Community Environmental Education as a Model for Effective Environmental Programmes

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Abstract The benefits of community environmental education outlined in environmental education literature are supported by the findings and implications of a research study undertaken in New Zealand. Evidence from a two-case case study suggests that environmental programmes guided by the key principles and practices of community environmental education, that is, public participation, environmental adult education and environmental communication, can produce effective environmental outcomes. Indeed, these cases indicate that the principles and practices of public participation provide a catalyst for genuine collaborative efforts between different organisations and local communities. Results also indicated that environmental adult education strategies can empower community members to critically evaluate local environmental issues, which in turn resulted in a commitment to improving the local environment. I thus argue in this paper that the principles and practices of community environmental education can provide benchmarks for cross-sectoral collaboration and assist communities in reaching environmental solutions.

The goals and objectives of environmental education, outlined at Tbilisi, are still evident today in numerous international and national policy documents (UNESCO-UNEP, 1978; ICUN, UNEP, WWF, 1991; UNCED, 1992; MfE, 1994; UNESCO, 1997; MfE, 1998; United Nations Department of Economic and Social Affairs, 2002). However, many statutory authorities concentrate much of their environmental education resources and efforts into schools (Clover, 1997; Treeby, 2001). This approach does not meet the goals and objectives of environmental education as a life-long process aimed at educating whole communities. Current initiatives promoting environmental education to predominantly school-aged learners is, while an essential element of formal environmental education, a long-term approach to achieving environmental sustainability. Environmental education also needs to target communities. This paper proposes that the principles of community environmental education can act as a model for effective environmental programmes.

Community environmental education is underpinned by an environmental education framework aimed at educating communities and empowering them with the skills, values, knowledge, and awareness to critically assess and take action over local environmental issues (Maser & Kirk, 1996). Specific principles and practices provide a framework for developing, implementing and facilitating community environmental education programmes. The key principles and practices are environmental adult

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education, public participation, and environmental communication. Environmental adult education promotes a holistic view of the environment and is aimed at educating adults within an ecological framework (Clover, Follen & Hall, 1998). Public participation seeks to engage statutory authorities, organisations and community members to ensure that all stakeholders are represented in a decision-making process (Maser & Kirk, 1996; Forbes, 1987). Communication strategies form an integral part of community environmental education programmes by helping to increase public awareness and knowledge of local environmental issues, helping to foster effective public participation, and promoting environmental action (IUCN, 1995; Maser & Kirk, 1996; Keliher, 1997).

Based on the hypothesis that the principles and practices of community environmental education would aid organisations and local communities in the development, implementation and facilitation of effective environmental programmes, the study reported on here examined and compared the effectiveness of two contemporary environmental programmes/projects in the Bay of Plenty, New Zealand. The approach, findings, discussion and implications of this study are summarised below. The study findings provide some evidence that there are benefits to statutory authorities when they work through a framework of community environmental education.

Approach

Following a critical examination of three dominant research paradigms: positivism, interpretive social science and critical theory (Robottom & Hart, 1993; Sarantakos, 1998; McCutcheon & Jung, 1990; Yin, 2003), the research methodology for the study was embedded in both the interpretivist and critical perspectives. Of significance is that particular consideration was given to research by Robottom and Hart (1993) and Connell (1997) who view the interpretivist and critical methodological paradigms as complementary rather than competitive. Essentially, it was acknowledged that both paradigms recognise the importance of researchers' understanding the theories and values behind environmental education approaches in a particular situation and of including the collective knowledge of participants.

In line with an interpretive perspective, the context of the case studies examined was of critical importance. Thus, the objectives of both the educators and participants were investigated; the wider social, cultural and political realms of society were considered; and discussions between the researcher and the participants was included (McCutcheon & Jung, 1990). The interpretive methodology was also used to gather personal descriptive accounts from programme participants about how they think, feel and act toward specific community environmental education initiatives. A critical methodology was employed to make explicit the various social, economic and political forces that shaped participants' views, understandings and actions (Yin, 2003). However, it was the combination of paradigms that allowed for both educators and participants to be recognised as part of a collective process central to achieving the goals and objectives of environmental education (Stevenson, 1993b; Connell, 1997).

The case study method was selected as the most relevant research strategy for the project as it allowed flexibility, a concentration on individual cases, and the opportunity to use a variety of sources of evidence. The two-case case study method allowed for rigorous insights to be drawn from the cases (Sarantakos, 1993). Two major propositions were established to guide the study (Yin, 2003). These are: (1) Successful community environmental education outcomes can be achieved through collaborative efforts between different organisations and local communities; and (2) The principles and practices of community environmental education will aid organisations and communities in the development, implementation and facilitation of

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effective environmental programmes. In order to determine whether the case studies would support or refute these propositions, the following four questions, based on the research objectives, were developed: (1) What is the theoretical framework underlying international and national goals and objectives of environmental education and the merits of community environmental education as a catalyst for influencing the development, implementation, and facilitation of environmental programmes? (2) How do statutory authorities and different organisations view their role in the development, implementation and facilitation of community environmental education programmes? (3) How do communities view their role in the development, implementation and facilitation of community environmental education programmes? and (4) How can the principles and practices of community environmental education influence the effectiveness of environmental outcomes?

In addition, a case study protocol was developed to increase reliability and guide data collection from each case study. The case study protocol involved five stages: site and sample identification; field procedures; data collection tools; managing and recording data; and data analysis strategies (adapted from Yin, 2003 and Sarantakos, 1998). Resource constraints influenced the selection of suitable cases with the Bay of Plenty region of New Zealand chosen for its proximity to the researcher's home. Case One - the Coast Care Bay of Plenty programme - utilised a framework of community environmental education, while Case Two – the Welcome Bay Catchment Care Group - was not underpinned by a community environmental education framework.

The case study method and data collection and analysis techniques also influenced the selection of participants for the research. Semi-structured interviews were the principal data collection technique used, and given time constraints, interviews were undertaken only with key organisation representatives and a small selection of programme/project volunteers. Hence, respondents were selected on a case by case basis. This form of questioning was chosen for ease of relating questions to specific objectives and propositions and because it provided flexibility in the design, structure and conditions of each interview (Sarantakos, 1993). Interview questions focussed on participation, communication, and facilitation. Each interview was conducted by contacting respondents by telephone or email to set a time, date and place for the interview to take place; familiarising the interviewee with the ethical issues, confidentiality clauses, arrangements for recording the interview, and expectations of the interview process; undertaking the interviews in a guiding manner, ensuring absence of bias; transcribing each interview within two days of the interview taking place; sending the transcriptions back to the interviewees for validation; and editing the transcriptions where required (adapted from Sarantakos, 2005:272-280). Document searches and archival records, used as supplementary sources of evidence, helped to triagulate the interview data.

The development of the research objectives, questions and propositions for the research resulted in a pattern-matching logic being the most appropriate technique on which to base the data analysis. The pattern-matching logic required a "non-equivalent dependent variables design" to be developed to strengthen the study's propositions (Yin, 2003). In accordance with this design, the non-equivalent variables were characterised by a predicted pattern of effective community environmental education outcomes. The pattern or outcomes are detailed as follows: the programme is relevant and beneficial to the community; programme initiatives are developed in partnership with the community and stakeholders; the programme is implemented using participatory approaches to teaching and learning; environmental education strategies are used to target the wider community; and the programme promotes environmentally responsible actions with

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the community (adapted from Blakeley, n.d). For each case analysis, the outcomes were used as guides to determine the extent each case produced the predicted pattern.

In summary, the two-case case study acted as an evaluation technique for determining the effectiveness of current community environmental education programmes, allowing for the recognition that both educators and participants are part of a collaborative process central to achieving the goals and objectives of environmental education.

Findings

A brief discussion of each individual case reveals the extent that each case produced the predicted pattern of outcomes.

Case One

The Coast Care Bay of Plenty programme was established in response to public and local government concern about decades of coastal dune erosion (Jenks & O'Neil, 2004). Initially, a voluntary group of residents formed to restore the natural dune vegetation. In time, staff from Environment Bay of Plenty and Tauranga City Council applied a model of dune care restoration based on the dune care programme in New South Wales, Australia. As a result, Coast Care Bay of Plenty was established promoting a real focus on collaborative partnerships between local statutory bodies and the local community (Jenks & O'Neil, 2004). Representatives from each statutory organisation formed the Coast Care Advisory Group (CCAG), enabling governance structures and policies to be set in place. The partnership ethic enabled local authorities to lead by example, demonstrating that participation in the decision-making process requires collaboration at all levels. In addition, the partnership ethic was positively received nationwide, providing motivation for the establishment of the Coastal Dune Vegetation Network.

Coast Care is administered by two full-time facilitators. The facilitators possess critical knowledge and understanding of the bureaucratic framework that Coast Care operates within, alleviating volunteers from the legal constraints associated with the management of coastal reserve land. The facilitators consult with volunteers on restoration ideas and plans, with the final decisions being made with the Coast Care Advisory Group. The facilitators implement the Coast Care programme using a variety of participatory approaches to teaching and learning reflective of the principles and practices of environmental adult education. Voluntary participation in Coast Care is encouraged through communication strategies; rewarding success through annual awards; providing Coast Care groups with the tools to co-ordinate community environmental action such as support, technical advice and resources; providing stimulus for self-reliance to complete restoration activities; and providing opportunities for action and reflection at planting days.

Evidence from this case study clearly indicated that a wide range of successful communication strategies had been used to target the wider community. Subtle behaviour change campaigns were used to raise public awareness of the importance of coastal dunes, in relation to amenity, cultural and biodiversity values. Such communication channels included print media, displays and signage, educational resources, and addressing psychological barriers. Specific communication strategies were also used at different stages and for different purposes and audiences. For example, target groups in the region were identified prior to designing and implementing communication strategies, which resulted in signage being designed that reflected the social and cultural characteristics of particular coastal communities, while fridge magnets were designed to promote awareness to "out of town" visitors staying in tourist accommodation. Print material mostly depicted cartoon characters to appeal to the majority of community

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members, and to create a form of gentle persuasion. Little emphasis was placed on corporate image. Additional environmental strategies included working with the scientific community to further enhance knowledge of coastal processes and benefits of dune restoration. The Coast Care programme produced exceptional environmental results, evident along the entire Bay of Plenty coastline. The Bay of Plenty community has embraced the Coast Care concept to the point where it is now a self-sustaining process and has promoted collective ownership, and care for, the foreshore.

Case Two

The Welcome Bay Catchment Care Group (WBCCG) is a community driven project, initially formed to mitigate against the encroachment of mangroves in the local harbour catchment. Environmental action by the group benefitted the wider community by acting as a catalyst for change. However, before long, the group realised that support was required to overcome legal issues. As a result, requests for assistance from leading agencies were made on an "as needed" basis. Partnerships with key representatives from the statutory authority - Environment Bay of Plenty (EBOP) - along with support from the New Zealand Landcare Trust enabled the group to concentrate on understanding the links between the environmental issues surrounding the estuary and broader social and cultural influences. Unfortunately, opposition from key stakeholders resulted in the refusal of the initial application for resource consent, which led to a loss in group momentum. To overcome opposition, additional help and support was sought from EBOP, the New Zealand Landcare Trust and the scientific community. A questionnaire survey was developed, and data from this was combined with new scientific knowledge, to support an appeal to the Environment Court. Facilitators from EBOP also provided the group with manuals, technical support, and resources to develop an estuary management plan.

A variety of environmental education strategies were also used to target the wider community, however, limited resources and negative press meant that the WBCCG was unable to develop a comprehensive communication campaign. Although the WBCCG had indeed made huge inroads in promoting environmentally responsible actions within the wider community, an initial lack of support by all major stakeholders and the absence of a framework of community environmental education affected genuine collaboration efforts between professionals and the general public and thwarted the group's initial plans and objectives.

Cross-Case Analysis/Discussion

An analysis of data across the two cases indicated that there are definitive advantages to the development, implementation and facilitation of programmes based on a model of community environmental education. The predicted pattern of effective community environmental education outcomes was predominantly evidenced by Coast Care Bay of Plenty (Case One). Case One demonstrates that the inclusion of a framework of community environmental education can result in increased funding and resources, technical support and advice from skilled facilitators, the development of a legal framework and policies to overcome bureaucratic barriers, and the development of an integrated communication strategy. Essentially, the findings show that collaboration between all statutory bodies, relevant stakeholders and local communities can increase the likelihood of programme success. Organisational capacity restraints can also be minimised by the amalgamation of resources, improving the ability to effectively develop, implement and facilitate community environmental programmes.

Findings from Case Two - the Welcome Bay Catchment Care Group - clearly indicated that the absence of a community environmental education framework,

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detailing equal responsibility by all affected stakeholders, resulted in drawn-out miscommunications and a delay in action on the ground. Ownership of the process was then paradoxically taken away from the group as additional assistance was required to overcome legal barriers. Herein lies the anomaly: although respondents from both cases regarded community ownership of environmental programmes as the ultimate outcome, collaboration by all affected stakeholders was, however, considered essential to achieving effective environmental outcomes and environmental education facilitators were regarded as key elements in providing citizens with the necessary tools to care for the local environment. So, despite community environmental education programmes being more successful when ownership is delegated to communities, evidence clearly suggests that statutory authorities still have a role to play in empowering citizens with the appropriate skills, values, knowledge, and awareness to take responsibility and action over environmental issues.

The cross-case analysis illustrates that the differences in success rates between the Coast Care Bay of Plenty programme and the Welcome Bay Catchment Care Group project were influenced by both the amount and quality of support received by the organisations responsible for the management of the Bay of Plenty region. For example, support from all major stakeholders enabled Coast Care initiatives to be successfully developed, facilitated and implemented. In contrast, limited support, and in some instances retaliation from stakeholders in Case Two, resulted in numerous delays, as outlined above.

Implications

The implications and recommendations drawn from this study were categorised according to the following themes: public participation, environmental adult education, and environmental communication.

Public Participation

The findings of this study demonstrate that a framework of community environmental education can provide opportunities for cross-links between citizens and professionals. While in some instances impetus may come from statutory authorities, resembling a top-down process of environmental decision-making, the establishment of advisory groups can enable the provision of facilitators to increase the skills, knowledge and awareness of local communities on environmental issues, leverage resources, influence public policy, develop a communication campaign and then delegate ownership of the process to individual groups. As Maser and Kirk (1996) assert, collaboration in the initial development process and the development of a community environmental education framework would enable the wider community to be involved in carrying out what has been learnt through policy changes and communication and education strategies. Hence, it is recommended that the establishment of advisory groups for future community environmental education initiatives include representatives of the local community and a "continual cycle of theory development, experimentation, action and reflection" to ensure effective community environmental education outcomes (Maser & Kirk, 1996).

Environmental Adult Education

This research suggests that statutory authorities must recognise that adults are the dominant decision-makers within communities and that it is their decisions and actions that affect the environment on a daily basis (Clover, 1996). The region-wide Coast Care Bay of Plenty programme clearly demonstrated that educating communities within an ecological framework can generate an active environmental citizenry. Not only did the

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establishment of the Coast Care Advisory Group provide the opportunity for statutory authorities to appreciate the importance non-formal education plays in community development, a better informed and environmentally active populace resulted. The Bay of Plenty community was provided with a programme that focused on a local issue, maintained voluntary participation, provided all stakeholders with an active role in the decision-making process, recognised past learning experiences, fostered mutual respect and a collaborative spirit, provided opportunities for citizens to learn problem-solving skills to actively care for the local environment, and provided avenues for action and reflection (Brookfield 1987; Clover, 1998). In line with Maser and Kirk (1996), the evidence from these case studies suggests that if statutory authorities provide community members with the skills and resources to critically assess local environmental issues, it is likely that a sense of connection to the local environment will be formed, which in turn may result in a commitment to improving the local environment.

Environmental Communication

The case studies also demonstrated that environmental communication is integral to any community environmental education programme as it can provide citizens with the skills, knowledge, awareness and attitudes to effectively bring about sustainable community development. Stevenson (1993b) explains that community environmental education should not only include strategies to educate citizens on the issues surrounding their local environment but also opportunities for citizens to actively participate in bringing about a change using the knowledge they have learned. The case studies also suggest that when developing community environmental education initiatives, communication strategies should be planned and implemented during a programme's development phase. Communication strategies should consider the socio-economic and cultural characteristics of target populations, a range of communication strategies, budgetary constraints, and monitoring and evaluation tools (Keliher, 1997). If these elements are established prior to programme implementation, there is a greater chance of educating whole communities toward an ethic of sustainability.

Conclusion

Managing the environment requires urgent investment in community capacity-building. The results of this study indicate that working through a framework of community environmental education can provide benchmarks for cross-sectoral collaboration and assist communities in reaching environmental solutions. Essentially, case analyses indicate that environmental programmes guided by the principles and practices of community environmental education can produce effective environmental outcomes. The principles and practices of environmental adult education ensure programmes are focussed on local issues, promote voluntary participation, and provide citizens with the skills and knowledge required to help communities become environmentally active. The principles and practices of public participation, for example, ensure that all stakeholders are represented in the decision-making process. Collaboration and a shared vision between all affected parties can also boost available resources leading to increased funds; the enhancement of staff skills to ensure community responsiveness to environmental issues; the minimisation of resource duplication; and the ability for environmental management goals to be integrated with community development activities and initiatives. Integrated communication strategies, developed in consideration of the socio-economic and cultural characteristics of specific communities, can help citizens be environmentally responsible.

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In summary, the principles and practices of community environmental education can assist statutory authorities in increasing the skills, knowledge and awareness of citizens, expanding resources, influencing public policy, and developing effective communication campaigns. Ultimately, when environmental programmes are delegated to local communities, programmes become a self-sustaining, life-long learning process. Such an approach will help to meet the goals and objectives of environmental education outlined in the Tbilisi Declaration.

Keywords: Community environmental education; principles and practices; collaboration; public participation; environmental adult education; communication.

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