Southern African Journal of Environmental Education, Vol. 24, 2007

Environmental Education Policy Implementation Challenges in Botswana Schools

Mphemelang Joseph Ketlhoilwe
Rhodes University, South Africa/University of Botswana, Botswana

Abstract

This paper analyses teachers' responses to the introduction of environmental education policy in Botswana's primary schools. The 1994 Revised National Policy on Education introduced environmental education into the education system through an infusion approach. This paper reflects on some of the issues and challenges confronting teachers in interpreting and implementing this environmental education policy. The findings are based on research conducted in four regions in Botswana. Data for this research were generated through interviews, questionnaires and classroom observations, and were supplemented by a genealogical analysis of key documents and interviews with policy makers. A post-structural analysis of the data indicates that various normalising (self governing) strategies were applied by teachers in their policy interpretations. The study also considers how these environmental education policy interpretations are influenced by the construction of the policy discourses, and by contextual challenges emanating from the genesis of the policy, conceptions of environmental education, support mechanisms, educators' experiences and power relations.

Introduction

Education policy reform interventions such as the introduction of environmental education may enable or constrain policy agents (such as teachers and education officers). Policy implementation may cause frustration amongst agents, particularly where constraints far exceed enabling factors. This paper examines teachers' responses to the introduction of environmental education into Botswana's national education system through the Revised National Policy on Education (RNPE) (Botswana Government, 1994), as well as teachers' understandings of the policy text, environment and environmental education concepts. The analysis presented here forms part of a much larger study examining the genesis and interpretation of environmental education policy in Botswana (Ketlhoilwe, 2007). Through an analysis of school profiles, school-community relations, teaching and learning practices, and resources and support services that enable or constrain policy implementation in schools, insight was gained into the interpretation of this policy. These dimensions were analysed to establish how teachers responded to the policy, and what factors were shaping, enabling or hampering environmental education policy implementation in schools. The paper thus provides an analysis of factors that shape pedagogical discourses in schools. It also explains how and why teachers might develop various normalising strategies when confronted by new policy directives, in this case the introduction of environmental education.

The Context of the Study

Botswana education policy implementation is based on, and facilitated through, an administrative structure which operates from macro- to micro-levels. The structure has a bearing on how the institutions operate and influences how policy is interpreted and implemented in practice in the classroom. The policy is designed by the Ministry of Education and mandated to different departments for implementation. For instance, the RNPE statement on environmental education is mandated to the Department of Curriculum Development and Evaluation to 'provide leadership in improving the quality of education through curriculum development, review and revision'. The Department infuses environmental education across the curriculum. It is responsible for syllabus design, monitoring, evaluation, materials design and development, and provides guidelines for policy interpretation for use by teachers and learners in schools. It operates its mandate through a panel of experts that advises on matters related to policy.

The next department in the implementation structure is the Department of Teacher Training and Development, which is responsible for both pre-service and in-service teacher training based on national curriculum development. Once a syllabus is designed and handed over to the Department of Teacher Training and Development, this Department is responsible for making sure teachers are trained and professionally supported. Most of its services are decentralised to 12 educational regions throughout the country. At primary education level the Department provides a regional teacher support service which includes teacher advice.

The Department of Primary Education is responsible for supervision and inspection of all primary schools (Ministry of Education, 2006). However, some of its duties are decentralised and carried out at district level such as school inspection and material supplies. The provision of transport and day-to-day logistics falls under this department. Employment of teachers is the responsibility of the Department of Teaching Service Management, which is supposed to ensure that qualified teachers are employed. It also provides teacher regulations and rules on professional conduct and service. It is responsible for teachers' remuneration and social welfare.

These departments are all supposed to liaise with each other as they operate through one agent (teachers). This symbiotic relationship is meant to ensure that the education system and policy yield optimal results. This form of governance influences classroom practice. In addition to the macro-structure, teachers at school level are faced with contextual and structural conditions within which they operate as agents at a micro-level. There are extra-discursive practices (non-discursive) such as the socio-economic situations/conditions that exert a bearing on the ability of teachers to deliver and implement the education policy statements. Botswana, like other southern African countries, is facing socio-economic development challenges. It lacks financial capital to provide enough classroom space for learners, to offer satisfactory salaries for teachers, to provide adequate teaching and learning support resources, and many of the parents are unemployed and are not able to contribute to cost-sharing principles.

Research Methodology and Methods

A post-structural qualitative research design informed the generation and analysis of data in this study. Post-structural analysis aims at discovering or uncovering the actual patterns of power-knowledge relations that shape actions (e.g., policy development and interpretation in a given context). Specifically, the research drew on Foucault's (1977) notion of governmentality to analyse teachers' interpretations of the RNPE policy. The concept of governmentality examines:

- normalising strategies deployed by teachers to interpret environmental education,
- power/knowledge relations in policy interpretation and implementation, and
- the interplay between normalising strategies and strategies of resistance and interrogates where and how these occur (Darier, 1999).

Of particular interest was the way in which teachers deployed various normalising strategies to interpret the environmental education policy. These normalising strategies were influenced by various contextual factors, and by the macro-level curriculum governance structures as outlined above.

To generate data for this analysis, focus group discussions, questionnaire data and classroom observations were used in five schools in different educational districts in Botswana. The purpose of conducting ***focus group interviews*** was to listen and gather information about environmental education policy implementation from practitioners (teachers). In each school, the focus groups consisted of similar participants, i.e., people with similar qualifications, senior teachers or teachers teaching at the same level, to ensure that interviewees felt comfortable with people like themselves and to identify trends and patterns through the creation of a permissive environment (Kruger & Casey, 2000). ***Questionnaire*** data were used to complement data generated through focus group discussions. The purpose of the questionnaire was to generate school profile data relating to environmental education policy practices, as well as data on teachers' professional contexts and roles and their views on policy implementation. The questionnaire proved to be a valuable tool for triangulating data generated through the focus group discussions. Data generated from focus group discussions and the questionnaire was complemented by ***observation*** in schools. Observations proved to be a valuable technique to generate data on the manner in which teachers were actually interpreting policy in the classrooms.

Profile of the Research Participants

A total of 35 teachers were involved in the research in the four regions. The respondents' qualifications ranged from a two-year Primary Teachers' Certificate, three-year Diploma in Primary Education to four-year BEd (Primary) degree. There was one unqualified respondent (with an O-level certificate) employed on a temporary basis. The majority (18) of the respondents possessed a Primary Teachers' Certificate. Six respondents had diplomas while four had a first degree in primary education. Six respondents did not disclose their professional qualifications. The respondents' teaching experience ranged from 5 months to 30 years. Eight

of the respondents who had graduated in the last 10 years had had exposure to environmental education and infusion. Eleven of those who graduated before 1994 had benefited from in-service workshops or courses on environmental education. Nine of the respondents had never had any opportunity to attend environmental education in-service training in their teaching career.

The purpose of documenting and analysing the above professional profile of the teachers was to establish contextual factors and conditions favouring or constraining the implementation of environmental education in schools, and to shed light on teachers' competencies and associated deployment of self-governing strategies in teaching environmental education.

The Findings: Teachers' interpretations of environmental education policy

At the time the research was conducted (13 years after the introduction of the RNPE and its environmental education clause), there was evidence that environmental education had been infused across the primary school curriculum. In addition, the subject 'environmental science' had been introduced at lower primary level. There were, however, also interesting 'other discourses' that have emerged as teachers and schools have interpreted and responded to this policy through various normalising strategies.

Three prominent normalising strategies were identified in this research, namely: (1) equating environmental education with environmental management activities in schools; (2) expressing frustration with a lack of resources to undertake field trips (i.e., outdoor education expectations) and (3) equating environmental education with environmental science. These three normalising strategies are briefly described below. Further explanation for these strategies is provided through provision of contextual data, and through explaining how the normalising strategies were influenced by the genesis of the environmental education policy within the RNPE development process.

Equating environmental management activities with environmental education in schools
Findings indicated that, in most cases, the status of environmental education in schools is understood in terms of its recognition with activities such as keeping the school clean and the existence of an environmental club or committee. Responses revealed a discourse of cleanliness and environmental management in schools. The respondents mentioned school *cleaning* or *cleanliness* as one of the activities showing that environmental education is given some status in their schools. It was apparent that existence of health and environmental education clubs in schools is also regarded as recognition and appreciation of environmental education. Teachers also illustrated the recognition given to environmental education in their schools by giving examples of activities such as projects to develop the surroundings and a committee which monitors environmental education in the school. Efforts to promote environmental education through environmental management were evident in most schools. For example, school notice boards had vision and mission statements including environmental management activities. Staff rooms and school heads' offices had environmental posters and recycling projects items made from waste material.

The status of environmental education is also measured by schedules of cleaning and litter collection activities. These activities are common across all the research sites and are allocated a particular day during the week, usually Wednesday afternoons. They include everyday sweeping, litter collection and switching off the lights in the classrooms. Some of the activities in schools include planting and watering of trees and flowers, collecting items such as cardboard containers and other waste materials for recycling. These activities are primarily associated with environmental management and have little to do with the environmental education requirements in the formal curriculum. Teachers supervise learners to carry out the environmental management activities, relating them to classroom learning processes or syllabus content. They are part of the school's official duties and its broader or 'hidden curriculum'. In some schools environmental education status is measured by the existence of an environmental action plan and school mission statement. Some indicated that these activities are recognised and supported by School Management Teams (SMTs), indicating that SMTs tended to equate environmental education with environmental management-related activities. In some schools parents are also involved in environmental committees. However, in some research sites teachers lamented that parents and the broader community were causing environmental problems around the schools, making their environmental management activities difficult to maintain, and their environmental education efforts meaningless, due to a lack of continuity between school and community in terms of the environmental management activities. It was also evident that teachers and school heads were putting much effort into the maintenance of this environmental management discourse in schools, leading to new forms of school-community interactions. For example, some schools were undertaking efforts to address the problem of a lack of adequate support from the municipalities in waste disposal, and school heads also mentioned the problem of animals from the village destroying flowers and trees around school grounds.

Resulting from this environmental management work in schools, it was evident that there is an increased level of environmental awareness among learners and educators. Learners were reported to have started relating well to the environment by voluntarily picking up litter and watering the plants and flowers grown in the school every morning without supervision. However, some respondents felt that environmental education is not given the status it deserves as there are problems such as lack of teaching resources, and that most teachers fail to infuse environmental education into subjects. The recurrence of environmental management discourse dominating in schools may be a result of environmental education only being represented in policy texts and not in 'normal' school materials (e.g., textbooks). It is also an indication of how the respondents interpret environmental education and this situation has impacted on epistemological and pedagogical discourses in the schools. It seems that this normalising strategy has created a discourse that situates environmental education 'outside' of the mainstream curriculum where it is meant to be infused, and situates it more in the realm of the extra-mural and hidden curriculum.

Expressing frustration about a lack of resources for fieldwork (outdoor education)

Frustration about a lack of resources for fieldwork reflected that teachers frequently equated environmental education with fieldwork and excursions. Lack of transport was repeatedly

identified as a barrier to successful environmental education in schools, and was attributed to strict government regulations surrounding use of transport. Transport arrangements in primary schools are made through the district office and vehicles are limited to taking learners on short-distance excursions. Even for distant excursions vehicles are booked some months in advance with no guarantee that schools would be successful in using this resource, as there are many schools in each district and region. Therefore the schools normally have to rely on privately hired transport through parents' contributions, which is problematic for poor parents. Another problem mentioned by respondents as a constraint was lack of funds to finish projects. This problem was raised by one focus group although in some groups lack of funding was associated with prohibiting outdoor education/trips. The implication was that where direct exposure is necessary teachers are constrained by lack of financial resources to take learners to areas of educational interest. Most of the above-mentioned constraints are structural factors affecting the wider education system and environmental education policy implementation as desired and interpreted by teachers. Normalising environmental education policy through equating it with fieldwork also had epistemological and pedagogical consequences. This normalising strategy reflected teachers' concerns that learners were not adequately exposed to direct experiences. This apparently 'forces' teachers to provide learners with classroom-based lectures instead of fieldwork and experiential learning opportunities, and teacher discourse reflects a belief that lack of experiential learning opportunities may lead to weaker correlations between attitudes and behaviour. However, attitude-behaviour relationships are more complex than predicted by the participants in this research. O'Donoghue and Lotz-Sisitka (2002) commented that behaviour change involves complex social processes which require additional analysis that need to take account of culture and *habitus.*

The normalising strategy equating environmental education with fieldwork, like the environmental management activities reported above, appears to lack sophistication of interpretation in relation to ever-increasing complexities associated with people-environment relations in an African context, as described for example by the United Nations Environment Programme in their African Environment Outlook (AEO) report (UNEP, 2006; Lotz-Sisitka, this edition). Environmental issues in the AEO report are, for example, described in terms of poverty and health concerns, globalisation issues, local and global spatial complexities, Africa's development potential and the multi-disciplinary nature of these issues.

Equating environmental education with environmental science

A third normalisation strategy applied by teachers was evident in the way that most teachers equated environmental education to environmental science. Environmental science was introduced through the 1994 RNPE that introduced environmental education. As environmental science deals with environmental content, teachers who may not have had adequate training associated this science-based subject with environmental education, thus narrowing the scope of environmental education to environmental science. Most of the respondents claimed that the objectives and content of environmental science and environmental education are similar, reflecting a poor understanding of the infusion concept and process into other subject areas. For example, there was little evidence of teachers considering environmental perspectives in social

sciences and other subjects such as mathematics. The result was a science-based interpretation of environmental education being dominant in the schools, with much of the content and activities being nature-based (e.g., focused on plants and animals, but more from a science perspective). This normalisation strategy served to marginalise other possible environmental education curriculum discourses such as the social and historical origins of environmental issues, the economic and technological dimensions of environmental issues and risks, and integrated problem-solving strategies or issues-based approaches.

The normalising strategies discussed above illustrate the self-governing techniques (Foucault's governmentality) that teachers used to govern their engagement with the RNPE and the introduction of environmental education policy. The normalisation strategies illuminate the spaces that teachers feel comfortable with when describing their environmental education practice. As indicated above, these strategies appear to be narrowing the potential for broader, more complex engagements with environmental education in Botswana schools. While it is useful to identify these normalising strategies, they cannot be fully understood without an understanding of their genesis. A number of influences appear to be significant in the formation of teachers' interpretations of environmental education dimensions of the RNPE, as discussed below.

Tracing the Genesis of These Interpretations of Environmental Education Policy

Tracing the genesis of these interpretations revealed a mix of historical and contextual factors that shaped, constrained and led to the emergence of these normalising strategies. These are discussed briefly below:

Factors related to the genesis of the policy

Influence of international discourses: Environmental education policy construction in Botswana was a complex process encompassing both national and international environmental policy discourses. Influenced by the rise of environmental education discourse in international events, the Botswana educational community drew on UN initiatives such as the 1992 UNCED conference influencing member countries to re-orientate their education system to incorporate environmental awareness and training. A number of international organisations influenced the Botswana policy construction process, particularly through the intergovernmental agreements. Donor organisations with a strong presence in Botswana such as USAID, and other international projects such as the SADC Regional Environmental Education Programme's work also influenced the policy construction process. Since 1992 there has been an increased emphasis on sustainable development discourse in international policy, and the Botswana environmental education policy reflects this influence in the sense that it is constructed with both: conservation discourse (promoted by the conservation sector in the policy construction process, and the history of conservation emerging from the colonial era); and sustainable use discourse (promoted by donor-funded programmes supporting community-based natural resource management and other environmental management activities) at the time of policy

construction. This led to the existence of a hybrid environmental discourse in the RNPE and associated syllabi, namely, a conservationist and sustainable use discourse, each with a different history. Neither were explicit or clarified, but remained implicit.

Influence of national players: National key players in the policy construction process included non-governmental organisations, and individual and government agencies. These key role players initiated the introduction of environmental education. Non-governmental organisations such as the Kalahari Conservation Society and Wildlife Clubs of Botswana played a leading role by lobbying government, introducing environmental education into schools through clubs, environmental management projects, fieldwork opportunities and teacher training, and through suggesting that environmental education should be incorporated into the education system. Their call for the introduction of environmental education into the education system was answered through the 1994 RNPE policy process in which they participated actively.

As mentioned above, construction of the environmental education policy was influenced by environmental discourses that were dominant amongst key role players. For instance, the Department of Wildlife and National Parks (DWNP) promoted a primarily conservationist discourse, promoting this through environmental awareness/education activities in schools through the formation and activities of the Wildlife Clubs. With the introduction of environmental management discourses (through, for example, a School Environmental Policy and Management Planning initiative), their activities increasingly included an environmental management discourse (e.g., school grounds cleanliness, water conservation), and field visits/trips. In addition, the Department introduced and supported mobile in-service teacher training workshops. The DWNP became a dominant force in the construction of the RNPE policy and conceptualisation of environmental education. The mobile workshops seem to have given the teachers the idea that fieldwork is a particularly important environmental education process. As indicated above, teachers' interpretations of the policy revealed that they were particularly influenced by the activities of the Department of Wildlife and National Parks and Association of Wildlife Clubs of Botswana.

Contextual factors

Teacher training: Teachers' interpretations of environmental education and its construction as environmental science were also linked to a lack of adequate teacher training and support, indicating that teachers' interpretations of policy, and associated normalising strategies, can be influenced by contextual factors. Twelve respondents indicated that they had never been involved in any environmental education in-service training. Those that had, indicated that they had been involved in a 'crash course' on the revised curriculum that included environmental science for lower primary. Some had come across environmental education in college or university courses. Teachers generally reflected that their teaching and interpretation of environmental education had improved because of training workshops on environmental education, although these were not necessarily well run, as teachers complained about getting too much material, with not enough opportunity to develop thorough knowledge of a few things.

School management: Some respondents also felt that school management is not supportive at all. They claimed that they are never given any new information or training on environmental education. However, some respondents explained that their school management is constrained by lack of funds to demonstrate its full support. For instance, these schools cannot purchase resources, equipment or finance educational tours because of lack of funds. And in those cases where support was evident, it often compounded and extended the normalisation strategies outlined above. For example, in some schools, school management was credited by some of the respondents for setting up environment committees, allocating teachers to duties related to the environment, encouraging environmental activities, observing environmental days, supporting the environmental education club in school and organising school-based workshops to equip teachers with the necessary skills, reflecting a continuity with the environmental management activities discourse. Poverty and the socio-economic status of parents also influenced interpretations of environmental education policy, as outlined in the discussion on transport and fieldwork above.

School-community relationships: School-community relationships also appeared to influence the policy interpretation process. Some of the respondents reported good working relations with the community in response to school environmental problems. For instance, one respondent explained that every term they do a clean-up campaign. The parents come to school on Tuesdays to assist with the cleaning of the grounds. Community volunteers also do activities in the school, like cooking for children, particularly during sports and music competitions. Some schools also contribute to the communities by picking up litter outside the school fence and participating during national clean-up campaigns. In one rural school, parents contributed money to buy bricks for building a water tank for water harvesting and for watering trees and vegetables in the school garden.

The study revealed that some teachers were worried about the link between what they teach in the classroom and what the learners experience outside the classroom in the community. Teachers expressed concern that the learners accept their experiences at school as appropriate only at school, compromising the value of environmental education in social transformation. This reflected a concern about the school and its order of discourse and the non-complementary relationship with what is actually practised outside school. The issue of the community-school role in children's environmental education and associated values is influenced by social circumstances and presents a new site of contestation and struggle in schools as teachers attempt to extend the teacher-learner position and influence to teacher-parent-child position and influence.

Learning resources: Environmental education policy interpretation is also shaped by a number of constraints in the classroom and/or school context, key amongst these being inadequate teaching and learning resources. Lack or shortage of materials may lead to lack of or limited information. Teachers were concerned about shortages of resources, particularly reference books and textbooks, and indicated that a shortage of reference books hampered their ability to find out more about environmental issues, which may also help to explain the lack of more

complex, multi-disciplinary environmental education discourses amongst teachers. In some cases there were not enough resources for big classes. Not only were teachers concerned about *quantity* and *availability of material*, they were also concerned about *quality.* They were particularly concerned about the lack of depth in relation to environmental education in the recommended books. Core and supplementary books are recommended by a panel from the Ministry of Education. This form of power and control over knowledge resources prescribed by the Ministry of Education featured across the research sites. Teachers also mentioned that they sometimes struggle to find relevant information to achieve the objectives as stated in the syllabus, especially relating to 'new' issues such as environmental issues. This situation implies that, although the respondents may value environmental education, they are constrained by lack or shortage of learning resources to participate fully in the production of knowledge associated with the implementation of environmental education.

Syllabus construction: Teachers also noted that some objectives in the syllabi are not clear and need to be revisited. The respondents associated this problem with lack of representation of primary school teachers in the design of primary education syllabi. The respondents felt some objectives are not clear because they were designed by subject experts. They also mentioned that the language used is difficult for children to understand. This issue presents a direct challenge to a technicist/expert curriculum design approach where there is little representation of classroom teachers with rich experiential knowledge of how learners learn new concepts. Lesson observations revealed a dominance of prescribed syllabus content, and modes of delivery and predetermined epistemes structured within a *technocratically designed syllabus*. Classroom discourse did not, for example, promote intergenerational or eco-justice perspectives on the viability of natural systems and their use, but was confined to scientific forms of classification, description and naming of plants, animals and other natural system features.

Language: It also emerged that teachers are confronted with complex language and concepts in the policy text and environmental education material content in their teaching. Some interviewees felt that the language used in the syllabus and in the textbooks created a problem for teachers and learners. The respondents revealed that the syllabi are written in English even for Standard 1 learners and it is not easy to translate some of the terminology and concepts. Some of the terminology used is perceived to be above the level of the learners. One interviewee reported that sometimes the teacher never knows whether she/he is advancing or confusing the children more or whether the translation and interpretation is exactly as in the syllabus. These uncertainties amongst some of the respondents indicate that they still lack confidence in teaching environmental education. Respondents still find environmental concepts (and terminology) a challenge to their competencies. Their understanding of environmental concepts needs reinforcement to restore their confidence. This provides evidence of teachers' reflexivity in assessing their own knowledge and competencies, reflecting some ethical values in their profession.

The use of complex language/terminology in the syllabus and books could be attributed to the mode of curriculum design and procedures. The respondents cited lack of primary school

teachers' involvement in the design of the curriculum for primary levels. The curriculum designers who are reproducing and interpreting the policy objectives take for granted that the concepts they use will be clear to teachers and learners. This technique of marginalisation (and silencing) results in a technocratic or expert-led curriculum product, which is reproduced in material design. This challenges human agency in practice as the agents of transformation (primary teachers in this case) struggle with interpretation of the curriculum statements, objectives and language used in the books to communicate and guide the learners. As a result some respondents are unable to help their students to understand the environmental concepts and how they contribute to degradation of the environment. The forms of knowledge that can be communicated through scientific terminology also tend to hide the environmental episteme encoded in the language that appears in the books or curriculum documents.

Ironically, the problems experienced with language and terminology, together with the lack of available learning resources, tended to lead to explanatory teacher-centred pedagogical practices that negated or even worked against the learner-centred, constructivist view of learning that assumes that learners 'construct their own conceptions of their world' as they fail 'to take into account the meta-schemata encoded in the language processes that are the basis of thought, communication and behaviour' (Bowe, Ball & Gold, 1996:148), and learner-centred objectives as proposed in the policy and syllabi were not really met.

Discussion

Despite the finding that teachers appeared to have a great interest in environmental education for its practical value and local relevance, teachers were not adopting practical approaches beyond the school-based environmental management activities such as cleaning up classrooms and the surroundings. Through normalising strategies, it seems that teachers are able to exercise their reflexive power in structuring their experiences. For example, teachers in this study apparently wanted to teach environmental education, or at the very least felt obliged to do so, and in the face of constraints associated with interpreting and teaching the syllabus requirements, and other contextual constraints, they chose to do something related to the environment, most notably environmental management activities in school grounds, environmental science lessons, and the planning of fieldwork (which seemed difficult to execute). These strategies all seemed to fall within the realm of activities that were possible, were supported by the SMTs, and were consistent with broader perceptions of what environmental education might be (i.e., better environmental management, environmental science and fieldwork). They all reflected a localising of environmental education discourse, and there was little evidence of teachers, for example, examining local global relationships associated with environmental issues and risks, or longer-term historical perspectives, or more complex multi-disciplinary perspectives.

This paper has revealed that these interpretations of policy are related to a complex range of factors, which include international and national power-knowledge relationships in the construction of policy discourse, and local power-knowledge relationships that influence local interpretations of policy discourses. Adequate resourcing of new policy initiatives also rises to the surface through this analysis, being a manifestation of the power-knowledge matrix that

exists at the interface of global historical factors such as colonial intrusion and post-colonial state formation, state resource allocations and national priorities, between different levels of the education system and structure, and how it is managed, set up and run, and what priorities are attended to within these structures. Clearly the training of teachers and the resourcing of environmental education have not been seen as a major priority since the introduction of the RNPE, as teachers reported varied levels of support from School Management Teams, subject advisors and the inspectorate. However, administrative and professional support has been credited in some schools indicating that this support is not entirely lacking. Much support for environmental education is still provided by the other national players such as the DWNP, which leads to a continuity of prominence in the conservation/fieldwork/environmental management discourse that is prominent in interpretations of environmental education policy in Botswana.

Teachers' concerns for high-quality teaching and learning resources to help them access broader and more complex knowledge resources than those available at the local level, provides evidence of teachers reflexivity in reviewing their existing environmental education practices. There are indications that they are not satisfied with having to rely on their prior experiences and interpretation of syllabus objectives, and that they are having to improvise to make their lessons successful by employing various teaching techniques. Some were doubtful of their correct interpretation of the syllabi objectives and the way they were implementing environmental education. However, some teachers appear to be positive and recognised the local relevance and value of environmental education but due to contextual challenges they have deployed normalising strategies that emphasise environmental management activities and treat environmental science and science as environmental education. As shown in this paper, teachers' policy understandings influence epistemological and pedagogical practices.

The respondents (i.e., policy agents/actors) are not openly opposed to the introduction of the environmental education policy but are not always ready to admit that they do not fully understand what they are required to do. The equating of environmental science with environmental education and the complaints about in-service training indicate that there is a need to further clarify the environmental education discourses embedded in the RNPE. It may be equally important to clarify syllabi instructions and support translation of these into meaningful and broader teaching and learning processes (not only environmental management activities and field trips). One could therefore agree with some of the respondents that they need in-service training. An examination of the respondents' and schools' contexts indicates a mixture of an ideal and a hostile situation in the implementation process – making for a complex implementation context and diverse and often ambivalent normalising strategies. The respondents have employed various techniques of resistance and compliance. It was only through careful analysis of their responses that conclusions can be drawn that some were deploying techniques of self-governance and normalisation in expressing their experiences, feelings and perceptions about their teaching and competencies. Of significance, and as evidenced through the localisation of the policy discourse, most of the respondents found the introduction of the policy valuable to the children and the community, despite logistical and professional problems experienced.

It also became clear in this research that teachers still rely heavily on textbooks and external knowledge resources instead of other strategies (except fieldwork) to enable development and application of knowledge. It seems that curriculum guidelines are inadequate for the selection of appropriate content to achieve the set outcome without detailed and specific or prescribed textbook content or information from other learning resources, indicating the strong influence of textbooks in governing teaching practices. This indicates that much effort needs to go into high-quality and more flexible approaches to resourcing environmental education processes if they are to broaden, deepen and improve in quality.

Teachers are expecting linear progression of pro-environmental knowledge leading to environmental awareness and concern (environmental attitudes and behaviour change). This rationalist model assumes that educating people about environmental issues would automatically result in more pro-environmental behaviour, which has been termed a (information) 'deficit' model of public understanding and action (Kollmus & Agyman, 2002:3). This indicates that more attention needs to be given to supporting teachers to develop deeper understandings of social change processes in environmental education teacher education programmes. This emphasises the pedagogical dimensions of environmental education processes, which also include normative issues (e.g., the consistency of actions inside and outside the school), as this study identified that community/public behaviour is creating tension with the expected pro-environmental behaviours of learners.

Conclusions

This research into environmental education policy interpretation has illustrated the complex relationships that exist between policy construction and interpretation and has illuminated how both the genesis of policy, and a variety of contextual factors, shape policy interpretations. The research revealed that teachers tend to employ various normalisation strategies that are located in existing experience and discourses that have localised to school level as shown by the influence of the DWNP work. Nevertheless, teachers are also reflexive of these normalising strategies, and can identify the challenges and constraints they face, as they implement these strategies. These include varying degrees of structural factors that are constraining or enabling. This research has revealed that among these factors are hierarchical structures, both in schools and the national education system, insufficient time and lack of transport for outdoor activities, limited learning and teaching resources, large class sizes, complex terminology in the syllabi and textbooks, lack of external support, e.g., from local education authorities, and attitudes of some colleagues and parents. These constrain teachers' classroom practice and hence their capacity to achieve policy implementation in practice (as they may desire it and/or as the syllabus might require). This would seem to indicate that in future policy construction processes, it may be important to take greater account of contextual factors, and that a comprehensive implementation plan may be made a necessary component of policy processes. However, some of these structural constraints emerged as enabling structural factors. For instance, some respondents mentioned support from the Department of Wildlife and National Parks providing transport and talks to their students, support from School Management Teams, Parent Teacher Associations and school heads. Despite

constraining factors, the respondents placed great value on the introduction of environmental education in the curriculum, particularly with regard to its practical value and ethical concerns.

Of significance to the development of further implementation support for environmental education policy in Botswana is teachers' reflexive self-awareness of the way in which they are normalising environmental education as fieldwork, environmental management and environmental science. They blame this on a lack of adequate in-service teacher training, resources and support, indicating an awareness of the potential to develop broader professional competence and institutional support for the implementation of environmental education. This illustrates that the reflexivity associated with teachers' normalisation strategies can potentially be a site for opening up opportunities for future teacher professional development and growth that are situated in, but not limited to, teachers' existing experience and knowledge of environmental education.

Notes on the Contributor

Mphemelang Joseph Ketlhoilwe is a lecturer in environmental education within the Department of Languages and Social Sciences Education at the University of Botswana. He has recently completed a PhD in environmental education at Rhodes University, focusing on the genesis and interpretation of environmental education policy in Botswana. His professional interests include education policy research, environmental education, education for sustainable development and teacher education. Email: ketlhomj@mopipi.ub.bw.

References

Botswana Government. (1994). *Revised national policy on education*. Gaborone: Government Printer.

Bowe, R., Ball, S. J. & Gold, A. (1996). The policy process and the processes of policy. In Aheir, A., Cosin, K. & Hales, M. (Eds), *Diversity and change: Education, policy and selection*. London: Routledge. pp.273–288.

Darier, E. (1999). *Discourse of the environment*. Oxford: Blackwell Publishers.

Foucault, M. (1977). *Discipline and punish: The birth of the prison*. New York: Pantheon.

Ketlhoilwe, M.J. (2007). Genesis of environmental education policy in Botswana: Construction and interpretation. Unpublished PhD thesis, Department of Education, Rhodes University, South Africa.

Kollmus, A. & Agyman, J. (2002). Mind the gap: Why do people act environmentally and the barrier to pro-environmental behaviour. *Environmental Education Research*, 8, 239–260.

Kruger, R. & Casey, M.A. (2002). *Focus group: A practical guide for applied research*. London: Sage.

Ministry of Education. (2006). *Revised national policy on education*. http://www.moe.gov.bw, visited 10 May 2007.

O'Donoghue, R. & Lotz-Sisitka, H. (2002). Some insights on the gap. *Environmental Education Research*, 8, 261–271.

UNEP (United Nations Environment Programme). (2006). *Africa environment outlook: Past, present and future perspectives*. Hertfordshire: Earth Print for UNEP.