledging rural female students' participation in science subjects at the Advanced Level, the reality in marginalised schools tells otherwise. Thus, the intentions of these policy guidelines as far as rural female students' participation in science subjects at the Advanced Level remain a fantasy (Chikuvadze & Jacobs, 2021). This brings out the idea that in its current form, the Education Act does not adequately address the gaps around rural female students' participation in science subjects at Advanced Level (Matsikidze, 2017). From these findings, the researcher noted that marginalised female students have limited participation in policy consultations, although they are the direct beneficiaries of the outcome (Bell & Stevenson, 2006). In the absence of an evaluation, report, which has been made public already, according to UNDP (2017) a revised version of Zimbabwe's National Gender Policy that calls for impartiality, equality, all-

inclusiveness, and collective concern for sustainable advancement was revealed on July 6, 2017. This made it difficult for the already disadvantaged schools to articulate a sound gender policy, which closes the inequality gaps due to the lack of terms of reference, which should have been covered in the inaccessible National Gender Policy (2013-2017) assessment feedback report. Under such a scenario the researchers were made to think that the centralized strategy, which was employed in crafting this National Gender Policy, therefore limited the consultation base for the designers.

Within the requirements of the policy frameworks such as *Education Acts 5/1987, 19/1998(s.15), 22/2001, 2004, and 2006 (Chapter 25:04),* as amended acknowledge that provide each student has the right to quality education irrespective of one's gender (Chikwiri & Musiyiwa, 2017). These were formulated on the pretext that education was a basic human right; however, Machibaya and Ndamba (2023) reflected that the current gender-related policy regime is an imposition onto the intended benefactors, without a comprehensive consultation basis. This goes against Carter and Fuller (2015) who postulated that social interactions need to emphasize having a common understanding of gender-related thoughts, to enhance an inclusive policy-making process. In this context, if gender-related policy guidelines are not well-articulated in their presentation they seem metaphorical and unconceivable (Mutanana & Bukaliya, 2015). Thus, in situations that have different settings (urban, peri-urban, or rural) the use of a centralised method for policy guidelines formulation propagates the inequalities, instead of transforming the current status core (Tsanga, 2010). Thus, the existence of the gender legal code, which acknowledges the rights and obligations of families and schools, there is a need to underline that it is relatively another issue to have these accepted in sciences at Advanced Level (Munyunda, 2021).

A close inspection of some gender-related policy procedures (i.e., gender policy) has revealed that there are inclusive strategies, which can urge rural female students to participate in the male-dominated sciences at the Advanced Level (Republic of Zimbabwe, Ministry of Women Affairs, Gender and Community Development, 2013). Nevertheless, some of these guidelines have unambiguous pointers to weigh the extent to which set approaches could have been accomplished (Tshabalala, 2013). Hence, there is a need to acknowledge that gender-related policy guidelines are quiet on the approaches that can be employed to minimize the inequalities in sciences at Advanced Level. It is against this background that Chimhowu (2009) postulated the necessity to contextualize gender-related guidelines about social transformation. This calls for rural female students to be well grounded in the gender-related policy guidelines crafting matrix as this tends to enable them to push for the advancement of the underprivileged voices (Shizha, 2006). This discourse can be cemented by Gale (2003) who postulated that in a polarised society, gender-related policy guidelines tend in most cases to stand for the safety of those in charge of the policy-making process.

In this scenario, policymaking generates a give-and-take scenario, where the marginalised rural females are anticipated to recognize those policy guidelines alleged to be advancing their cause (Abusalha, 2023). It is in this context that Cameron et al. (2019) advance the need for a transformative approach, which considers the placement of rural female students on the margins of the policy-making process as a cause for concern. For example, the thrust in the 'Heritage-Based' curriculum framework emphasizes the participation of students notwithstanding one's sex in science and technology learning activities (Republic of Zimbabwe, Ministry of Primary and Secondary Education, 2020).

However, some of these policy circulars, though they are a derivative of the *Education Act (Chapter 25:04)*, their plan lacks specificity in terms of how they anticipate dealing with rural female students' limited participation in sciences at the Advanced Level (Mutekwe & Mutekwe, 2012). In the same vein,

Akafor et al. (2007) in that although gender policies sustenance of rural female students' emancipation, however, no significant transformation has been to when it comes to their participation in sciences at Advanced Level. In addition, Sammons et al. (2023) acknowledged that some of the interventions applied with the view to increase the participation of rural female students in sciences at the Advanced Level were 'simply disjointed.'

Conclusions and Implications

Zimbabwe's initiative towards students' participation in sciences at Advanced Level requires an all-inclusive approach. Hence, the recent years implications to the policy guidelines approve (i.e., the 2013 Constitution, National Gender Policy, Affirmative Action, Education Act, etc.) targeted at encouraging female students' participation in different domains i.e., sciences at Advanced Level. In this regard, it can be acknowledged that Zimbabwe has made significant advances toward inculcating gender aspects in policy guidelines. These guidelines create awareness in rural female students about unfair practices within their patriarchal societies. This acts as the basis for their active participation in the activities concerning the formulation of policy guidelines, meant to authorise them. It is necessary to conclude that though gender-related policy guidelines existed for some time they have no potential to influence the rural female students' participation in sciences at Advanced Level.

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