



Exploring Learner Participation in Waste-Management Activities in a Rural Botswana Primary School

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Abstract

In Botswana, participation in environmental learning activities has been perceived as a central component of environmental education in formal education. Driven by the need to implement the objective of making the participatory approach part of the infusion of environmental education in the school curriculum as prescribed by the infusion policy, Botswana schools have come up with initiatives to involve learners in environmental education activities that seem to have 'a direct, perceived benefit to the learners' (NEESAP, 2007:9). Within this approach it is expected that learners should participate in these activities. However, Kettlehoilwe (2007) revealed that there has been a normalisation of environmental education into existing school culture through equating waste-management activities with environmental education. This generally entails cleaning activities by learners to maintain 'clean schools', which is directly associated with environmental education. Drawing from detailed case study data in one rural primary school with Standard 6 learners, I used Cultural Historical Activity Theory to investigate and explain how learners participate in these waste-management activities. Findings from this study revealed that attempts by teachers to meet the policy imperative through prescription of rules, and ascribing roles to learners in waste-management activities, create tensions. This gave rise to an elusive object of learner participation, as the purpose for their participation in these activities is not clear.

Introduction

In Botswana, participation in environmental learning activities has been perceived as a central component of environmental education in formal education (Botswana Government, 2007). Environmental education was introduced in schools as one of the main recommendations of the 1994 Revised National Policy on Education (RNPE) (Botswana Government, 1994). Through this policy, schools have been charged with the responsibility of producing environmentally responsible learners who will be able to handle the demands of an ever-increasing pressure of environmental challenges in their society (Cantrell & Nganunu, 1992). The National Environmental Education Strategy and Action Plan (NEESAP) ensured that environmental education was infused into the National Curriculum in 1997. In its 2007 review to assess the impact of its implementation and to accommodate new environmental needs and interests of its stakeholders, the NEESAP stated as one of the main guiding principles of environmental education that a '*participatory approach* shall be given special attention in planning and implementing environmental education activities and initiatives with a direct, perceived

benefit to the learners' (NEESAP, 2007:9, my emphasis). In part this action plan is responding to the Southern African Development Communities Regional Environmental Education Programme (SADC/REEP) initiatives to meet the Education for Sustainable Development (ESD) objectives of integrating sustainability practices into aspects of education and learning (Lotz-Sisitka, 2006). One of the themes of involving people in sustainable development actions within the SADC REEP framework is the 'need to encourage and further develop *participatory approaches* and methods in ways that are not superficial and token' (Lotz-Sisitka, 2006:20, emphasis original).

But Kethoilwe (2007), in his findings from a study on construction and interpretation of environmental education policy in Botswana, argues that there is a fundamental flaw with the policy of infusion of environmental education in the way it is currently being used in schools. His research reveals that there has been a normalisation of environmental education into existing school culture through cleaning activities by learners, based on instructions of teachers to keep the school environment clean. This has specifically been done through an association between 'clean schools' and environmental education (Kethoilwe, 2007:174). He specifically identified waste-management activities in schools – in particular the structured cleaning of schools in which learners participate – as one of the prominent normalising strategies equated with environmental education.

It is against this background that this study considered the need to rethink and explore learner participation by identifying existing tensions in the way learners are participating in waste-management activities in this primary school. The focus of the research was to determine how learners actually participate in these activities, because there seems to be a lack of genuine participation on the part of learners in these activities (Kethoilwe, 2007). The research probed the rhetorical and normalised emphases on participation, and sought further insight into how learners are engaged in participatory learning in these environmental processes. The study used Cultural Historical Activity Theory as a methodological tool to explore tensions relating to the normalisation of learner participation in waste-management activities in this particular school.

A conceptual analysis of learner participation

Hart (1997:5) views the meaning of participation to be a process of sharing decisions that affect children's lives in the community of which they are part. According to his and other researchers' work, it is unrealistic to expect children to suddenly become responsible adult citizens by simply engaging children in cleaning activities, litter campaigns, recycling practices, etc. without prior exposure to the appropriate skills and responsibilities that foster competence and agency to participate in the day-to-day management of their immediate environment, which includes school, family, neighborhood and community (Hart, 1997; Chawla & Cushing, 2007). These researchers see shared decision-making in issues that affect children's lives as an important dimension of meaningful participation. This was the main aspect that this research attempted to investigate.

Environmental education should contribute to the learners' ability to act and effect change as well as develop civic agency in them (Uzzell, 1999; Hart, 1997; Graham, *et al.*, 2006; Stevenson, 2007). It then follows that any associated knowledge and insight that they acquire

during their participation in these activities, should in essence bear some meaning to learners (Uzzell, 1999). Uzzell argues that the way learners are involved in these normalised strategies results in fragmented experiences in which learners are only engaged in contributing to immediate or short-term solutions to environmental problems in terms of a 'technological fix within a framework that is mechanistic and piecemeal' (402). According to him, these strategies impart knowledge that is not action-oriented with schools mainly focusing on transmitting knowledge to learners, 'who have thus not been afforded the possibility of *actively appropriating and internalizing that knowledge*' (*ibid.*, my emphasis). Jensen (2000) suggests that in order for this to be achieved, there is a need to move from this rhetorical and normalised narrow view of participation to a broader approach that seeks to incorporate the socio-cultural and historical contextual factors that influence participation of learners in these waste-management activities.

Learner participation: A socio-cultural historical approach

Learner participation in waste-management activities in schools within a socio-cultural and historical context can be understood and/or analysed through Cultural Historical Activity Theory, which has laid greater emphasis on situated (Lave & Wenger, 1991) and socio-cultural approaches to learning (Edwards, 2005; Jensen, 2000). According to Edwards (2005), the cognitive roots of participation in the socio-cultural context can be traced back to Vygotskian cultural psychology, which viewed cognitive developments to be a result of a dialectical process, where the children learn by shared problem solving experiences through participation with someone else, such as an adult and peers within their surrounding culture (Daniels, 2001) because knowledge is distributed across the community (Edwards, 2005; Daniels, 2001) that the child is part of. According to Daniels (2001:70) the theory provides a view of developing cognition and its relationship between societal, cultural and historical factors from the notion of the prevailing context. Daniels goes on to recognise that:

Cognition is distributed among individuals ... knowledge is socially constructed through collaborative efforts to achieve shared objectives in cultural surroundings and that information is processed between individuals and tools and artifacts provided by the culture. (2001:70)

The central role for contextualising the activities is that when analysing learner participation in these waste-management activities, it is not only the activities that are going to be analysed:

but also who is engaging in that activity, what their goals and intentions are, what objects or products result from the activity, the rules and norms that circumscribe that activity, and the larger community in which the activity occurs. (Jonassen & Rohrer-Murphy, 1999: 62)

It is therefore important to analyse waste-management activities within their context, as this provides a useful framework for understanding the totality of learner participation in context (Jensen, 2000; Jonassen & Rohrer-Murphy, 1999).

Within this notion, participation is mediated by cultural and historical tools which modify how the learners will achieve their object (Daniels, 2001) in the activity. Tools are created by subjects who are individuals and social groups of which the learner is part, in order to interact with their environment (*ibid*) and achieve their objects within an activity system focusing on the waste-management activities. In this particular study it was important to identify the material object, that is the actual waste-management activity object, that the school is working on, and the ideal object, that is the subject's motivation for participating (Hardman, 2005; Kaptelinin, 2005). Engeström (1999; 2000) proposed a much larger and expanded collective activity system than the cultural mediation system originally proposed by Vygotsky, that considers additional dimensions. This formed what is known as second-generation activity systems that include community, rules and division of labour (roles) (Engeström, 1999). The division of labour refers to both how the roles, tasks and duties between the members of the school community (learners, teachers, cleaners, etc.) are defined and also how power and status are divided (*ibid*).

Meaningful participation in the school's waste-management activities should show evidence in the learners themselves, by the nature of the objects that motivate their participation, the mediating tools they use, for example, what facilities and materials (conceptual and physical) they use to support them, the community of which they are part (their peers, teachers, and others) and how they interact within this community, the rules that pattern their participation (e.g. norms and rules in the school and community related to waste management), and the division of labour influencing their participation in waste-management activities (Engeström, 1999; Edwards, 2005). These structures form what Engeström calls nodes of an activity system (Engeström, 1999).

Each of these nodes is understood not as a constant entity but as undergoing continuous change, which in part is brought about in the system's response to tensions or contradictions (Engeström, 1999; 2000) that arise within and between these nodes.

Research Participants and Research Methods

This study was undertaken in a rural school in Kgatleng, a region in the southern part of Botswana. The research participants (sample) were seven Standard 6 learners, a teacher, the school cleaner and other relevant actors in the school. The unit of analysis was the group of learners who were made up of three boys and four girls of an average age of 11 years, all of whom were participating in waste-management activities in the school.

In this study participatory approaches were used to work with learners to investigate how learners were participating in the school waste-management activities and to identify existing tensions in the system.

The data generation methods for the case study drew on observations of waste-management practices, focus group interviews with learners, and show-and-tell explanations by learners. Observations were mainly used to see how learners participate in waste-management activities. This was accompanied by learners' narratives, which they used to show, tell and explain how they participated in these activities through informal conversations as they went going about their activities. Learners also took photographs capturing aspects of some waste issues that

concerned them. This was followed by focus group interviews with learners and interviews with teachers and any other subjects within the school community and other stakeholders who were directly involved with the waste-management activities to generate data to enrich the observation and conversation data. Focus group interviews with children were important. Levine and Zimmerman (1996) cited by Hennessy and Heary (2006:239) acknowledge the children participating:

... as experts. Thus a child participating in a focus group should not feel that he or she is being questioned by an adult but rather that he or she is sharing experiences with a group of peers.

Interviews were very useful tools for unpacking both the learners' and teachers' motives in the activities (Hardman, 2005:102). The data generated was analysed to produce a wider picture of learner participation in the school's waste-management activity system as the unit of analysis with categories arising from both the empirical data and theoretical framework used to reveal existing contradictions and tensions in the activity system.

Findings of the Study

School community context

A key dimension of the analysis was to develop a deeper understanding of the social context and environment in which the school waste-management activity system is operating to provide adequate insights into the cultural historical context of the school and its practices. The school is in a typical Botswana rural area surrounded by fields and cattle posts, with most families being of very poor backgrounds as described by the school authorities. The community comprises the 146 learners, nine teachers and one General Duty Assistant or cleaner employed by Council, who all work together in acting on a shared object of waste management.

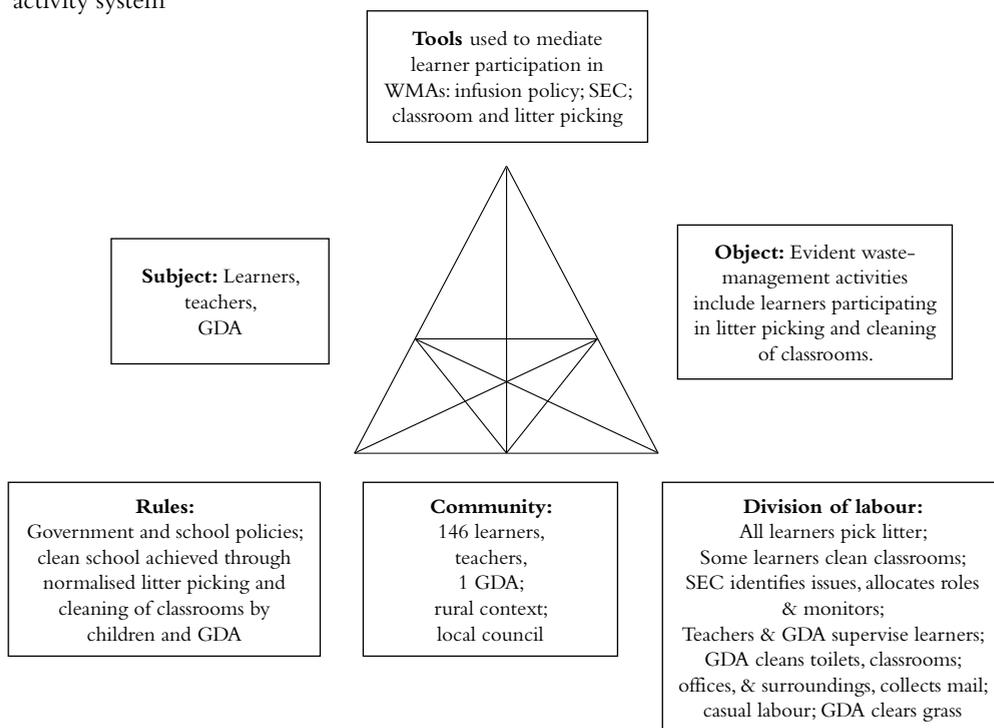
Through regular observations, I was able to establish that the school generally looks very clean in terms of litter with only a few papers clotting the school grounds sporadically. The District Council is responsible for the supply of material resources for waste management and the general technical maintenance of the school. There are two types of toilets, pit latrines, which were utilised by learners at the time of this research, and non-functional water-system toilets, which had been out of operation for years awaiting maintenance by the Local District Council. The toilets are not regularly cleaned. Most of the time boys utilise the bushes and grass around the toilets for their sanitary needs.

School waste-management activities

The school manages waste mainly through litter picking, classroom cleaning, weeding of the school grounds and toilet cleaning, which are all supposed to be the duties of the General Duty Assistant. However, Council sometimes once a year employs casual labor to clear the grass. The learners are actively involved in litter picking and classroom cleaning.

Litter picking and classroom cleaning form the main object of the school's waste-management activities to which learner participation is directed in order to embrace/incorporate the aspect of 'participation' as demanded by the infusion policy (NEESAP, 2007:9). The School Environmental Committee, made up of three teachers, identifies waste-management issues, makes rules on how waste should be managed and allocates roles in the various waste-management activities in the school. In part the School Environmental Committee is informed by a ministerial directive (Government of Botswana, 2006), which came from the Ministry of Local Government and Lands, under whose administration all primary schools fall. The directive barred learners from cleaning, particularly bush/grass clearing and toilet cleaning, both of which learners used to do previously. These duties are supposed to be done by the General Duty Assistant. Learners participate in classroom cleaning and litter picking under the supervision of their teachers and the General Duty Assistant. However at class level when learners are not supervised, they set their own rules and allocate themselves roles during classroom cleaning, though they sometimes face a challenge among themselves of some learners who refuse to cooperate. Figure 1 summarises the school's waste-management activity system at a general operational level.

Figure 1. School's waste-management activity system reflecting each component of the activity system



Acronyms: WMA: Waste-management Activities; GDA: General Duty Assistant; SEC: School Environmental Committee

Evidently the school culture is relatively authoritarian, in the sense that teachers make all decisions and clearly rules within this school community, responsibilities, tasks and power are largely not negotiated with learners. The activity system also seems to be influenced by the history of policy interpretation by teachers who have been deploying normalising strategies (Ketlhoilwe, 2007) of equating children's cleaning to environmental education. Partially embedded within these historically developed mediation strategies is the influence of culturally authoritarian Tswana traditions that seemingly continue to pervade pedagogical practices in Botswana schools (Tabulawa, 1997).

Discussion

Emerging contradictions

The discussion focuses on the emerging contradictions that are arising in the school waste-management activity system to establish what objects the learners and teachers are acting on in different contexts, the form of participation that learners are taking in these activities and how this participation is mediated to achieve the objects.

Infusion policy imperative and school's choice of mediating tools

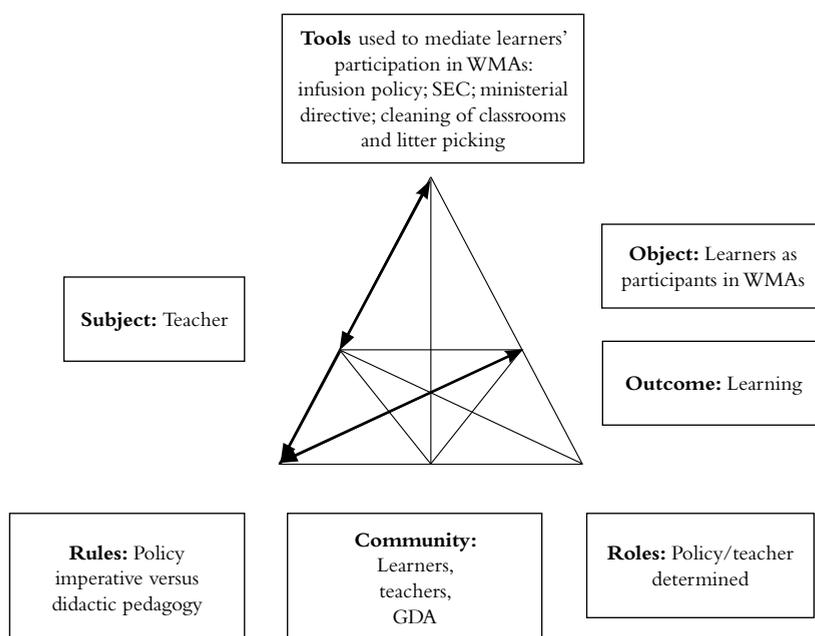
Driven by the need to implement the objective of making the participatory approach part of the infusion of environmental education in the school curriculum as prescribed by the infusion policy, the School Environmental Committee has come up with activities and initiatives of trying to involve learners in waste-management activities that seem to have 'a direct, perceived benefit to the learners' (NEESAP, 2007:9). Within this approach it is expected that learners should participate in environmental education processes. It becomes clearly evident the school has decided to use waste-management activities as the main mediating tool of incorporating the participation of learners in environmental education as evidenced by the focus on such activities, which seem to form the central component of environmental education processes in this school. These activities are litter picking, toilet and classroom cleaning and clearing of grass in the school premises. These are all seen as part of a comprehensive environmental education programme that addresses waste generation at source and is geared towards the reduction of waste in the school. Figure 2 illustrates the activity system that the teacher occupies in the school waste-management system and Extract 1, which follows thereafter, suggests a developing contradiction (represented by double-headed arrows) between the teachers' desire to meet the policy imperative of developing meaningful participation for the learner, and creating a clean school using learners as cleaners.

Extract 1: Interview with teacher (T) who is a member of the school environmental committee

T: I believe these days what we do in class is driven by objectives, objectives in the syllabus. My assumption is that they do environmental education when these objectives are being addressed in class and they apply what they learn in class when they do all these things ... making sure that they live in a clean environment, that is not littered ... which is not dirty ...

This contradiction becomes highlighted by the introduction of the ministerial directive. While there seems to be no obvious tension between the curriculum motive arising from the infusion policy and the directive, one begins to note a contradiction emerging between the infusion-policy imperative to have learners participate in environmental education and the directive, which according to teachers, limits learners' participation in waste-management activities. This has strongly impacted on learners' participation in waste-management activities in the school as far as the school's desire to meet the policy objective is concerned. This contradiction is clearly revealed and emphasised in Extract 2 from the school head's remarks.

Figure 2. School WMA activity system as determined by the teachers in response to policy



Extract 2: School head (H)'s dilemma in response to the ministerial directive

H: ... we don't really feel good about it [directive] because that's [children's cleaning] part of learning. Besides keeping the school clean, which is important, as well the child has to be responsible because by so doing you are trying to build the child to be divergent, without them expecting things to be done for them all the time. The child has to know that if he goes out there and comes across a can he has to pick it, or if he doesn't clear grass, he can be bitten by a snake as you can see how tall that grass is. But now our hands are tied because if now they say we should not use children to do all these things how can they learn to be responsible ...

This contradiction plays itself out as a tension between the schools' epistemological assumptions regarding the need to mediate learner participation through cleaning and the infusion policy's demand for a more learner-centered, meaningful and participatory approach in environmental education (NEESAP, 2007; Lotz-Sisitka, 2006).

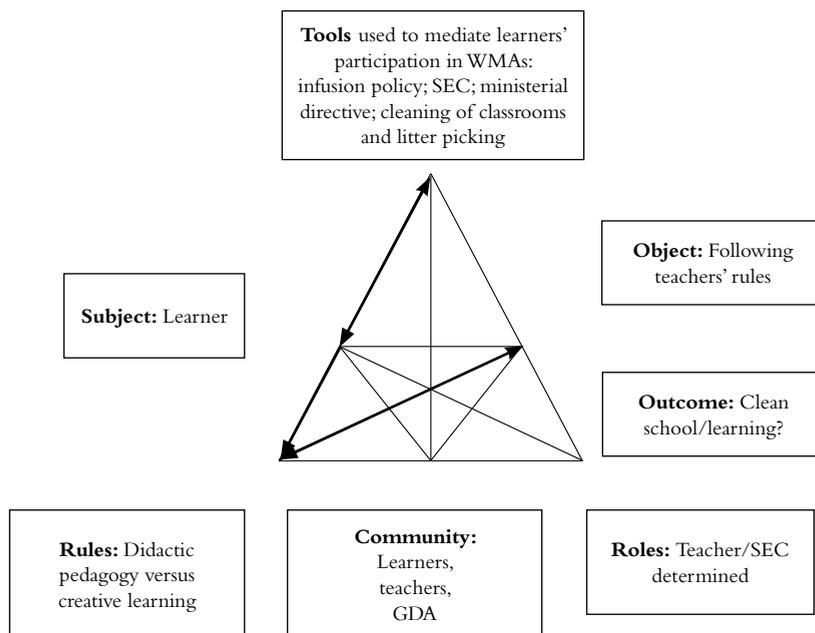
School's culture and historical influence on school environmental committee's choice of tools

From the discussion above it is evident that the existence of the School Environmental Committee in the school is probably one of the greatest sources of contradictions that emerge. The School Environmental Committee is constituted of teachers only and is tasked with identifying waste-management issues and actions to be undertaken to address these issues. This is to respond to the policy objective discussed above, and to move from the transmission didactic pedagogy (Tabulawa, 1997; Ketlhoilwe, 2007) that is still prevalent in Botswana schools to a more participatory approach. The School Environmental Committee's decisions seem to be largely influenced by the school's culture and history where teachers, using their authority, have always used learners for cleaning activities as tools for managing waste. This is illustrated by the teacher's comment in Extract 3 below. This contradiction plays itself out in the manner in which the School Environmental Committee prescribes the rules that govern waste-management activities and roles that learners play in these activities without involving learners in the decision-making process and without due consideration of how this has limited learner participation.

Extract 3: Historical influence on the teacher's choice of tools for learner participation

T: I mean the same kids who pick litter everyday as usual, but who can no longer do these other duties [referring to toilet cleaning and grass cutting?] as we are not allowed to use them to do that any more. They all pick litter normally ... after school, all of them pick litter.

At a micro level in the day-to-day participation in waste-management activities the School Environmental Committee therefore creates their own rules on how children should participate in these activities, which creates constraints (Engeström, 1999). These rules create constraints in that they generally discourage children from exploring other creative ways in which they can positively participate in these activities if granted the opportunity without necessarily carrying out these cleaning activities, or even if they do, understanding their purpose for doing this in line with the policy imperative. It becomes quite clear that the division of labour within this school community, responsibilities, tasks and power are not negotiated with learners, as roles are clearly stipulated and determined largely by the School Environmental Committee and teachers. Primarily the role of learners, at the most basic level, is to act as instructed by the teachers and to respond as expected as illustrated in the following activity system in Figure 3.

Figure 3. Learners' response to teachers' rules activity system

This tension is clearly depicted in the learners' identification of toilets as the main waste issue requiring urgent attention. This is contrary to the teachers' choice of litter as the school's main waste issue as reflected in Extracts 1 and 2, in which the teacher and the school head identify litter picking. This contradiction is captured in the next extract 4, from the learner focus group interviews.

Extract 4: Focus group interview with learners (L) revealing learners' object in the WMAs

Q: What is it that you like about your school?

L1: Our school is always clean. There are not many litters in our school.

L2: Yes, because every Friday we pick up litters. Our teachers teach us to pick litters.

Q: Every Friday you pick up litter? What do you like about picking litter?

L1: Because the school I was at in the city, they were not picking up litters. It was dirty, schools in the city are dirty. They have many litters.

Q: What is it that you don't like about your school?

L3: The toilets are dirty ...

L4: ... She [cleaner] cleans them sometimes, but sometimes she doesn't clean them properly.

L3: There are other toilets, the ‘English ones’ (flushing toilets) but they are not being used because they are not working. So we wish they could be fixed and teachers would show and teach children how to use them because when the children finish using them they would not know how to flush them.

L5: The other thing that I don’t like in our school is that other children spoil the name of the school.

Q: How?

L5: They don’t follow the rules from teachers. They don’t pick up litters in morning in front of the school when they see papers lying around ...

There is thus a contradiction between policy drive to develop creative, competent learners to accommodate new environmental needs and interests of learners (NEESAP, 2007) and the teachers’ needs, which curtail creativity by ensuring that learners abide by the rules set by the School Environmental Committee. This indicates that the teachers work on a different object from that of learners. The teachers’ desire is to create a clean school by prescribing rules and roles (which focus on litter picking) for learners in the waste-management activities. This impacts on the activity system, creating a contradiction between their object and the children’s object of responding by acting as required. Learners are offered opportunities neither to specify their object in these activities nor the choice of means to work towards it, at times resulting in their lack of cooperation as revealed in extract 4 as they do not fully understand the purpose of their participation. This results in their lack of response as informed, full participants and contributing stakeholders in these activities (Simovska, 2008; Jensen, 1997; Jensen, 2000). More significantly perhaps, is the object that concerns the learners, i.e. dysfunctional and unsanitary toilets, is not addressed in the school activity systems or discourses. Enabling fuller participation by learners in identifying waste-management activities may have brought this to the surface in school discourses and waste-management practices.

Role of the local council and the change in the teachers’ object on learner participation

It is evident that the local council is incapacitated in both the provision of services and supply of required materials resources to facilitate the waste-management activities in this school. Certain duties like cleaning of toilets and clearing of grass, which previously were done by children, have been taken over by Council, which has employed a General Duty Assistant and casual labor for clearing grass. But Council does not seem to be able to meet its obligation in fulfilling its mandate. The General Duty Assistant is unable to meet up to the job demand that she is tasked to do. The casual labour that is engaged once a year is unable to clear all the grass and bushes, which the children then utilise for their sanitary needs. This is captured in the extract below by the teacher.

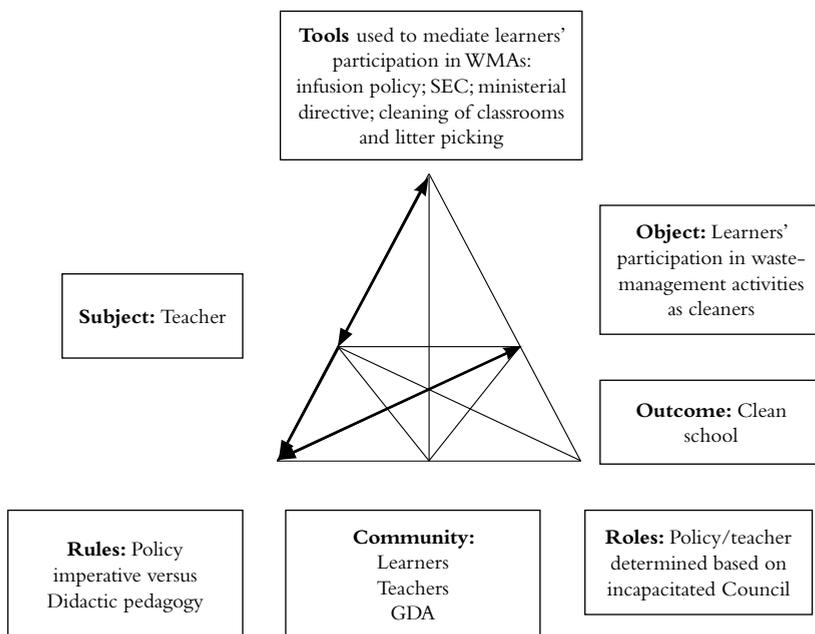
Extract 5: On council's lack of capacity to meet its obligation

T: Council is the one that is supposed to hire casual labor to clear that grass but last time they had said they will do it but they had no funds to employ people ... If the funds were there they would have cleared it already, but as you can see ...

... The General Duty Assistant is the one who cleans toilets. She's supposed to clean them daily but she's not managing because she has other things to do, like the cleaning of classrooms. We also send her to go and collect mail from Manana. So she's unable to do all this work alone.

This develops into a contradiction in that learners are instructed to fill the gap created by the General Duty Assistant going against the directive, which is an external rule that bars learners from participating in certain activities. From the extract, it becomes clear that the teacher's object has shifted from the learners participating in waste-management activities for learning purposes to them being cleaners (see Figure 4). This depicts the elusive (Hardman, 2005) nature of the teacher's object under different contexts hence bringing into question the mediation of learner participation in these activities for meaningful learning and becoming action competent learners (Simovska, 2008; Jensen, 2000, 1997).

Figure 4. School WMA activity system - Teachers seeing learners as cleaners



Forms of learner participation in the school WMAs

Drawing on Jensen's (2004) matrix developed to document participation in learning within an action competence discourse, (in Table 1) and how learners participate in the activity systems outlined above, evidence of existing forms of learner participation and how it is mediated is depicted. The rows represent different forms of learner participation in the waste-management activities and the columns illustrate how themes of participation are selected, where rules and roles emerge from, and who decides on the actions to be undertaken.

The shaded top part of the matrix clearly reveals the limited participation of learners, as they do not seem to influence any decisions and suggestions taken regarding the rules governing waste-management activities and their roles in them. In the process the learners' ideas, views and preferences as regards the roles that they can play in these decisions (Jensen, 1997, Simovska, 2008) are almost totally ignored. This disregard for learners' needs and views is revealed in the elusive nature of the teacher's object under different contexts as discussed earlier. This compromises the learners' commitment and drive in their participation as they lack the coherent knowledge of how decisions that affect them are reached, and the nature and scope of the waste management in the school as they are not afforded opportunities to either specify the object or come up with means to work towards it. Tensions are therefore created and as Jensen (1997:422) argues, this limited 'knowledge cannot be transformed into action if commitment and courage are not present' in the learners as they are not engaged as full competent partners in these activities, creating tensions as revealed in the activity systems.

It is, however, worth noting that the boundaries of participation depicted in the matrix are fluid (Jensen, 2004) and that even where there seems to be non-participation (*ibid*) some limited forms of participation, intended or unintended, still occur. This is illustrated in the matrix in the case where some learners would not follow the rules of cleaning unless supervised. This reflects evidence of the emerging tensions in the activity system, and also that these tensions are in fact evidence of participation, albeit in the form of resistance or conceptualization of alternative objects for participation.

But as tensions are suggestive for change (Hardman, 2005; Engeström, 1999), there is a need to explore available learning opportunities, in which learners can be allowed reposition themselves in relation to waste-management activities to see whether and how their participation and motives can be reconceptualised to embrace a radically wider horizon of possibilities than in the previous mode of their participation (Edwards, 2005; Engeström, 2000) than is reflected in this case study context. This can be achieved when learners question their participation and are critical and reflective in a democratic way by forming their own criteria for decision-making and choice of action (Simovska, 2008; Jensen, 1997; Jensen & Schnack, 1997). This should shift participation forms to the lower parts of the matrix. It can also be anticipated that active, meaningful participation of learners can indeed lead to shifts in pedagogical practice as relates to the use of waste-management activities as a tool to achieve the goals of environmental education in Botswana.

Table 1. Matrix of forms of participation and mediation (adapted from Jensen, 2004)

Mediation of WMAs Forms of participation	How the theme for participation in WMAs is selected (Object)	How the rules in the WMAs are set	Allocation of roles in the WMAs	Decisions on what actions are undertaken in WMAs
Teachers' decisions told clearly to learners	SEC identifies WMA issues that need attention	Teachers/SEC set rules in response to Infusion Policy objectives	Teachers/SEC based on ministerial directive	Teachers/SEC
Teachers inform, all learners accept		Learners follow teacher rules	Learners assume allocated roles	Not negotiated with learners
Teachers inform, some learners accept, some learners reject	Some learners do not pick up litter or clean unless supervised		At a micro level learners allocate themselves roles	
Teachers inform, all learners reject				
Teachers' suggestions, common decisions				
Learners' decisions, told clearly to teachers				
Learners inform, teachers accept				
Learners inform, teachers reject				
Learners' decisions, told clearly to other learners				
Learners inform, some learners reject				
Learners inform, some learners reject				
Learners inform, all learners accept				
Learners inform, all learners reject				
Learners' suggestions, common decisions				

Conclusion

It has emerged from this study that waste-management activities have been used in this school as an overall mediating tool for learner participation in environmental education. The assumption appears to be that this tool will transform pedagogy and consequently, change the pupils' into competent participants in environmental education. But these findings reveal that there are clear developing tensions and contradictions between participants, tools, rules and objects for developing competent learners through their participation in waste-management activities where, in response to the policy the teachers' object is elusive and hence they have used these activities as tools for lower level drill and enforced practice skills (Hardman, 2005). This is opposed to waste-management activities being used as a mediating tool for creative learner-centered learning where the object should be development of the learners' understanding of how their participation in these activities is structured and how it evolves and influences any immediate course of action (Simovska, 2008; Jensen, 2000, 1997) in the waste-management activities that the school undertakes. In this study the importance of learners being able to define the priority waste-management activities has also been revealed.

Future research needs to explore opportunities that can be offered to learners to come up with their new visions and alternatives (Jensen, 2000) which will develop the learners' capacities and capabilities (Lotz-Sisitka, 2006) through their participation in waste-management activities that also allow opportunities for social changes in the school, and meaningful learning, hence responding to the SADC REEP initiatives within the Education for Sustainable Development (ESD) framework (Lotz-Sisitka, 2006) that argue for meaningful participation in environment and sustainability education in southern Africa.

Notes on the Contributor

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Endnote

This research is part of a broader PhD study that seeks to explore expanded learning opportunities and space available for learners' suggested alternatives and visions for their participation in the school's waste-management activities to see what tools they can use, their impact and whether this can lead to a shift in learner participation to develop their competence and capabilities.

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