

Capability Approach:

Potential for Transformative Education Research on Gender and Culture in Zimbabweⁱ

Authors: Charles Chikunda & Plaxcedes Chikunda

Introduction

Much work has been completed with regards to gender and education. Some strides too, have been made in achieving gender equality in education: the greatest being in physical access to school for boys and girls. However, numerous challenges have been met in this process of attempting to achieve gender equality in education. Researchers have come to some consensus that there exist cultural traits and practices that either constrain or enable achieving gender equality in education (Stromquist, 1990; Gordon, 1994; Prasad, 2004; Kalu, 2005; Chikunda, 2010; Chetcuti and Kioko 2012). The purpose of this paper is to argue for the use of Amartya Sen's capability approach as a theoretical tool to enrich the gender-education discourse with specific focus on culture in Zimbabwe. Emphasis is given to cultural attributes and practices that are deemed retrogressive to achieving gender equality and equity in the country. It is hoped that this paper will contribute to a discussion on overcoming cultural barriers that prevent certain individuals from converting resources to desired educational functionings.

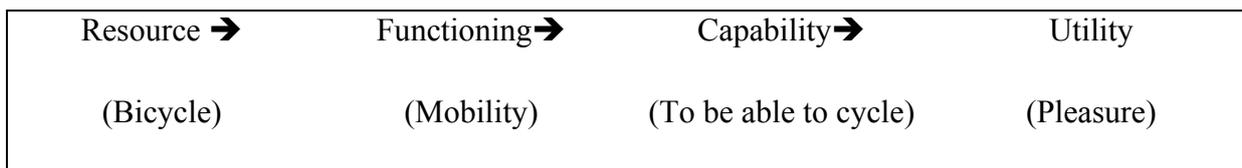
Capability Approach

The capability approach is based on the work of Amartya Sen (1933-) and largely extended by Martha Nussbaum (1947-) and others. Much of their work has focused on poverty and inequality, with specific reference to gender justice in society. It is a broad normative framework for the evaluation and assessment of individual well-being and social arrangements, the design of policies, and proposals about social change in society (Robeynes, 2005). Sen developed the concept of capabilities in a context of theorising human welfare, alternative to traditional welfare theory (Kronlid, 2009). Departing from an egalitarian perspective, Sen raises the question on 'Equality of What' (Sen, 1995, in Garnham, 1997, p.26), advancing that any form of equality generally should take the form of arguing for equality of something else e.g. liberty as opposed to income. He stressed the importance of being clear about the space within which we are arguing for equality. Sen argued that policies on distribution and measurement should focus not on income, or on resources as proposed by both Rawls and Dworkin, but on what he calls "The Space of Functionings" (Garnham, 1997, p.27).

Sen's core concepts are capabilities and functionings. But what are these capabilities and functionings? Functionings are various things a person may value doing or being (Sen, 1999). They show the practical realisation of one's chosen way of life (Walker, 2006). Examples of functionings include being well fed, having shelter, taking part in community activities, relating to other people, working in the labour market, caring for others, having an education, being healthy and so forth. Capabilities, on the other hand, correspond to the overall freedom to lead the life a person has reason to value (Sen, 1992; 2009). The

difference between a functioning and a capability therefore is similar to the difference between an achievement and the freedom to achieve, or between an outcome and an opportunity. Capabilities will then ask questions such as: What opportunity freedoms do people have to be healthy, to attend school, to take part in political decisions and so forth? It follows that human flourishing, that is success in pursuit of the totality of goals that one values in life is linked to the capabilities one has in life.

Advancing Sen’s ideas, The Human Development and Capability Association (2005) argued that the basic objective of development is to create an enabling environment for people to enjoy long, healthy, and creative lives. This may appear straightforward and obvious but it is often forgotten in the immediate concern with the accumulation of commodities and financial wealth. The Human Development and Capability Association (2005) used the example of a bicycle to relate the different concepts. A person may own or be able to use a bicycle (a resource). By riding the bicycle the person moves around, and let us presume, values this mobility (a functioning). If the person is unable to ride the bicycle (because, perhaps, she has no sense of balance), then having a bicycle would not create this functioning of mobility. But in the first instance, the access to the bicycle (resource), coupled with the person’s own characteristics (balance etc.), creates the capability for the person to move around, go to a movie, visit friends, and derive pleasure (utility) whenever desired. So having the capability contributes to happiness or utility. The layout below illustrates the chain.



Source: Capability and Functionings: Definition and Justification. The Human Development and Capability Association (2005, n.p.).

According to Alkire (2005), the bicycle example illustrates how various concepts are all related to one another. But which concept do we focus on? The capability approach argues that utility can be distorted by personality or adaptive preferences; functionings can be enjoyed in prison or in stifled environment; and a bicycle can be useless if you cannot balance, so capability (access to the resource coupled with the person’s characteristics (balancing, etc.) represents the most accurate space in which to investigate and advance the various forms of human well-being.

Sen’s theory of development as an expansion of capabilities is the starting point of the human development approach that defined human development as the process of enlarging a person’s functionings and capabilities. He elaborates that the purpose of development is to improve human lives by expanding the range of things that a person can be and do (Sen, 1992; 2009). From this viewpoint, development is about removing the obstacles to what a person can do in life, obstacles such as illiteracy, ill health, lack of access, lack of food or

lack of civil and political freedoms (Sen, 1992). In other words, development is about broadening people's capabilities; that is, their overall potential freedoms to lead the life they have reason to value.

It is important to emphasize that the capability approach gives us two central theses about people and development: the evaluative aspect and the agency aspect (Sen, 2002; Crocker, 2008). The evaluative aspect is concerned with evaluating improvements in human lives as an explicit development objective and using human achievements as key indicators of progress. In support of this, Nussbaum and Sen (1993) claimed that the functionings make up a person's being, and the evaluation of a person's well-being has to take the form of an assessment of those constituent elements. In advancing this idea, Sen stressed the significance of 'reasoned value', pointing out that we need to scrutinise our motivations for valuing specific lifestyles, and not simply value a certain lifestyle without reflecting upon it (Robeynes, 2005, p.65). By advocating normative evaluations on lifestyles (Garnham, 1997, p.26), we should look at people's capabilities. Sen critiques evaluations that are based exclusively on utilities, resources, or income, (Sen, 1992, 1999, 2009; Nussbaum, 2005; Peter, 2005; Robeynes, 2005). For example, he critiques the dominant emphasis on economic growth based on inanimate objects, for example, gross national product (GNP) and/or the gross domestic product (GDP) as an indicator of a nation's quality of life (Nussbaum, 2005; Sen, 2009) for the reason that these fail to tell us how deprived people are doing. Thinking of development goals only in terms of increase in GDP per capita occludes distribution inequalities that are particularly central in the context of gender relations (Nussbaum, 2005).

The agency aspect looks at what human beings can do to achieve well-being, particularly through policy and political changes. In other words, the agency aspect looks at the achievement of the states of well-being. The agency aspect is concerned with the role of human agency for changing policy, social commitment, and norms as well as human rights (Crocker, 2008). Human beings can be agents of change through both individual action and collective action. It is for this reason that Sen regards agency as itself a valued functioning (Garnham, 1997).

Besides the evaluative and agency aspects, Sen (2009) also criticised the idea of equality of resources as a central political value and measure of people's well-being. His argument is based on what he calls conversion factors, where equality of resources falls short for two reasons: firstly it fails to take account of the fact that people differ in their abilities to convert these resources into capabilities and actual functionings, due to personal, social or environmental factors. Personal conversion factors are internal to the person (e.g. metabolism, physical condition, sex, gender, reading skills, intelligence) and influence how a person can convert the characteristics of the commodity into a functioning. For example, a person who is disabled, or in a bad physical condition, or has never learned to cycle, a bicycle will be of limited help to enable the functioning of mobility.

Some of the conversions fall under the social type. Social conversion factors are from the society in which one lives (e.g. public policies, social norms, discriminating practices, gender roles, societal hierarchies, power relations related to class, gender, race or caste)

(Stanford Encyclopedia of Philosophy, 2011). As discussed in the following section, patriarchy as a culture is an important social factor not to be ignored in the analysis of gender relations in society. Cultural norms and values, which are determined by patriarchal relations, are always imbued in policy formulation and implementation.

Finally, we find it necessary to include the importance of the environment in our discussion. Environmental conversion factors emerge from the physical or built environment in which a person lives (Stanford Encyclopedia of Philosophy, 2011). Examples of one's geographical location are climate, pollution, the proneness to drought or floods. Among aspects of built environment are the stability of buildings, accessibility of buildings even by wheelchair users, roads, the means of transportation and communication. A good example of environmental conversion factors is cited by Shiva (2012) of climate change induced droughts resulting in reduced agricultural yields, impacting negatively on livelihoods but more so on women who bear largely the responsibility of agricultural production.

Reviewing the Gender-Education-Culture Nexus in Zimbabwe using Capability Lenses

As alluded to at the beginning, the purpose of this paper is to use the capability approach to enrich the gender in education discourse by interrogating some aspects of culture that may act as obstacles to gender equityⁱⁱ in education. It should be emphasized that a lot has been achieved in this field, however some areas may require different analytical tools such as the capability approach, in order for them to be unpacked.

Using guidelines from international bodies such as Education for ALL (EFA) and the Millennium Development Goals (MDGs) the Zimbabwean government, like most governments worldwide, came up with policies to guide curriculum development with gender equality in mind. The Zimbabwe National Gender Policy (NGP) is an outstanding tool that was designed to direct education institutions in the country to be gender responsive. Some of the strategies for the police to the education and training sector include: amending all relevant education and legal instruments to promote gender equality and equity; incorporating gender issues in all curricula at all levels of education; educating and encouraging parents to treat boys and girls equally; providing facilities and a policy framework to enable girls who fall pregnant to continue with their education; promoting and encouraging girls to take on sciences, mathematics and technology subjects (SMTs) at all levels of education and introducing gender awareness programmes to pre- and post-training teacher courses, (National Gender Policy, 2004, p.9).

Other platforms such as the Beijing Platform for Action are also key drivers towards quality and relevant education that seek to empower people towards a socially just and sustainable society. It should be commended that much progress has been made with regards to gender and education. For instance, the Status and Trends in the Zimbabwe MDGs status report (2010) shows that Zimbabwe has consistently maintained relatively high levels of primary school enrolments. For the MDG goal 3, which sought to promote gender equality

and empowering women, the 2010 MDG country report shows that while there is gender parity at a primary school level, and near gender parity at lower secondary level, particularly in the lower forms (Forms 1 to 4), the gender parity decreases in upper levels, where low representation and completion rates exist amongst girls leading to a low enrolment of women in universities particularly in the fields of sciences. The gender parity statistics at Zimbabwe's tertiary level, as determined by the SADC Gender Protocol (2012) Barometer (Morna, and Jambaya-Nyakujara, 2012), are shown in Table 1. As can be seen in the table, males still dominate in sciences, mathematics and engineering related disciplines.

Table 1: Percentage of women and men in University faculties and in Technical/Vocational Colleges in Zimbabwe.

	Female %	Male %
Technical/Vocational Training	37	63
Faculties of social sciences	33	67
Faculties of sciences	24	77

Source: Morna, and Jambaya-Nyakujara, (2012)

The economic crisis that started in 2000 resulted in massive student dropout in the country. Research notes that although both girls and boys have dropped out of school the percentage is higher for girls (Morna, and Jambaya-Nyakujara, 2012; Zimbabwe Women's Resource Centre Network, 2009).

As highlighted in the previous section, policies are social conversion factors that are in most cases meant to improve people's capabilities. A gender related policy like the NGP to education was introduced as a means to remove obstacles to the wellbeing and opportunity freedoms of both boys and girls in education. The Capability Approach provides us with philosophical lenses to assess the historical journey towards gender equality in education via these policies. The evaluative aspect of the approach helps us to unpack unintended, invisible or implicit cultural properties that mediate formulation and implementation of such policies. For example, at a global scale, after the pronouncements of the need for gender equality in education by international bodies (EFA later on MDGs), most governments and non-governmental organisations mobilised and combined resources to facilitate access for girls into school as a way of fulfilling the United Nations (UN) call for education as a basic human right. Herz and Sperling (2004) identified four key areas that most governments, including Zimbabwe, worked on to get girls into school. These were (i) eliminating school fees and offering scholarships to certain populations, (ii) providing a safe school near every village, (iii) making schools a safer place where girls were encouraged to learn, and (iv) providing quality education associated with educated and trained teachers, up-to-date books and curriculum oriented to the contemporary world.

While these efforts were fruitful as previously acknowledged, there are some as yet hidden factors that the use of CA approach might facilitate in revealing with the hope that such revelations can inform policy and practice in the future. To start with, these efforts towards gender equality in education were heavily influenced by an instrumentalist view of education and the universalism associated with the rights based approach (Unterhalter, 2007). The instrumentalist views gender equality in education as enhancing economic growth or national status (Herz and Sperling, 2004; Unterhalter, 2007). The instrumental argument for gender equality in education was a combination of ideas that see economic ‘good sense’ and cost benefit in educating women (Unterhalter, 2007, p.43). This emphasis on the economic benefits of gender equality is shaped by Shultz’s Human Capital theory. Initial formulations of the theory pointed to the importance of studying investment in humans through formal education, or on the job training, and quantifying the rate of return on the investment (Elliot, 2007).

Thus for many years, the argument for the gender equality agenda concerning access to education for women and girls, was seen in instrumentalist terms; that is, in terms of the benefits that would flow to women’s existing health and that of future children, and to the GDP of their countries. This thinking also drove policy formulations at the UN, the World Bank, Education for All, and MDGs levels (Aikman and Unterhalter, 2005; Jackson, 2005). The following quotations make this explicit.

Mothers with more education provide better nutrition to their children, have healthier children, are less fertile, and are more concerned that their children be educated. Education – in particular female education – is key to reducing poverty... (World Bank education policy document, 1995 in Unterhalter, 2007, p.43)

Almost ten years later Kofi Annan, then UN secretary general, was cited in the UNICEF report of 2003 saying:

... study after study has shown us that there is no tool for development more effective than the education for girls ... no other policy is likely to raise economic productivity, lower infant and maternal mortality, improve nutrition and promote health-including to prevent the spread of HIV/AIDS... (Unterhalter, 2007, p.43)

The argument that we posit here is that policy formulation even at a global scale was not free from the bondage of patriarchy. Slogans such as “if you educate a woman you educate the nation” became fashionable. This vision positions women’s education primarily for others not for women themselves. The question is what are the implications of this to the implementation of such policies? The unfortunate part is in most cases the consequences are invisible but still with mediational properties thereof. Patriarchy as a culture masks the formulation and implementation of policy. Bourdieu (2004)’s habitus is helpful here. Habitus aligns closely with identity and practice: “systems of durable, transposable dispositions, structured structures predisposed to function as structuring structures” (Elder-Vass, 2010, p.326). Zevenbergen (2005) argues that habitus predisposes the participant to act, think and

behave in particular ways. Elder-Vass adds that habitus is a product of history which is both a product of, and produces, individual and collective practices. Hodkinson, Ford and Hawthorn (2007) described habitus as: made up of a battery of dispositions which orientate a person towards all aspects of life; embodied, incorporating the emotional, the physical and practical as well as the cognitive; dispositions that are thus at least partly tacit, and enduring, but can and do change. Hodkinson, Ford and Hawthorn (2007) add that these dispositions are developed (learned) throughout life, but can be seen as social structures operating through the person. Going with such assertions and Bourdieu's (2004) proclamation that practice is a complex social activity involving habitus, field and capital; it occurs in space and time; it is guided by tacit knowledge which is not fully unconscious or fully conscious; and is purposeful and strategic, one can deduce that neither Annan nor the UN team were conscious of the tacit patriarchal values that informed formulation of gender related policies at a global scale, nor were they aware of the snow-balling effect that this would have in member countries like Zimbabwe.

The slow physical dissemination and the poor conceptualisation of the NGP in Zimbabwe for example is a case that needs reflection. The policy was made a legal tool in 2004, as a potential social conversion factor, but almost ten years down the line some key players like lecturers in teacher education institutions did not know about its existence, confessing that they have not heard of such a policy (Chikunda 2013). There could be various reasons for this and the culture of patriarchy cannot be ruled out as an active player; be it in the form of resistance or lack of appreciation by certain agents who are tasked to make it operative as the policy has the potential to interrogate some cultural values and norms esteemed in patriarchal society. Obviously, not all policy drivers are comfortable with this or are aware of the depth of what is required to make policy pronouncements a reality. Whichever way one looks at it, the agency aspect, which is concerned with the role of human agency for achievement of states of well-being in education for both girls and boys in education is compromised.

This point takes us to the narrow interpretation of policy pronouncements again presumably the culture of patriarchy playing a major role in human agency. It is from this view point, of what gender justice or gender equality in education should mean that capability approach orientated commentators are less satisfied with the gender philosophy and hence the efforts behind the MDGs and Education for All. For instance, Unterhalter and North (2011) argue that in the MDGs the rich field of debate is bracketed and gender equality is reduced to gender parity. Of note is MDG goal number 3 that called for gender parity in primary schooling by 2005. A critical scrutiny of this target shows that it demanded no more than that there should be equal numbers of girls and boys in primary school by 2005 and at all levels by 2015. Within this view, global obligations can be satisfactorily seen to have been met if gender parity at all levels of education has been secured and all children complete primary schooling. Other commentators have also pointed out that, gender parity is not the same as gender equality in education (e.g. Aikman and Unterhalter, 2005; Unterhalter 2005). Similarly, the right to education cannot be reduced to merely completing a particular level (McCowan, 2010). Unterhalter (2005; 2009), for example, queried how the third goal 'To

promote gender equality and empower women' is to be assessed by a very narrow target, that is the elimination of gender disparity in primary and secondary education. Her concern is having wide goal of gender equality in political, economic, social and cultural relations being interpreted in a limited form as in ensuring equal numbers of boys and girls in formal schooling.

The argument is that in a patriarchal society like Zimbabwe, gender inequality is deeply embedded in the whole socialisation process from home, school and adult life. The assumption behind the gender parity drive as a means to achieve gender equality in education overlooks the power of patriarchy as a culture and assumes schools are immune to it. Yet, the school as an institution itself is a microcosm of society. The culture of patriarchy that is imbued in its norms, decision-making processes, forms of exercising power, rules, unwritten cultures, and approaches to allocating resources cannot be washed away by mere parity of enrolment. McClure (2014) reminds us that, according to the capabilities approach, what matters more than where students learn is the extent to which the entire educational process expands (or restricts) individual freedoms. The capability approach calls for greater scrutiny of the degree to which equity, inclusion, participation and critical thinking take precedence over labour market relevance, flexibility and employability as valued educational ends to development.

With this thinking we can question why we have gender disproportion in dropouts in difficult times and even in good times. While we acknowledge that dropping out from school is not desirable for any society, the Capability Approach can support us to unpack this. If we start from the outcome, it simply means that more girls than boys are not given the opportunity to convert resources (education) into functionings (what they can do or be in life) in such circumstances. This comes from patriarchal culture that structures roles according to gender. Girls drop out of school for various reasons, including parents sacrificing their daughters' schooling for that of their sons, based on the cultural belief that boys will be the bread winners as heads of future households. Based on this cultural belief, it means a boy is born with better opportunity freedom for wellbeing, given to him by culture than the girl. This means that culture as a social conversion factor is gender biased.

Satisfactory teaching and learning in schools is a compliment given to the Zimbabwean education system especially by fellow African states and UNESCO. Be that as it may, adequate learning and teaching linked to the prevailing curriculum, which is tied to current cultural conditions, does not fully address long history of gender inequality. As Lotz-Sisitka (2008) argues, physical access to education (as encouraged by the parity discourse) does not necessarily lead to epistemological access to everyone. As we have seen in Table 1, females continue to shy away from SMTs. This is despite the government's resolute efforts towards gender parity in enrolment that include affirmative action (entry level for females slightly lower than for males) into some of the gendered disciplines. We argue using the Capability Approach that the opportunity freedom in place is restricted to facilitating physical access by females to these gendered disciplines. There is however very little to extend this capability to embrace process or wellbeing freedom that is the capability aspects that would

Cultural and Pedagogical Inquiry, 2015, 7(2), pp. 10-26

ISSN 1916-3460 © 2015 University of Alberta

<http://ejournals.library.ualberta.ca/index.php/cpi/index>

guarantee retention and progression in a discipline. For instance, Chikunda (2013) noticed that the curriculum for initial teacher education for teachers majoring in SMTs did not adequately address aspects of wellbeing freedom. This was evidenced by lack of agency to transform curriculum practice and adopt appropriate pedagogies that would impart to trainee teachers the skills, knowledge and attitude to engage with gendered cultural issues that would improve the wellbeing freedom of girls in these disciplines. This implies that teachers graduate into the teaching profession without appropriate skills and knowledge for basic gender responsive pedagogies such as: designing learning materials and assessment that account for gendered styles of learning; engaging with gendered cultural issues that may constrain both physical and cognitive access to learning; creating a conducive learning environment that values and appreciative of gendered experiences in such disciplines, being able to critique the gendered ontology/epistemology of SMEs, and generally catering for gendered conversion processes in the curriculum.

In essence we argue that the measures prominent in driving the gender equality agenda have paid little attention to the real curriculum transaction between teacher and learner, leaving most gendered aspects in curriculum activities unattended to, as discussed above. Such interventions fell into a trap of believing in the same functionalist, meritocratic fallacy that such improvements benefit learners in the same manner. Sen's conversion factors, on the other hand, viewed through a curriculum transformation lens, would require teachers and the entire education system to support learners in achieving what they are actually able to do or be (functionings) in and through the learning process. This involves more than being articulate in what learners are exposed to in terms of resources. Adding a gender perspective would mean that conversion factors could enable teachers to analyse for example, the ontology and epistemology of SMTs and better understand their uptake by girls and boys. Equality of resources under the parity drive therefore falls short in that it fails to take account of the fact that individuals need different levels of resources if they are to achieve the same level of capability functionings. For example, a child needs more protein than an adult to achieve a similar level of healthy functioning; a pregnant woman needs more nutrients than a non-pregnant one. Such extra lenses (social, environmental and personal conversion factors) and their interrelationship in relation to wellbeing achievement in education will be worthwhile.

Let us take the issue of gender equality in physics for argument's sake. The feminist theorists' assertion on science is of the view that men and women have different standpoints in life, (personal conversion factor), yet science is developed primarily from the perspectives of one group, which is male (e.g. Harding, 1991; Kelly, 1985; Roychoudhury, Tippins and Nichol, 1995). Miller, Blessing, and Schwarz (2007), conclude from a number of studies that girls have low interest in science, rather than low ability or achievement. Clegg (2007) discovered that girls do not believe they are as good as boys in subjects such as mathematics and physics even where this is objectively not the case. He further argued that girls are socialised into this low physics self-concept by various social forces circulating at home, school, and wider society. Pollock and Finkelstein (2009) discovered that the gender gap that exists in interactive physics classes was largely associated with differences in previous

physics and math knowledge and incoming attitudes and beliefs from society. Prasad (2004) in Lesotho traced how social norms, tradition, culture, and power relationships are used to maintain that women are not good in exact sciences like mathematics, physics, and chemistry. All these studies point to the fact that some cultural norms and values contribute to the gender gap in education by shaping personal characteristics (low interest, lack of confidence, lack of exposure or experience). These are personal conversion factors that influence how a person can be, or is, free to convert resources into functionings.

It is important to note that these conversion factors are interrelated. For example, although girls' declining interest or low self-concept in science may appear as a personal conversion factor, it is nevertheless related to many social and environmental conversion factors. As shown in some studies above, most girls' low interest in science is caused by several social and environmental factors. For example, girls do not see science as connected with their personal lives. Science courses often fail to address issues of interest to females and to include pedagogical techniques that engage with females (Miller et al., 2007) mainly because of cultural gender division of labour. Some studies show that girls are less attracted by, or feel insecure in, science laboratories because of the physical setup (Roychoudhury et al., 1995).

In view of such arguments, the capability approach will help us evaluate, for example, the predisposition of girls and boys to convert goods and resources like laboratory equipment (batteries, wires, electrical equipment and other instruments that ordinarily are deemed to be for men) into their well-being in physics for example.

In addition to the provision of conversion factors as an evaluative tool, the capability approach highlights the ability of capability lenses to draw attention to gender and other social divisions with regard to how resources are utilised to establish the capability set. Continuing with our argument in the hard sciences, if we take a teacher as a resource - crucial in any learning situation - one would expect learners of both sexes to access this resource equally. However, research findings point to the contrary. A substantial body of research suggests that most science and mathematics teachers enjoy teaching boys more, spend more time with boys, hold higher expectations for boys' achievement, use resources more suitable for boys and urge more male participation (Kalu, 2005; McCullough, 2004; Prasad, 2004; O'Connor, 2000). In turn, boys tend to believe science/mathematics is their domain; therefore they tend to be more assertive, more forceful in getting the teacher's attention through taunting and harassing girls who tend more towards compliance and conformity. Kalu (2005) attributed such gender specific classroom behaviours to socialisation and gender-role expectations inherent in most African communities. In fact, although it is now common knowledge that gender imbalances in SMTs exist, a lot of teachers in these disciplines are often unaware or unaccepting of the situation and would not naturally feel the need to address them (FAWE, 2005; Kalu, 2005; Chikunda, 2013). Most science teachers in Zimbabwe show their allegiance to scientism (Chikunda, 2010; 2013): a belief that science is a factual, neutral or objective discipline that is not affected by people's background, culture, attitudes or gender (Aikenhead, 2002). Such teachers do not see how norms and values of a society affect

Cultural and Pedagogical Inquiry, 2015, 7(2), pp. 10-26

ISSN 1916-3460 © 2015 University of Alberta

<http://ejournals.library.ualberta.ca/index.php/cpi/index>

science learning in the school. This shortfall draws pointers to implementation of the gender responsive policies as social conversion factors in teacher education in the country. It also brings to attention how embedded cultural values are into discipline knowledge and related pedagogies.

Some studies have actually demonstrated that teachers can come up with gender responsive pedagogies that can raise the self-efficacy levels of girls (personal conversion factor) without negatively affecting their male counterparts. MacKay (2011) for instance, in a South African teacher education institution, studied the nexus of self-efficacy, attitude towards technology and gender responsive pedagogies. His point of departure was female technology trainee teachers who had expressed “we shouldn’t have to do this; we’re girls” (p.1) when asked to design an electrical model as part of their school task. The results show that a gender familiar context focusing on projects attractive to females and contextualising learning of electro-technology concepts improved female students’ attitudes towards technology as well as their self-efficacy. They performed as well as their male counterparts on tasks that they were initially hesitant to do. In a different study, Christidou (2011) showed that contexts that are familiar to girls do not seem to disadvantage boys. MacKay’s findings concur with Christidou (2011) who argued that students’ and especially girls’ low interest in hard sciences and their relatively negative attitudes are at least partially attributed to the way relevant disciplines are taught at school. She elaborated that science curricula, school textbooks, teachers and their teaching practices are crucial factors considered to negatively affect students’ attitudes towards an interest in science disciplines, since they tend to “emphasize its academic, strongly intellectual and abstract character, and to present it in a decontextualised way, distanced from everyday life” (p.146). Chetcuti and Kioko (2012) and Osborne and Collins, (2001) had similar sentiments: they report on girls’ experience of school science and the science curriculum, pointing out that sometimes girls have the impression that science is a dry subject and only for the super brilliant involving mainly the recall of factual knowledge rather than skills. Semela (2010) supported the idea, pointing out, that students in general, and girls in particular, state that science, as a school subject, is irrelevant, and therefore not useful in everyday life.

Our point here is that MacKay’s practices can potentially be expanded within teacher education institutions. Such gender responsive pedagogies can be the focus of attention in an effort to alert teachers to cultural issues that constrain or enable wellbeing in a discipline. The capability approach would enable us to go beyond parity in our drive towards gender equality in education. Implementing the NGP, for instance, would include among other measures designing a teacher education curriculum for both pre and in-services that exposes teachers to the diversity of learners and the cultural context of schooling, including questioning long established epistemological and ontological assumptions especially in sciences. Table 2 below gives an idea of aspects of capability, what teacher education can engage with, and questions for reflections in teacher education development.

Table 2: Aspects of capability that teacher education can engage with and questions for reflections in teacher education development. Adapted from Unterhalter, 2003, p.118)

Aspects of capabilities (for boys and girls)	Expectations on teacher education (what teacher education curriculum should engage with)	Questions that we can ask for teacher education development in implementing gender responsive policies. (Reflections)
Well-being achievement	Conditions that should be in place to guarantee well-being access, retention and progress in say physics for both girls and boys.	-How does the teacher education curriculum prepare future teachers to guarantee both boys and girls physical and cognitive access to the sciences? -Are teachers taught to check on gender stereotypes, socio-cultural constraints etc. as well as on the quality and relevance of disciplines e.g. in terms of socio-ecological risk responsiveness? -Does teacher education engage with literature on gender and science?
Well-being freedom	Conditions necessary for learners (girls and boys) to do well in in the discipline.	-What knowledge, skills, attitudes and values are future teachers being exposed to in terms of gender responsive pedagogies? -Does the teacher education curriculum engage with the following: <ul style="list-style-type: none"> • appropriate pedagogies, learning materials and assessments that account for gendered styles of learning, • gendered cultural issues, • learning environment that values and is appreciative of cultural gendered experiences say in sciences? -Is teacher education curriculum critical of the gendered ontology/epistemology of disciplines [catering for gendered conversion processes]?
Agency achievement	Support for success in (valuing and have reason to value) SMTs and SD content and practice.	-Does teacher education engage with curriculum practices designed to raise the self-esteem of both girls and boys say in sciences so as to ensure gender equality in the disciplines? -Does teacher education curriculum seek to build agency in learners in view of socio-cultural and socio-ecological challenges facing communities?
Agency freedom	Conditions to exercise agency and participating in the discourse.	-Are teachers exposed to current pedagogies and methodologies that develop agency freedom such as: Reflexive accounts, critical reading and writing, problem-based learning, modeling good practice, fieldwork and outdoor learning?

Conclusion

Our reasons for using the capability approach to explore the gender-culture-education nexus in Zimbabwe were inspired by the argument that gender equality in education should be measured at three levels. The first is conceptualization at the access level; that is enrolment of boys/males and girls/females at all levels of schooling. This access barometer should go beyond the physical access-parity narrative to include measuring retention and achievement as well. In this, the capability approach helps us to look into issues of aspects of capabilities; well-being achievement, well-being freedom, agency achievement and agency freedom in the whole schooling continuum.

At the second level, we should be concerned with measuring agency. This looks at how decision-making regarding gender and education is taken in households, schools, education ministries, or local authorities. Again the capability approach helps in unlocking the agency aspect, that is the role of human agency for changing policy and showing social commitment (through formulation and implementation of policy) to question established norms and values that may constrain opportunity freedoms for either boys/men or girls/women to flourish in any sphere of education.

The third level should look at measuring achievements that flow from education. Education as a basic capability should lead to preventing human insecurity and establishing conditions for higher capabilities and freedoms. In line with this argument, we agree with Elliot (2007, pp.164-165) who examined the ideas of Aristotle and Dewey, related them to Sen's capability approach, and came to the following conclusions:

- Curriculum should be designed to expand capabilities and thereby extend the range of opportunities students have to choose a way of life they value and they have reason to value. This curriculum should be people-centred not content-centred.
- Curriculum frameworks should not restrict the set of capabilities given space for development, simply to those that are perceived to be instrumentally significant for economic progress at the societal level or income growth at the income level. In other words, human capital theory and concern to alleviate income deprivation should not be the exclusive drivers of curriculum reform.
- The process aspect of freedom implies that the curriculum should not only provide students with opportunities to expand their capabilities, but also to develop their capability for autonomous reasoning about which of the functions they are capable of achieving and which they have reason to choose (as ends and means) in the concrete situations they encounter or they are likely to encounter in life. This may even mean people being able to interrogate their own culture and transform certain cultural attributes that are constraining.
- Since the process aspect of freedom also relates to the freedom of thought at the level of developing specific capabilities, a curriculum for capability should make explicit the pedagogical implications of this for teachers, and their responsibility to foster 'learning from experience' through inquiry.

This paper is a synthesis of an extensive PhD research project. Additional research is underway through various post-graduate studies to assess the strengths and limitations of such universalistic theoretical approaches when applied to specific case studies in Zimbabwe. We acknowledge that there is further need for a more critical examination of the capability approach in international settings. As importantly, we will seek out and include the research by African scholars in the field of gender parity.

References

- Aikman, S. and Unterhalter, E. (2005). Introduction. In S. Aikman. and E. Unterhalter (Eds) *Beyond access: Transforming policy and practice for gender equality in education*. Oxford: Oxfam.
- Alkire, S. (2005). *Valuing freedoms: Sen's Capability approach and poverty reduction*. Oxford: Oxford University Press.
- Bourdieu, P. (2004). *Science of science and reflexivity*. Cambridge: Polity Press.
- Chetcuti, D. and Kioko, B. (2012). Girls' Attitudes towards Science in Kenya, *International Journal of Science Education*, 1-19.
- Chikunda, C. (2010). Assessing the level of gender awareness of science teachers: the case of Zimbabwe's two education districts. *African Journal of Research in Mathematics, Science and Technology Education*.
- Chikunda, C (2013) Exploring and expanding capabilities, sustainability and gender justice in Science Teacher Education: Case Studies in Zimbabwe and South Africa. Unpublished PhD Dissertation. Rhodes University.
- Christidou, V. (2011). Combining students' voices with the voices of school Science, teachers, and popular science. *International Journal of Environmental and Science Education*. 6 (2), 141-159.
- Clegg, A. (2007). *Girls into science: a training module*. UNESCO.
- Crocker, D. A. (2008). *Ethics of Global Development: Agency, Capability and Deliberative Democracy*, Cambridge: Cambridge University Press.
- Elder-Vass, D. (2007). Reconciling Archer and Bourdieu in an Emergentist Theory of Action. *Sociological Theory*, 25(4), 325-346.
- Elliot, J. (2007). From 'human capital' theory to 'capability theory' as a driver for curriculum reform: A reflection on the educational implications of Amartya Sen in light of John Dewey's account of educational values. In B. Somekh and T. Schwadt (Eds.) *Knowledge production. Research work in interesting times* (pp 142-165). London: Routledge.
- Garnham, N. (1997). Amartya Sen's 'Capabilities' Approach to the Evaluation of Welfare: Its Application to Communications, *The Public: Journal of the European Institute for Communication and Culture*, IV (4), 25-34.
- Gordon, R. (1994). Education policy and gender in Zimbabwe: The state and the reproduction of patriarchy. *Gender and Education*, 6(2), 131-139.
- Harding, S. (1991). *Whose science? Whose knowledge*. Ithaca, N.Y: Cornell University Press.

- Herz, B. and Sperling, G. B. (2004). *What works in girls' education?* New York, NY: Council of Foreign Relations.
- Hodkinson, P., Ford, G., Hodkinson, H., and Hawthorn, R. (2007). Retirement as a learning process. *Educational Gerontology*, 34, 167-184.
- Human Development and Capability Association (2005) *Capability and Functionings: Definition and Justification*. Retrieved January 5, 2012, from http://www.capabilityapproach.com/pubs/HDCA_Briefing_Concepts.pdf
- Jackson, S. (2005). Sexuality, Heterosexuality and Gender Hierarchy: Getting our Priorities Straight. In C. Ingraham (Ed.) *Thinking Straight: New Work in Critical Heterosexuality Studies* (pp.15–38). New York: Routledge.
- Kalu, I. (2005). Classroom interaction in physics lessons, relative to students' sex. *African Journal of Research in Mathematics, Science and Technology*, 9(1), 55-66.
- Kelly, A. V. (1985). *The curriculum: Theory and practice*. London: Harper and Row.
5 (1), 1-14
- Kronlid, D. O. (2009). Climate capabilities and climate change education research. *Southern African Journal of Environmental Education*, 26, 27-37.
- Lotz-Sisitka, H. (2008). Environmental education and educational quality an relevance. Opening the debate. *Southern African Journal of Environmental Education*, 25, 5-12.
- McClure, K. R. (2014) Education for economic growth or human development? The capabilities approach and the World Bank's Basic Education Project in Turkey, *Compare: A Journal of Comparative and International Education*, 44:3, 472-492, DOI:10.1080/03057925.2012.750498
- MacKay, J. R. (2011). "We shouldn't have to do this; we'er girls!" An examination of gender, self-efficacy and conceptual understanding in electro-technology for a class of teacher trainees in design and technology at a South African University. Unpublished PhD thesis, University of Kwa-Zulu Natal.
- McCowan, T. (2010). Reframing the universal right to education. *Comparative Education*, 46(4), 509–25.
- McCullough, L. (2004). Gender, context, and physics assessment. *Journal of International Women's Studies*, 5(4), 20-30.
- Millennium Development Goals country report for Zimbabwe. (2010). Millennium Development Goals Status Report Zimbabwe, Government of Zimbabwe.
- Miller, P. H., Blessing, J. S., and Schwartz, S. (2007). Gender Differences in High-school students' views about Science. *International Journal of Science Education*, 28(4), 363–381.

-
- Morna, C., L. and Jambaya-Nyakujara, L. (2012). *SADC Gender Protocol 2012 Barometer*. Johannesburg: Southern Africa Gender Protocol Alliance.
- Nussbaum, M. (2005). Beyond the social contract: capabilities and global justice in G. Brock, and H. Brighouse (Eds.) *The political philosophy of cosmopolitanism*. Cambridge: Cambridge University Press.
- Nussbaum, M and Sen, A. (1993) (Eds.) *The Quality of Life*. Oxford: Clarendon Press.
- O'Connor, J. E. (2000). Teachers are the problem, not girls! Retrieved August 24, 2006 from http://library.unesco-iicba.org/english/secondary_science_series_article
- Osborne, J., and Collins, S. (2001). Pupils' views of the role and value of the science curriculum: A focus-group study. *International Journal of Science Education*, 23, 441–467.
- Pollock, S. J and Finkelstein, N. D. (2009). Sustaining educational reforms in introductory Physics. *Physics review, special papers*
- Prasad, G. (2004). Gender issues in technology development in Lesotho. Institute of Southern Africa Studies: National University of Lesotho. Roma, Lesotho.
- Robeyns, I. (2005) The capability approach - a theoretical survey. *Journal of Human Development and Capabilities*, 6(1), 93–114.
- Roychoudhury, A., Tippins, D.J. and Nichol, S.E. (1995). Gender-inclusive science teaching: A feminist constructivist approach. *Journal of Research in Science Education*, 32(9), 897-924.
- Semela, T. (2010). Who is joining physics and why? Factors influencing the choice of physics among Ethiopian university students. *International Journal of Environmental and Science Education*, 5, 319-340.
- Sen, A. (1992), *Inequality Re-examined*. Oxford: Clarendon Press.
- Sen, A. (1999). *Development as Freedom*. Oxford: Oxford University Press.
- Sen, A. (2005). 'Human rights and capabilities', *Journal of Human Development* 6(2), 151-166.
- Sen, A. (2009). *The idea of justice*. London: Allen Lane.
- Shiva, V. (2012, March 12). *Democracy and Peace*. Retrieved November 5, 2012, from <http://engagechina.wordpress.com/2012/05/23/gender-based-approach-to-climate-change-governance-the-role-of-women-and-media/>
- Stanford Encyclopaedia of Philosophy. (2011). Metaphysics Research Lab, CSLI, Stanford University. Retrieved February, 5, 2012 from <http://plato.stanford.edu/entries/capability-approach/>

- Stromquist, N. (1990). Gender equality in education: Accounting for women's subordination. *British Journal of Sociology of Education*, 11(2), 137-153.
- Unterhalter, E. (2005). Global inequality, capabilities, social justice: The millennium development goal for gender equality in education. *International Journal of Education Development*, 25(2), 111-122.
- Unterhalter, E. (2007). *Gender, schooling and global social justice*. London: Routledge.
- Unterhalter, E. (2009). What is Equity in Education? Reflections from capability approach. *Springer Science+Business Media*, 28, 415-424.
- Unterhalter, E. and North, A. (2011). Responding to the gender and education. Millennium Development in South Africa and Kenya: Reflections on education rights, gender equality, capabilities and global justice. *Compare: A Journal of Comparative and International Education*, 41(4), 495–511.
- Walker, M. 2006. *Higher education pedagogies*. Berkshire, The Open University Press.
- Zevenbergen, R. (2005). The construction of a mathematical habitus: implications of ability grouping in the middle years. *Journal of Curriculum Studies*, 37(5), 607-619.
- Zimbabwe Millennium Development Goals Status Report. (2010). Government of Zimbabwe.
- Zimbabwe National Gender Policy. (2004). Harare: Ministry of Gender and community Development.
- Zimbabwe Women's Resource Centre Network. (2009). *Gender analysis of the education sector*. Harare: Zimbabwe Women's Resource Centre Network.