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CREATING HEALTHY SCHOOL ENVIRONMENTS THROUGH CHILDREN – AN ACTION COMPETENCE APPROACH

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Abstract:
Drawing on a case study of a school in a low-income neighbourhood of an urban area in Botswana, the broader aim of this article is to explore opportunities available for developing learners' action competence (i.e. their abilities to make decisions and act more independently or collectively) (Jensen & Schnack, 2006) to respond to environmental health issues in their school. Using focus group interviews and observations, selected primary school children are used in the study. The study further demonstrates how children can actually undertake action-oriented initiatives with the aim of developing some sense of purpose in these initiatives to improve their school environmental health.

Keywords: environmental health, action competence, children, participation

Background to the emerging unhealthy environments

While Botswana has made impressive economic development which has immensely contributed to the development of education, health, infrastructure and rural development, the benefits seem to have not yet accrued to the human development of its citizens in areas of healthy environments especially in low-income neighbourhoods in urban areas (Gwebu, 2003; UNDP Botswana Human Development Report, 2005). The socio-economic features of the country, that is high prevalence of poverty, particularly in rural areas, and rural under-employment and unemployment have over the years contributed to a steady increase in rural urban migration (Osei-Hwedie, 2004; Nkate,

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1999). This has seen an increase in enrolments in urban schools with large populations of children enrolling into these schools but with poor maintenance of the school environments. Municipal authorities under which these schools fall, are failing to provide for the infrastructural and human needs of the growing populations, and serious environmental problems particularly poor waste and sanitation management are now threatening the sustainability of the major metropolitan areas, particularly the low income neighbourhoods (Gwebu, 2003; Toteng, 2001; Molebatsi, 1998). Due to overcrowding in urban schools in low income urban neighbourhoods, there is lack of adequate water and sanitation facilities as well as facilities for the collection and disposal of solid waste (Gwebu, 2003, p. 410). Gwebu submits that:

> *"Due to overcrowding, the cleaning and maintenance of latrines in the low-income areas is so poor that the facilities have become a major health hazard which people avoid getting close to. Pit latrines also fill up rapidly, and due to inadequate facilities for their regular drainage, they overflow. Municipal authorities lack sufficient human and infrastructural capacity to deal effectively and timeously with the garbage generated by households."*
>
> (p. 411)

This poses serious health problems for dwellers in these residential areas which comprise the largest proportion of urban and peri-urban populations in the country. Gwebu argues that the environment that exists in these crowded neighbourhoods, inadequate infrastructure (lack of proper access roads), lack of open spaces , shortage of recreational facilities (children's playgrounds), poor sanitary conditions, lack of storm water drainage and littering have instilled negative feelings in the residents regarding the quality of their day to day lives (p. 420). This obviously impacts on the learning environments of children in the schools which are located in these neighbourhoods.

As part of the environmental education which is mandatory in formal education in Botswana, schools should be able to explore opportunities to engage children in environmental learning activities that contribute to children's ability to act and effect change as well as to develop action competence or civic agency (Jensen & Schnack, 2006; Carlsson & Jensen, 2006). This should be an approach that should depart from the traditional approach of teaching environmental education that simply involves children in environmental activities through normalized strategies (Ketlhoilwe, 2007) under the prescription and authority of teachers (Silo, 2012; Ketlhoilwe, 2007; Maundeni, 2002; Tabulawa, 1997). It then follows that any associated knowledge and insight that learners acquire during action in these activities, should in essence bear some element

of action competence in being action oriented (Jensen 2004; Jensen & Schnack, 2006; Carlsson & Jensen, 2006).

The object of this paper is therefore to use a case study of an urban primary school to explore opportunities for children to identify issues and concerns relating to environmental health problems in their school, envision what their aspirations for a healthy environment and take action by generating solutions to the identified problems. To achieve this objective the article uses a case study of a school that is located in a predominantly low income residential area with families ranging from very poor backgrounds to lower middle income by the City Council's designation of residential areas by economic and social indicators in Gaborone, capital of Botswana.

At the time of the study, the school had 958 children, 31 teachers including the school head and deputy school head, and three cleaners. The school falls within the greater Gaborone City Council which is charged with the administration of all the primary schools within the city as well as their maintenance.

Participants in the study

The case study involved a small group of nine Standard 5 children of ages ranging from 10 to 11. The selection was done by the teachers, based on a mix of a set of parameters, which included academic aptitude, character disposition such as shyness and outspoken individuals, introverts and extroverts and social background (Hennessy & Heary, 2006). Consent was sought from them and thereafter from their parents. As case study protocol recommends, informed consent had to be sought from participants before the research is conducted (Yin, 2003). The study recognised the fact that children are independent individuals who are free to decide for themselves whether or not to participate in research (Masson, 2000). But it was also critical to gain permission for working with children by getting informed consent from the school authorities and parents (Masson, 2000).

The data was largely generated from focus group interviews with children and observations of activities that children generated. These two methods formed the main data generation methods. They were complemented by semi-structured interviews with teachers and other actors in the school where it was deemed necessary, children's activities and work, their notes, as well as explanations by children themselves. Focus group interviews with children instead of individual interviews enabled maximum participation by all children. Focus group interviews provided children the safety and support of their peers, an environment within which there was a power balance, a crucial factor for optimal participation (Green & Hogan, 2006).

Observations were mainly used to see how children acted in these activities that they initiated. This approach allowed the researchers to examine the type of activities that were taking place in which children initiated in context, or those in which they would have liked to initiate but were discouraged from doing so (Tudge & Hogan, 2006). Observational methods also allowed for examination of some key aspects of what children did to start activities, how they were in those activities initiated and how the school community responded.

Creating healthy environments through an action competence framework

As stated in the earlier section, the aim was to allow children to take the central role of generating actions to respond to environmental health problems in their school within the action competence framework. The concept of *action competence* pioneered by Danish researchers concerned with children's democracy and decision making in environmental and health issues, is well articulated by Jensen (1997, 2002, 2004), Jensen & Schnack (2006), Carlsson & Jensen (2006) and Breiting, Hedegaard, Mogensen, Nielsen & Schnack (2009), Schnack, 2008).

Within this concept they argue that solutions to environmental problems must be sought at the cultural, structural, societal and political level of living conditions as well at a personal/lifestyle level. If children are to contribute to the solutions of environmental health problems, they have to be able to identify both personal/collective and structural/cultural causes, and to develop their own abilities to influence and change these conditions (Jensen, 1997). Jensen continues to suggest that:

> *"…as institutions for general education, schools have a responsibility to help equip the members of society in their charge, their pupils, with the knowledge and commitment to make personally meaningful decisions and actions to address the challenges posed by both lifestyle and societal conditions. Consequently, the overall aim of school health education is to develop the abilities of pupils to act at the personal and societal levels, i.e. to increase their action competence".*
>
> (p. 422)

Jensen and other scholars listed above see action competence as central to participation in environmental education in schools and view it as a departure from the traditional science-oriented approaches of knowledge transfer and behaviour change as reflected in the strategies associated with environmental management strategies

adopted by Botswana schools which are prescriptive, normalised and authoritarian (Ketlhoilwe, 2007; Silo, 2012).

They further perceive action competence as *a conscious action by an individual/group* that is *targeted towards solutions of the problem that learners are working with.* This means there has to be *a deliberate, conscious desire and purpose on the part of the learner* to take action towards the health and environmental issues in the school. The learners need to *fully understand the causes* of the problem, who and what it affects, as well as the socio-cultural factors around their actions. They need to be able to consider change strategies and *generate solutions to the problem* coming up with *alternatives and new visions* to the way in which they act in these activities (Jensen, 1997, 2002, 2004; Jensen and Schnack, 2006). These (*highlighted*) are all aspects of the action-oriented process focussed on in this paper all of which are components of action competence.

The action competence development cycle

The action competence model (Jensen & Schnack, 2006; Jensen, 1997; 2004) discussed above was adapted and used for children in this study to identify and select health and environmental problems or issues of concern, envision possible solutions and then, based on these, take some action to address these problems through selected activities, then reflect on and evaluate their new activities in an action competence development cycle (see Table 1). This provided a methodology for guiding children in the whole process.

The components of the cycle are summarised in Table 1 below, from an adapted model for action competence development.

Table 1: The Action Competence Development Cycle *(Adapted from Jensen, 2004)*

Component of Action Competence Cycle	Area of Focus
A. Selection of environmental health (issues, problems and concerns)	What are our issues of concern/problems? What are the causes of the problem? What influences are we exposed to and why? Why is this important to us? What is its significance to us/others?–now/in the future? What influence does our lifestyle and living conditions have on the environmental health problems? How were things before and why have they changed
B. Vision building	What alternatives and solutions are imaginable? What alternatives do we prefer and why?
C. Activities (Action and change)	What changes will bring us closer to the visions? Changes within ourselves? In the classroom/school? In the

	community? What action possibilities exist for realizing these changes? What barriers might prevent the undertaking of these actions? What barriers might prevent actions from resulting in change? What actions will we initiate?
D. Evaluation	How will we evaluate those actions? What comes out of this evaluation?

Selection of environmental health problems

The first step that children were guided to do was to develop a critical starting point and discuss environmental health issues and problems that were of major concern to them. They were encouraged to discuss them in order to identify those that needed attention, stating the causes of the problem, how it affects them and others, its significance, history and how it has impacted on their participation.

According to Jensen (2004):

> *"…children need to develop coherent knowledge about what the problems are, how they arose, and what possibilities there are for solving these problems. In addition, we need to promote students' sense of satisfaction and accomplishment, their commitment, and their drive. Knowledge about problems is not transformed into action if courage and commitment are not present; and commitment does not lead to actions without an associated insight into the problem. Put in another way, knowledge without commitment is empty and commitment without knowledge is blind."*
>
> (p. 414)

In all the problems identified by children as their issues of concern, they had to ultimately agree with each other on which they felt were the most important one for them to take action.

Vision building

Having identified relevant issues of concern, children outlined their visions and suggested solutions to realise these visions. The aim was to enable them to find solutions to the problems they had identified in a democratic way which is the central feature of action competence. In doing this,

> *"…one key role an action competence approach becomes that of developing the students' ability, motivation and desire to play an active role in finding democratic solutions to problems and issues connected to sustainable development."*
>
> (Mogensen & Schnack, 2010, p. 68)

Through questioning children, they were encouraged to develop their ideas and perceptions about their envisioned future (Jensen, 2004), participation, their roles and how they could do could do things in alternative ways to the normalised approaches that had been characteristic of the school culture over the years (Silo, 2011; Ketlhoilwe, 2007). One of the children wrote the group's ideas on a flip chart while the other one noted them on paper.

We then offered to compile and type the list of theme areas of concern and suggested solutions. Having compiled the list, we suggested that children approach their teacher and either the school head or their deputy school head to further discuss the list with them, which they did. We also followed up with the teachers and the head of school to follow up on their discussion and solicited support from them. This was to carefully support the interaction between children and their teachers.

Children's activities

This component of the action competence model focussed on the children's action experiences by stressing the benefits of taking concrete action during the process. Children were encouraged to develop solutions to the problems that they identified. The extent to which their activities involved some degree of action was analysed according to the children's attempts to take the initiative and to take the action whether direct or indirect (Jensen, 2002). They initiated and took action in a wide range of different types of activities through various actions. Some were direct concrete actions and some indirect: all actions formed a vital step in the action competence development process. These are summarised in Tables 2.

Evaluation

The evaluation of the activities took the form of continuous reflections by children on their actions in the new activities. They highlighted both constraints and enabling factors. According to Mogensen and Schnack (2010), from an evaluation perspective, the action competence approach calls particular attention to self-evaluation. This provides children with an opportunity in the participation process to assess their successes and

barriers in their actions and their own strengths and weaknesses. This contrasts to evaluations being done solely from 'above' by teachers with a summative purpose (p. 69) as was the case in the previous activities that they had always done under the instruction of their teachers. But this evaluation process also involved teachers and other stakeholders in the school community. According to Jensen (2004):

> *…it is important that a particular action not be viewed as an end-product of an environmental education project. Students must have the opportunity to evaluate, reflect, and restructure their actions—within their project and with their teachers—in order to develop their action-competence."*
>
> (p. 414)

What was crucial in this phase was for children to demonstrate the power to act (agency) which is a fundamental characteristic of action competence by assessing and reflecting on their actions and activities. They need to consider barriers and constraints as well as enabling factors and the objective was to allow them to not merely react to, but importantly, to highlight how these activities could have changed their material and social worlds (Roth, 2004).

The schools' action competence development cycle

This section presents and discusses detailed empirical results and evidence of the action competence that developed or lack of it in the activities that were initiated by learners in the school, mainly guided by me with the help of their teachers. The main objective of the section is to present and analyse activities carried out by children using the different components of the model of action competence outlined in above. The criteria for presentation and analysis of evidence of action competence described dynamics of children's activities that:

- considered environmental health problems and proposed actions which were chosen jointly by the participating children;
- selected environmental health problems which provided a scope for a local solution;
- involved concrete actions (direct or indirect) on the part of children as integrated elements of the action competence development process;
- involved the development of new human relationships, i.e. social capital, in the community as a consequence of the activities;

- involved the strengthening of insight, commitment, and visions, i.e. action-competence, on the part of the participating children; and
- shared dialogue between participants and/teachers, including a common understanding of the processes and aims of activities (Jensen, 2004).

Table 2 below provides a summary outline of the selected environmental health problems, envisioned solutions and activities by children in the school.

Table 2: The Action Competence Cycle

Component of Action Competence Cycle	Area of Focus
A. Environmental health problems	**Issues, problems and concerns**
a) Poor toilet sanitation	Poor maintenance of toilets and leaking taps; poor usage of toilets by children; use of area outside toilets for sanitary needs; lack of proper sanitary facilities in girls' toilets; cleaners not properly cleaning the toilets
b) Poor litter management	Littering caused by children bringing packed snacks from home; City council's failure to regularly collect and dispose of litter
c) Poor preparation of food	Poorly prepared food which children throw away leading to unhygienic conditions that attracts flies to the school
d) Poor maintenance of grass	Grass which goes for long periods without being cleared provides hide-out for children to use for their sanitary needs and is a breeding environment for mosquitoes
B. Vision building ***Children's visions***	To communicate with the teachers to get toilets fixed and cleaned properly; girls to request sanitary bins in their toilets; to suggest to their teacher to advise cooks to properly prepare food so that it doesn't get wasted; to request that school tuck-shop stocks varied snacks; proper maintenance of school grounds
C. Activities ***Action and change***	Meeting with the teacher to discuss their issues and problems and drawing up an action plan; clearing of grass and landscaping; improvement in food preparation; supply of girls' sanitary bins in the toilets
D. Evaluation	Learners and teachers are partners in actions and evaluating activities Development of children's social interaction skills; conflict resolution and consultation driven

Children's identification and selection of problems and their visions

Tables 2 highlights the action competence cycle for the children in this school. This shows that the children's selection of problems which covered areas of their concerns emerged directly from them. Their visions were mainly centred on creating a school

culture where there would be balanced and responsible interaction between them and their teachers in order to collectively address environmental health issues that affected them. They also considered the contribution that they could make towards solutions to these problems in the school. This was a move that could be viewed as a positive contribution to the school culture. The main issues of concern and problems that were selected and their envisioned changes and alternatives were captured under the themes discussed in the following section.

Sanitation as a health and an environmental issue

It was clear that children in this school were concerned about the environmental health status of their school with particular emphasis on toilet sanitation. They felt the problems were specifically caused by poorly maintained and inadequate toilets and the shortage of facilities such as girls' sanitary bins, toilet paper and gloves for picking up litter around the toilet area, a practice they felt was highly unsanitary. They also blamed this poor state of sanitation to lack of care and concern for their welfare by their teachers whom they felt did not take their plight seriously. In this school they noted that poor environmental health was due to inadequate labour, with only three cleaners for a school as large as theirs. The children also seemed to feel strongly that the teachers should address the environmental health challenges of the school, a vision that could be achieved if there was open dialogue between them and their teachers. Though toilets were their main concern, they also identified poor food preparation as another environmental health management related problem. They also blamed the poor sanitation of toilets on the incorrect use by children and irregular cleaning by the cleaners. All this pointed towards the children's appreciation of the aesthetic value and health of the environment. Through consultation and dialogue with their peers and teachers, children in this school could directly or indirectly have contributed towards the solutions to the problems.

The emphasis on sanitation revealed that the children had knowledge of, concern about and were fully aware of environment related health issues, their causes and how they affect them. They were able to link these to environmental health issues affirming that health and environmental issues cannot be separated and that they are intertwined. While it was important that children were involved in ensuring that their school environment is clean, key to their involvement was what they were learning in these activities. It is not necessarily the task of children to improve the cleanliness of the school but the educational value that comes out of these activities that should make "*future citizens capable of acting on a societal as well as a personal level*" (Jensen & Schnack,

2006, p. 472). In other words concern for a clean school should be coupled with concern with democratic principles and learning.

There were those activities in which children either directly undertook physical action or had an indirect influence on the schools' physical environment in response to their identified and selected thematic problems and visions for environmental health in their school.

Maintenance of school infrastructure and sanitation management

Soon after children had given their teachers their list of concerns and visions, and as a result of their meetings with school heads and their teachers, maintenance of toilets and the other infrastructure began to take place. For example, the school management decided to use part of the money from the school fund, which the school head and the teacher had told the children about in one of their meetings previously, for repairing toilets, doors, locks and windows to the delight of children. The girls, after meeting senior girls, requested for a sanitary bin which was provided by the City Council.

After a few weeks of this sustained guided support (Rogoff, 1990; Rogoff & Wertsch, 1984) there was a marked improvement in the state of sanitation (litter and toilet) management: the school grounds and toilets were clean. This was all because children were working closely with their teachers to monitor and ensure that the litter picking rota was adhered to by different classes and toilets were regularly cleaned and monitored. The number of school bins were increased and the City Council began to regularly collect litter. City Council also supplied the girls' toilets with sanitary bins, the contents of which were also collected every Wednesday for incineration.

Evaluation

The evaluation phase of the children's activities which involved participant children, teachers, school heads, cleaners and other school children addressed the various changes that resulted from and were facilitated by the children's activities.

It is crucial that students have the opportunity to evaluate, reflect on, and restructure their actions - within a certain environmental education project and together with their teachers - in order to develop their action competence (Carlsson & Jensen, 2006, p. 242).

The evaluation process further assessed whether some of the identified problems were attended to, whether children's visions were realised or not. It did this by placing the barriers and constraints as well as enabling factors into perspective, all of which are

contributory factors to action competence development and children's empowerment (Jensen, 2004, p. 421).

Furthermore, development of social skills and communication between and among children and their teachers and other members in the community, were evaluated as another crucial aspect of action competence development. The evaluation findings were very mixed but mainly positive about the children's experiences. While generally both children and teachers spoke warmly of the authentic and action-oriented aspects of the project (Jensen, 2004, p. 419), they did however highlight a number of barriers that confronted them in its development.

Children's empowerment and action competence development

Generally, children and teachers were happy about the children's activities and acknowledged their genuine opportunity in influencing changes. Children's empowerment was increased in most of these activities, even though they still faced major barriers, an issue children lamented. The teachers and the cleaners were very happy with the project approach in which children were allowed to initiate and take control of their activities. They felt that the empowerment of children had made their job easier because, where previously they had to issue rules, allocate roles and supervise and monitor children in environmental health management activities, a large part of that responsibility had been transferred to the children who were doing so with considerable enthusiasm and zeal. The children also observed that because their teachers could see the positive outcomes from their initiatives and activities, this had instilled some trust and confidence in them from their teachers.

The teachers felt that there was an improvement in the way that children understood environmental health management. They could now rationalise and make sense of it by being directly involved and by being given an opportunity to talk about it. They now conceptualised waste in a broader and more meaningful sense and understood it in context.

Extract 1: Teacher evaluation of children

T: Your project has helped a lot in that you can see that these children are now able to rationalise and understand that when we talk about waste management what we are actually talking about, not only papers, but food, toilets the neighbourhood etc. (TI)

The children also observed that because their teachers could see the positive outcomes from the children's initiatives, this had instilled some trust in them.

Extract 2: Children's evaluation

L: I think they now enjoy doing what they used to do more because they feel that teachers are not forcing them because they are now being told by their peers whom they are free to talk to and freely voice their concerns, unlike when they are forced to work because they are afraid of teachers whom they cannot question (FLI).

Development of a sense of collective competence

A key aspect of action competence that emerged from these activities was the sense of collective competence between children, teachers and their peers. Within this they were able to exchange and share experiences, action strategies, and constraints and success stories, as well as build relationships, which served as inspirational and motivating experiences for commitment to actions in the learner activities. Children saw opportunities to develop their own alternative solutions to the environmental health issues that had always prevailed in their schools. This created a sense of collective accomplishment which was an intrinsic reward for their genuine participation (Hart, 1997), along with the satisfaction of seeing that they could make a difference (Chawla & Cushing, 2007).

Chawla and Cushing (2007) further contend that this form of collective competence developing from "*mutual support and friendship need(s) to be recognized as not just means to effective group functioning, but from a young person's perspective, valued ends in themselves*" (p. 447). This is a key aspect of and a precursor to the development of democratic values that are consistent with the action competence approach.

These steps for building individual and collective competence, as well as practising democratic skills and values, were illustrated by a network of social skills that developed during the activities all of which were starting points of action competence development in learners.

Conclusion

Children were provided with opportunities to take action to influence real life environmental health issues that they were confronted with daily, as part of their action oriented activities. This was achieved by facilitating co-engagement and dialogue between teachers and other children and amongst the children themselves in the action competence development process.

Through this engagement, a broader range of possibilities became available and ideas around prevailing environmental health problems in the school were radically transformed. One positive outcome of this approach was better relationships within the school community. With improved communication came better ideas to solve environmental health management issues that the school still faced on a daily basis, such as management of sanitation (litter and toilets) facilities. Newly devised solutions were practical and had a broader impact. They included mobilising the maintenance of toilets and even re-organising the litter management that had always been unattended to. Now children seemed to be developing not only a better understanding of the environmental health issues that confronted them daily, but also developing the ability to resolve conflict amongst themselves and with their teachers. By engaging children in identifying problems and coming up with action-oriented solutions, they became co-catalysts for change in the school environment.

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