Southern Africa is challenged by many environmental and development issues. Education has been identified as an important response to environment and development issues. These source books have been developed to support course developers to strengthen aspects of course development in support of environmental and sustainability education processes.

There are five source books in this series:

Source book 1: Deliberating curriculum frameworks in adult learning
Source book 2: Supporting adult learning and tutoring
Source book 3: Course materials development for adult learning
Source book 4: Development, adaptation and use of learning support materials
Source book 5: Course evaluation in adult education programmes

The sourcebooks draw on the experience of a range of course developers in southern Africa, and are an output of the SADC Course Development Network, established by the SADC Regional Environmental Education Programme in 1999, and funded by Sida. The Course Development Network was strengthened with additional partnership funding and technical support from Danida between 2001-2004. Course experiences informing the books are drawn from a range of southern African country contexts including: Zimbabwe, Zambia, Namibia, Botswana, Swaziland, Lesotho, Mauritius and South Africa (amongst others). The source books therefore provide a regional vantage point on issues of transforming education to address Africa's socio-ecological and development questions.

The source books are produced at the start of the United Nations Decade on Education for Sustainable Development, and aim to provide inspiration and support to other course developers who are trying to mainstream environment and sustainability into universities, colleges and other life-long learning courses.
COURSE EVALUATION IN ADULT EDUCATION PROGRAMMES

In support of environmental and sustainability education processes

COURSE DEVELOPERS’ TOOLKIT

Source Book 5

SOUTHERN AFRICAN DEVELOPMENT COMMUNITY REGIONAL ENVIRONMENTAL EDUCATION PROGRAMME
2006
The Southern African Development Community (SADC) Regional Environmental Education Programme (REEP) is a project of the SADC Secretariat's Food, Agriculture and Natural Resources (FANR) Directorate. The Programme is funded by the Swedish International Development Cooperation Agency (Sida) and the Danish International Development Agency (Danida), and is being implemented by the Wildlife and Environment Society of South Africa (WESSA). In 2000, Danida funded a Course Development Network within the SADC REEP; this source book is a result of the activities of this network.

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Preface

The Southern African Development Community's Regional Environmental Education Programme (SADC REEP) was established in 1997 at Umgeni Valley, in South Africa. The purpose of the programme is:

To enable networking partners, at all levels, to strengthen environmental education processes for equitable and sustainable development in the SADC region, through improved networking, resource material production, increased training capacity and the development and implementation of policy processes.

The SADC REEP has subsequently hosted hundreds of visiting practitioners, and run numerous training programmes. It has an established networking process and has supported the development of a wide range of learning support materials. Through a Course Developers Network (CDN), the programme also supports a number of course developers working to enhance learning programmes and curricula in formal and non-formal adult education settings.

Regional source books

Since the commencement of the CDN, in 1999, it has become increasingly apparent that locally developed and contextually relevant resource materials are necessary to support meaningful learning. The Course Developers Network has therefore been working to develop a series of source books that have a regional focus and function. These source books draw on experience from across the southern African region, and provide openings and starting points for new environmental education practitioners joining the activities of the SADC REEP or other environmental education networks or programmes.

This book forms a part of a series of source books. Its particular focus is on evaluating courses in environmental and sustainability education. In producing this source book as part of its Course Developers' Toolkit, the SADC REEP acknowledges the important role that evaluation plays in fostering reflexivity and changes in practice in adult education. Reflexive orientations have been identified in the recent SADC REEP evaluation as being an important dimension for supporting environmental learning and sustainable development in the SADC region.

The regional source books have two important features:

- They are regional, in the sense that they draw on the experience of a wide range of environmental education practitioners in the SADC region. The frameworks for the books have been developed through deliberations hosted by the SADC REEP. The source books therefore draw on case examples of practice from practitioners in the southern African region.

- They also provide a synthesis of existing experience. The books are therefore fairly representative of the theory and practice in environmental education in the southern African region at a particular time. This theory and practice is, however, open to change. The source books therefore remain open-ended, in that they provide open questions to guide ongoing practice. New experiences can be developed through using the source books, and this experience can be shared with the SADC REEP for future inclusion into the books, as they are revised and edited to keep up with developing perspectives in the region.
Developing this source book

This source book, like the others in the series, draws on the experiences of many environmental educators in the SADC region. As a source book, it was developed out of ongoing deliberations on course evaluation within the SADC Course Development Network. A workshop was held in Zambia in 2005 to deliberate the topic of course evaluation in more depth, and a number of course evaluation case studies were discussed. These case studies, together with an outline of some of the theory of evaluation, form the core of this source book.

Objectives of the source book

The main objective of this source book is to assist course developers to strengthen course evaluation. In doing this, it aims to assist environmental education course developers to monitor the effectiveness of the course as a whole, as well as different aspects of the course (such as orientation, methods used, materials, assessment practices), to ensure that the intended learning outcomes are being achieved. While not aiming to be a textbook on evaluation, the book provides an ‘easy to access’ introduction to a theoretical basis for course evaluation, as a core component of institutional quality assurance.

The source book is also aimed at assisting course evaluators to determine evidence of professional competence, reflexivity and contributions to socio-ecological change (including responsiveness to socio-ecological issues and risks, and contextual needs). To address this, the book discusses the relationship between purpose and context to establish environmental education course effectiveness. The source book draws insights from, and reflects the experiences of, environmental education course evaluation in formal, informal and non-formal institutions, thus addressing a broad range of course evaluation contexts.

Through the sharing of case stories, the source book also serves as a networking tool for environmental education practitioners in the region. Readers are encouraged to make contact with others working on similar topics and issues, and to share experiences and materials where appropriate.
How to use the source book

This source book is intended for use by a cross-section of course developers responsible for compiling and evaluating their courses. It is particularly aimed at those developing courses in adult education contexts.

The use of the book will be influenced by the need and interest of the reader. The book is clearly divided into sections and sub-sections for ease of reference and use. Users do not need to read the entire book, but may choose only to refer to sections of particular interest. There is therefore no special way of using the book, as courses and their evaluation processes will always differ in focus and context.

While the source book is primarily designed for use in environmental education course evaluation, it may prove useful in other course contexts. The book is also suitable for both short and long course evaluations in both formal (mainly higher education institutions) and informal learning contexts (for example, adult education courses run by NGO groups).

There are many different ways of using this source book. Here are some ideas that might be useful.

Use the source book to plan your course evaluation

The source book contains many useful insights which can assist with the planning and conducting of a course evaluation. These can be derived from the theoretical section of the book (Section A), or from examples provided in the case studies (Section B).

Use the book to run a short course or a lecture series on course evaluations

The book can also be used as the basis for a short course or a lecture series on course evaluation. When using the source book in this way, you could use the case studies as a basis for examining different approaches and issues associated with course evaluation, and then draw on the theory to provide insights into these approaches and issues.

Structure of the source book

The book is divided into two main sections. Section A focuses on the general concepts, definitions, brief history and theoretical framework of course evaluation, and includes a discussion on the purpose of evaluation. It deliberates the parameters of an evaluation, which may be seen as an integral element of other course design processes. This section also presents general procedures for monitoring and conducting both formative and summative course evaluations. It also provides insights into different approaches to evaluation, including object-led, decision-making-led, user-oriented, responsive and expert-led evaluations. Moreover, it provides information on planning an evaluation, the process of gathering data, analyzing data and reporting the findings. The section also describes general procedures of pre-test, on-course test, and post-course test designs. It also discusses the use of the evaluation findings.

Section B focuses on case stories of environmental education course evaluation, drawn from the experience of course developers active in the SADC REEP’s Course Development Network. The case stories demonstrate practical applications of evaluation con-
cepts and theoretical frameworks covering the planning and conducting of course evaluations, as well as suggested uses of evaluation findings. The case stories provide ‘hands on’ insight into some of the issues experienced by course evaluators when evaluating courses.

Open-ended source books

The source books are open-ended: we invite course developers and environmental education practitioners in the region to continue sharing their experience, by adding new experiences and examples of actions and practice to this collection. This source book is perhaps best seen as providing the initial capital for ongoing deliberation on the subject of course evaluation in environmental education.

BRIEF ORIENTATION
TO THE SECTIONS IN THIS SOURCE BOOK

Section A: Orientation to course evaluation. (see page 1)
Section B: Case stories of course evaluations. (see page 33)

Each case story has a set of questions that can guide deliberation. The questions also help to link the ideas in the source book to applied situations.
Introduction

Evaluation: Over-rated expectations and grounded case studies?

Evaluation studies seldom deliver the kind of results expected of them. Modernist assumptions about how one measures the worth or success of courses are often not realised, and somewhat lame efforts to measure success often reinforce what was already known or are contested by course presenters and students, who may feel that the evaluation process failed to do justice to their work or to the rich social context of the learning. In some instances, evaluation studies may even do unintended harm, especially where the research methodology is not clearly thought through and simplistic measurement styles are unable to adequately probe the project or course context. Efforts to secure technical rigor through simplistic measurement techniques are often at odds with a sense of humanity or the building of deeper understanding in complex social circumstances.

This book is an attempt to raise the level of debate and effectiveness in evaluation styles and methodology in the SADC region. Guidelines on evaluation methodology and orientation, provided in Section A, are followed by a number of case stories of course evaluation from the SADC region in Section B. These case stories represent work in progress or preliminary findings in the ongoing struggle to come to grips with evaluation methodology. The principle here is both to learn from other people’s experiences and also to provide focus questions, at the end of each case, that may help guide future work.

It is probably in the case stories where most meaning will be found in this book. In the first case, ongoing evaluation in the Mauritius Coastal Zone Environmental Education Course is described and developed by Khemraj Sooknah and Nazeen Parboteea. In the second case story, evaluation in the Swaziland Participatory Certificate Course in Environmental Education is addressed by Sivumelwano Nyembe and the course tutoring team. Case story 3, by Mandla Mlipha and other stakeholders, is also from the University of Swaziland and describes an evaluation plan for the Certificate Course in Environmental Management and Training for Industry.

Case 4 deals with an evaluation of the University of Botswana Participatory In-service Environmental Education Course, by M.J. Ketloilo. In Case 5, an evaluation of the ‘Environmental Education Research in Classroom and Community Context’ Module for the ACE programme at UNISA is developed by Cheryl le Roux. In Case Story 6, Tsepo Mokuku describes a questionnaire technique that engages students in evaluating a course at the National University of Lesotho. Case 7 describes an evaluation plan for a Pre-Service Teacher Education Course at Mufulira College, Zambia by Evaristo Kalumba and other stakeholders. In the final case study, Case 8, Heila Lotz-Sisitka and the M.Ed student group report on the evaluation of the Masters Degree Programme in Environmental Education at Rhodes University, South Africa.

The final appendices also represent work in progress. In Appendix A Mike Ward, from WESSA and the SADC-REEP, provides a hand-out that has been found useful in sharing ideas about evaluation on SADC courses. This hand-out documents the history of evaluation from early ‘cause and effect’ approaches to more engaging and contextually relevant orientations that seek to probe and build on the social context of a project without compromising it.
In this sense, the book is a work in progress. We invite the reader not only to seek out relevant orientations and to learn from the case studies and focus questions but, more importantly, to contribute to the widening — and increasingly more critical — debates related to learning, evaluation and social change processes.
Section A

Orientation to evaluation theory and practice
Background and history

What is evaluation?

According to Ornstein and Hunkins (1998:320) “evaluation is a process or cluster of processes that people perform in order to gather data that will enable them to decide whether to accept, change, or eliminate something”. Ashcroft and Palacio (1996:94) describe evaluation as being “… basic to reflective practice. It provides the raw material for reflection, the evidence underpins changes in action and the means by which open-mindedness and responsibility are exercised … Evaluation is a means of exploring a range of foci at a variety of levels”. When evaluating courses, this means one may, for example, consider the effects of action at the level of the individual lesson, a linked range of activities (for instance a particular project in the course), a scheme of work or module, or a whole programme or course. Alternatively, the evaluator might wish to look at particular issues across a range of activities, for example, exploring learning outcomes more directly, or examining students’ learning strategies, perceptions and involvement in the course study (ibid).

According to Clarke and Dawson (1999:1,2) evaluation “… involves judging the value, merit or worth of something”. They continue to say “… evaluation is presented as a form of applied social research, the primary purpose of which is not to discover new knowledge, as is the case with basic research, but to study the effectiveness with which existing knowledge is used to inform and guide practical action”. Course evaluation is concerned with causal linkages between the course activities and outcomes including the various components so as to make decisions about future developments.

There are a range of concepts associated with evaluation, and the most pertinent to this source book are explained briefly below. Further insights into evaluation are then shared through a brief review of the history of evaluation.

- Course evaluation

As described above, course evaluation is the systematic investigation of the worth or merit of an educational activity (e.g. environmental education course), undertaken periodically or on a continuous basis. It involves deeper probing into the activities and outcomes of the course. Evaluation may use monitoring data to investigate course activities and outcomes. It should identify both intended and unintended issues or factors that are relevant to the evaluation aims and purpose.
Course monitoring
Monitoring involves the continuous investigation of issues or factors as these may relate to pre-set goals. Monitoring can take place in relation to the set objectives of the course, or in relation to principles or pre-set criteria. Course monitoring is a complementary component of course evaluation. Course monitoring can “… identify problems which need to be fixed along the way, but would not necessarily be able to explain why a problem has arisen, or why a desired outcome has failed to occur” (City of Cape Town, 2004:3).

Course assessment
Course assessment can provide valuable data within a broader course evaluation. Assessment is essentially the act of determining the outcomes of the environmental education course in relation to some variable of interest, for example, pre-determined expected standards for performance (normally articulated in reporting scores or course outcomes) (Sanders, 1994).

Context of an evaluation
The context of an evaluation refers to the combination of factors that accompany a particular evaluation which may influence its result, e.g. geographical and/or institutional location of the study, its timing, the political and social climate in the institution or region at that time, other relevant professional or cultural factors, and any existing pertinent economic conditions (Sanders, 1994:204).

Course valuing
This refers to the rating of an environmental education course for its usefulness, importance, or general worth. Course value, or valuing, may be considered a fundamental task at the heart of evaluations (Sanders, 1994).

Reflexivity
Reflexivity is associated with reflection and change. In the context of course evaluations, reflexivity would refer to the way in which course tutors or co-ordinators are able to reflect on their practice (using evaluation results) and change the course in response to evaluation findings.

Why evaluate environmental education courses?
As described in the Preface, this source book aims to support the evaluation of environmental education courses. There are many different reasons presented for course evaluation. Some of the reasons as discussed in the Course Development Network include:

- Enhancing the effectiveness of a course (i.e. determining and demonstrating its value)
- Enhancing the efficiency and sustainability of a course
- Determining the worth or value of a course
- Ensuring quality
- Responding to new emerging demands for quality assurance in higher education institutions
- Ensuring legitimacy of an initiative, and assuring donors, institutions and learners that investments in the course are worthwhile
These objectives provide a mixed set of reasons for evaluation. Of key concern to course developers, however, is the ability to establish whether the environmental education course is worth continuing, and the identification of ways of improving the course. Course developers are also interested in whether the aim of the course has been achieved. This can be a complex question, as the aims of environmental education courses can be diverse in nature — for example, would an environmental education course developer try to establish whether the course has contributed to enhanced learning, to environmental improvement, to social change, or to all of these?

Trying to establish the effectiveness of a course, or trying to use evaluation to respond to quality assurance demands, may require different approaches to course evaluation, and each of these purposes may require different methods. Different evaluation methods have developed over time which may be useful to course evaluators. The genesis of evaluation theory and practice, as it relates to environmental education courses, is discussed briefly below.

A short history of evaluation

Evaluation practices have a rich, complex history to trace and, in many ways, societies and educators have always ‘evaluated’ their practice. With the expansion of mass education and the emergence of social development programmes, particularly in the United States, evaluation research started developing into a specific practice which came to be seen as important in its own right. Pawson and Tilley (1997:2) describe how, in the 1960s, “… evaluation research referred to the appraisal of the great social programs of the ‘great society’ [the USA]”. Evaluation of these ‘great social programmes’ created a niche for this kind of research, and academics were inspired to further develop the field of evaluation theory and practice. Since the 1960s, therefore, it is possible to trace the way in which social research incorporated an ‘evaluation movement’, as researchers appreciated that “one could go down the scale and down the ranks and ‘evaluate’ any function of any functionary” (ibid).

Trends indicate various stages in evaluation thinking. In the 1950s, evaluation was objectives based — it assumed that all variables can be reduced to cause and effect. In the 1960s, the scope of evaluation was broadened to include the evaluation of context, inputs, processes and products (the CIPP model of Stufflebeam) (Janse van Rensburg, 1999). Measurement was no longer equivalent to evaluation, but remained as one of the tools. The use of the scientific method in evaluation was criticised with vigour in the early 1970s, and Parlett (1972) proposed a new, more qualitative form of evaluation which is often referred to as illuminative evaluation. Other models have since emerged, such as responsive evaluation and fourth generation (constructivist) evaluation (Guba & Lincoln, 1981). Participatory action research is a model of evaluation in which critical self-reflection is placed at the heart of the evaluation process (Ward, 2000).
Currently, course development (and course evaluation) is influenced by educational reforms and new educational policy. Some of these influences are associated with the globalization of educational trends, which include a move towards life long learning with an associated quest for progress that is implemented through quality management systems. A concern for quality management cannot be separated from course evaluation processes. Quality management systems are being introduced into higher education institutions and, as described in the case stories in Section B, this trend is influencing environmental education course evaluation in higher education institutions in the region. In some cases, course evaluations are not only aimed at meeting institutional accountability requirements, but also new accountability frameworks of governments and accountability frameworks established by the political economy of donor funding.

Linked to course evaluations are innovations such as the emergence of performance management systems used in annual staff appraisals. These systems are being implemented to transform university services which include teaching, learning and research. This has led to a management influence on the evaluation of courses so as to monitor the performance of staff.

**Why plan a course evaluation?**

As indicated in the Preface, this source book has been developed to support environmental education course developers to plan for, and conduct, evaluations. It is necessary to plan for environmental education course evaluation so as to determine what to evaluate — i.e. to determine the focus of the evaluation. In course evaluation this could be the whole course or some aspects of it.

Planning for course evaluation may help the evaluator map out the objectives of the evaluation in relation to the overall aims of the course, as well as to identify the constraints and modalities of conducting it. Reeves and Hedberg (2003:69) describe an evaluation planning process as follows:

Preparing a detailed evaluation plan is essential before you undertake any facet of evaluation. An evaluation plan is usually a written document that spells out the ‘who, what, when, where, why, and how?’ Any given plan will likely go through several stages of revision before it is accepted, and it is likely to be modified during its implementation. Negotiating an evaluation plan with team members, clients, and other relevant audiences represents a major part of the effort you will invest in evaluating interactive learning systems. In fact, once you have developed a well-designed plan and a set of reliable and valid evaluation instruments, it is sometimes possible to turn much of the actual data collection over to others. On the other hand, trying to evaluate without a plan almost always will be disastrous.

Planning an evaluation also assists the evaluator to understand the purpose of the evaluation and to clarify what it should accomplish. Reeves and Hedberg (2003:69-70) identify two advantages of evaluation planning:

First, the process of preparing a plan helps you understand the size and scope of an evaluation project. You need that understanding to establish a meaningful timeline and a reasonable budget for the evaluation. Second, the planning process gives you an opportunity to establish good rapport with your clients (people paying for the evaluation) and other audiences (people who may use the information provided by the evaluation for decision making).

Planning an evaluation also assists the evaluator to make decisions about what and when to evaluate. The evaluator can also consider what methods would be most appropriate for the purpose and the focus of the evaluation. The different sections of this
source book provide further insights into different decisions that course developers can make when planning an evaluation of their courses.

Evaluation and the course development cycle

Planning for course evaluation requires course developers to consider evaluation as being integral to the course development cycle. Four phases may be described as outlined in the diagram below.

Figure 1: Course evaluation as integral to the course development cycle

In the first phase of course development, evaluation may be considered in the context of the course initiation phase, which includes a consideration of organizational needs and specific contextual factors influencing course design. In the second phase, evaluation is considered in relation to course development planning, in which the feasibility and effectiveness of alternative methods of course delivery are assessed against the proposed goals. In the third phase, formative evaluation is considered as part of course implementation so as to describe how the courses are operating and to identify areas that need improvement. In the final phase, evaluation is considered in the context of course review and accountability. During this phase, summative evaluation, documenting effectiveness and course impact can be conducted to make judgments about the worth of the course. These four phases reflect the course development processes explored in the context of the SADC REEP’s Course Development Network.

Appendix B provides a ‘checklist’ that can assist course evaluators with planning a course evaluation.

See Case 1 and Case 3, in Section B, for a description of how evaluation can be useful in the course initiation phase. Cases 1 and 5 also describe how evaluation helped to improve the course in the course development phase. Cases 2, 4, 6, and 8 provide examples of evaluations that have been undertaken in the course implementation phase. Cases 3, 4, 5 and 6 all consider the importance of course evaluations in the context of course review and accountability.
The purposes of course evaluations

As outlined in chapter 1 above, there are many different reasons for conducting a course evaluation. The principal reason may be to improve environmental education content and delivery, that is, to improve environmental education processes and outcomes. However, there are many other purposes for course evaluations, as is outlined below.

Course development and improvement

As shown in Figure 1, course evaluation is an important dimension of course development in environmental education. It serves a variety of purposes. It is a monitoring mechanism for the effectiveness of an environmental education course as a whole, as well as different aspects of the course (e.g. orientation, methods used, materials, assessment practices, etc), to ensure that optimum learning outcomes are being achieved. It develops and clarifies the theoretical base of the course and ensures institutional quality assurance. Course evaluation may also provide evidence of professional competence. It opens up chances for reflexivity and contributions to change (including responsiveness to environmental and social change; context; local needs, etc.).

Course evaluation is also a learning process for course evaluators, tutors and the intended audience (such as decision makers and administrators). As a learning process (to learn about evaluation theory and practice), an evaluation may contribute to the sustainability of the course as the findings may enable the institution to get support and build wider partnerships with either other institutions or employers. It is necessary that course evaluators consider contextual issues and the objectives of the environmental education courses when conducting an evaluation.

Evaluations aim to provide information so as to judge the worth of environmental education courses. The ‘worth’ may be judged in terms of the course content or teaching methods, teaching material and sources of information, as well as the performance of those being taught and those teaching the course. Evaluation information can
also be used for providing feedback and for decision making. It can also foster reflexivity, as tutors can obtain insights into their own effectiveness, and may gain insights and ideas on how to change their practice. As Reeves and Hedberg (2003:4) put it, “decisions informed by sound evaluation are better than those based on habit”. Course evaluations may be carried out for a number of reasons related to the interests of different stakeholders, such as institutional authorities, donors or funders, students, or the tutors themselves.

**Diagnostic purposes**

Evaluations are often carried out for **diagnostic reasons** so as to establish the learners’ strengths and/or weaknesses. Diagnostic evaluations can also be used to monitor progress and to find out how learners assimilate what is being taught. Specific actions — normally involving the adjustment of course contents — or teaching methods can be implemented after diagnostic assessment. Ashcroft and Palacio (1996:99) recommend the exploration of “… the hidden priorities, needs and interests of each of those involved in the educational process” as part of undertaking diagnostic evaluations.

**Evaluating the effectiveness of teaching methods**

Another purpose of course evaluation is to evaluate the effectiveness of the methods of teaching. This may be influenced by bureaucratic requirements, particularly where funding is linked to course quality and the participants’ performance. Such evaluations may encompass developmental aspects “within the process of teaching and learning, such as the approach of lecturers and students to tasks set, their sensitivity, responsibility and personal standards” (Ashcroft & Palacio 1996:106). Course evaluation can provide pointers for possible improvements in teaching methods or course delivery approaches. For example, in open and distance learning, specific challenges in relation to teaching processes are posed and this makes the evaluation of course presentation and delivery of the courses imperative. In such learning environments, where face-to-face contact with learners is limited, it is essential to determine learners’ perceptions of the effectiveness of the tuition processes, so that strengths can be built on and limitations can be addressed.

**Evaluation to predict future performance**

Course evaluations can be conducted to **predict** the learners’ future performance or potential abilities in the world of work. For example, a course tutor may administer an internal test to help predict how the course participants would perform in the external examinations at the end of the course. This can be done formatively, as continuous assessment or as a mock examination to predict the learners’ abilities in the final examinations. Assessment results may be a valuable source of information when conducting course evaluations.

Course evaluations can also be used to assist with the **placement** of learners in the most beneficial educational situation or in **guiding** participants when they are making decisions about the future, be they about the choice of a subject or whether a course will benefit their choice of career.

**Evaluation to assess benefits**

A course evaluation can also be conducted to **assess** the extent to which learners have benefited from a course of instruction. This can be done formatively (before the course), during, or summatively (at the end of the course). The information obtained could be helpful to either tutors or decision makers depending on the purpose and context of the evaluation.
Evaluations for accountability

As Ashcroft and Palacio (1996:106) note, courses can be evaluated for the accountability of the tutor “… as professional to herself or himself and to her or his students as the starting point for developmental evaluation. Those using developmental evaluation need to assume that the tutor is competent, well intentioned and interested in improving their teaching …”.

In a number of cases course evaluation is carried out to provide an informed report to funders. All of the Course Developers Network courses’ final reports to the SADC REEP, for example, included a component of course evaluation. Course evaluation reporting to a funder ensures accountability and may mobilise resources for future support and sustainability of the environmental education course. As Stokking et al. (1999:29) put it, to be able to show the results of your work

… you must be able to demonstrate that you have achieved something with the funds you receive. This can best be done by showing whether the results promised or agreed beforehand have actually been achieved. The funding body must understand the way in which the evaluation has been carried out. This will allow them to determine whether the results which you are reporting were obtained in an objective and reliable way and whether they are really representative.

Evaluation as a learning process

In adult education programmes, evaluation design and development can also be planned and implemented in participatory ways. This approach can assist learners on the course (who need to be exposed to the theory and practice of evaluation) to experience an evaluation design and implementation process ‘first hand’. Evaluation can therefore be conducted with the additional purpose of enabling a group of adult learners to ‘learn about evaluations’.

Broad evaluation processes

It is difficult to prescribe a fixed set of steps, or phases, for course evaluation, as every evaluation needs to be guided by the context and the purpose of evaluation. Ornstein and Hunkins (1998), however, suggest the following six steps to curriculum evaluation which can also be applied to course evaluation.

**Step 1: Decide on the focus and purpose, and set the objectives**

Decide on the curricular phenomena to be evaluated and the purpose of the evaluation — that is what needs to be evaluated and why. Decisions need to be made about which evaluation design would be the most appropriate, and whether the evaluation will be focused on one aspect or on a range of different aspects of the course.

The objectives of the evaluation need to be clarified and described. The constraints, as well as any relevant institutional policies and objectives which will influence the evaluation, must be identified. As shown in Figure 1, this can be done in the early phases of the course design and planning, provided the evaluation is *integral* to the course development cycle.

**Step 2: Collect relevant information (data)**

The researchers need to decide which methods will be most helpful to collect information that will provide evidence for, or perspectives on, the curricular phenomenon being evaluated. It is important to identify essential data sources, as well as how the
data (evaluation information) will be generated\(^1\) — i.e. would focus group interviews, questionnaires or analyses of learner assignments be the most appropriate means of gathering information on learners’ achievements in relation to the planned objectives or outcomes of the course. This would include mapping out a time schedule with stages for collecting information.

**Step 3: Organise the generated information (data)**

One needs to organise the collected information “so that it becomes interpretable and usable to the final intended audience” (Ornstein and Hunkins, 1998:337). This involves activities such as data coding, organisation, storage and retrieval.

**Step 4: Analyse the information (data)**

Select appropriate analysis techniques relevant to the focus of the evaluation and to the type of data generated. For example, if a large number of questionnaires have been applied to evaluate student views on the quality of teaching, then it may be most appropriate to use statistical methods to analyse the data. If, however, a small focus group has been used to establish student views on the quality of teaching, then more qualitative methods, coding and comparative techniques, may be more appropriate for the analysis of this information. The specific techniques chosen depend on the focus of the evaluation, the type of information that was generated and the orientation of the evaluation.

**Step 5: Report the findings**

One needs to decide on how the findings should be reported. This involves considering the nature of the audience that the report is intended for. Informal reports, which share opinions based on general perceptions, is one option for reporting. In a different context, the evaluator may decide to prepare a more detailed, formal report. When reporting evaluation findings, the evaluator should include his/her interpretations, make recommendations for action, and make judgments drawing from the analysis of the data collected.

**Step 6: Use the evaluation findings**

Use the information to improve the course delivery and to ensure the viability of the course. Modifications and adjustments may be necessary at this stage. As shown in Figure 1, this is integral to the review and revision phase of a course.

These broad guidelines for conducting an evaluation can be applied differently in different contexts, and may vary according to the evaluation orientations and approaches used.

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\(^1\) Data collection is sometimes considered to be a neutral process where information is elicited. More often than not, however, data ‘collection’ is more of a ‘generation’ process, as researchers co-construct data through meaning-making processes.
Evaluation orientations and approaches

Different levels of course evaluation

Course evaluation is usually a continuous process, particularly in higher education institutions. At universities, evaluations may be conducted at different levels, including:

- Evaluation of the course module — e.g. a sustainable development module in a Masters in Environmental Education course;
- Evaluation of the whole course — e.g. evaluating all aspects of the Masters Course in Environmental Education;
- Evaluation of the programme in which the course is located — e.g. the Masters Programme in a Faculty of Education, of which the Masters Course in Environmental Education is just one of the Masters Degree courses offered; and
- Evaluation of the institution — e.g. the Masters Course in Environmental Education could be seen as one small dimension of the institutional programme, involving the full range of offerings by all the University Faculties.

Different evaluations at these different levels may be commissioned and carried out at different times, and all of the above evaluations can be formative or summative in nature.

Formative and summative evaluations

A course, or course module, may be formatively evaluated to measure its progress against ongoing benchmarks and to allow the tutor to make changes to the course. This form of evaluation is useful to the course tutor as it provides valuable information that helps the course to succeed. It also tells the evaluator whether or not the course is appropriate, and whether changes are needed. For example, in Case 1 (Section B), the evaluation results of the Mauritius Coastal Zone course materials led to the “re-engineering” (substantial changes) in the course materials.
COURSE EVALUATION IN ADULT EDUCATION PROGRAMMES

A course, or course module, may be summatively evaluated to measure its success or failure by comparing outcomes with the original goals (Hernandez, 2000). Although this form of evaluation is useful to the course tutor — as it helps in determining the worth of the course and what changes could be made before revisions take place — it is not helpful to the learners, who have already completed the course and cannot be reassembled so as to correct the way things were done. For this reason, it is normally advisable that courses are evaluated both formatively and summatively.

Formative evaluation will provide data that could assist course tutors and providers to improve the course, while summative evaluation will help with broader institutional planning and certification decisions. Formative evaluation can be performed by an internal evaluator, while summative evaluation can be conducted by an external evaluator as it may be evaluating the course tutor’s practices. However, formative evaluations can also be conducted by external evaluators, and summative evaluations by internal evaluators. Depending on the context of the evaluation, a combination of internal and external evaluation expertise may work very well.

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<thead>
<tr>
<th></th>
<th>FORMATIVE</th>
<th>SUMMATIVE</th>
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<tbody>
<tr>
<td>Audience</td>
<td>Programme manager/practitioners</td>
<td>Policy-makers, funders, the public</td>
</tr>
<tr>
<td>Focus of data collection</td>
<td>Clarification of goals, nature of implementation, identifying outcomes</td>
<td>Implementation issues, outcome measures</td>
</tr>
<tr>
<td>Role of evaluator</td>
<td>Interactive</td>
<td>Usually independent</td>
</tr>
<tr>
<td>Methodology</td>
<td>Quantitative and qualitative (emphasis on latter)</td>
<td>Emphasis on quantitative</td>
</tr>
<tr>
<td>Frequency of data collection</td>
<td>Continuous monitoring</td>
<td>More limited</td>
</tr>
<tr>
<td>Reporting procedures</td>
<td>Informal, discussion groups and meetings</td>
<td>Formal reports</td>
</tr>
<tr>
<td>Frequency of reporting</td>
<td>Throughout the period of observation/study</td>
<td>On completion of the evaluation</td>
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Source: Clarke and Dawson (1999:8) adapted from Herman et al. (1987:26)

Formative course evaluation and feedback

Formative evaluation is normally conducted throughout the course to provide information which can be useful in improving the course practice. The focus is likely to be on how the course is being interpreted, received and implemented. The purpose of formative evaluation is to provide feedback on problems encountered and progress made, and on how to identify ways in which a course might be improved. Effective formative evaluation can allow for internal responsiveness and improvements of the course while the course is still in progress. Formative evaluation can also provide an important diagnostic function, as it can help to identify emerging issues. It can also provide opportunities for learning about how evaluations are conducted. Formative evaluations are important for fostering reflexive course development.
Throughout the formative evaluation process, it may be necessary to give feedback on selected points. In particular, it may be useful to consider the following:

- Avoid dwelling too much on the criticisms, and identify those aspects that can be changed during the rest of the course process.
- Look particularly for features that are not aligned with the course objectives.
- Note comments and aspects that are more difficult to interpret or change (for later analysis).
- Note those comments that seem to have the most consensus.

If you intend to make changes based on course participants’ input or on other formative evaluation findings, explain the changes, and the rationale for the changes, with a positive and confident tone — avoid undermining your authority by being apologetic. For example, “if students report difficulty in understanding the material, you might propose some ideas such as pausing longer, summarizing the main points more often, or encouraging them to ask more questions and discuss what seems most helpful” (Carnegie Mellon University, 2002:2).

When learners are faced with material that they find difficult, it may be tempting to revise the material or to give them material that is less challenging. Such decisions need to be made very carefully, as a sensitive tutor needs to be conscious of the participants’ potential and the professional development needs of the course. Simply giving participants easy or simple material may not serve their best, long-term interest.

### Summative course evaluation

Summative evaluation is usually outcome focused and concerned with determining the effectiveness of the course. “Such evaluations are usually commissioned by policymakers and funders to help them to reach a decision on the future of a particular project” (Clarke and Dawson, 1999:9). Summative course evaluation is conducted at the end of the course to provide potential consumers with judgements about the course’s worth or merit. For example, after the environmental education course is completely developed, a summative evaluation might be conducted to determine how effective the package is, with a sample of learners and tutors. The findings of the summative evaluation would then be made available to (or by) the course developer/designer, and to other professionals and the institution. The feedback obtained from summative evaluation should normally lead to decisions concerning programme continuation, termination, expansion, review or adoption.

### Internal and external course evaluations

As briefly indicated above, course evaluations can be conducted either by internal evaluators (e.g. course tutors and learners), an external evaluator (an outsider) or even a combination of both. There are advantages and disadvantages to these approaches. As observed by Worthen and Sanders (1987:37):

> The internal evaluator is almost certain to know more about the program than any outsider, but she may also be so close to the program that she is unable to be completely objective. Seldom is there as much reason to question the objectivity of the external evaluator (unless she is found to have a particular axe to grind) and this dispassionate perspective is perhaps her greatest asset. Conversely, it is difficult for an external evaluator to ever learn as much about the program as the insider knows.

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1 Editor’s comment: The notion that any social process can ever be ‘completely objective’ is highly contested.
An internal evaluator’s contextual knowledge of the course is critically important in enabling reflexive evaluations. The credibility of the evaluators (internal or external) is likely to be influenced by a professional relationship that encourages the evaluators’ freedom and honesty. Worthen and Sanders (187:38-9) feel that a “… summative evaluation is generally best conducted by an external evaluator or agency”. In many instances, however, it is not possible to obtain such external help, due to financial constraints or an absence of competent personnel who would be willing to do the job. In such cases, summative evaluations may be weakened by the lack of an external perspective, but objectivity and credibility can be maintained by choosing an internal summative evaluator from among those who are slightly distanced or removed from the actual development of the program or product being evaluated. Other mechanisms, such as self-reflection or participatory and critically reflective deliberations, can also add to the rigour and credibility of summative evaluations if conducted by internal evaluators.

An external ‘expert’ in course evaluation can be used to review the course either through formative or summative evaluation processes. An external evaluator may be from within the institution or from an external organisation. The role of the external course evaluator could be that of a ‘critical friend’, through constructive assessment and questioning of the basic procedures of the course and the appropriateness of the material in relation to the overall aims. Engagement with a ‘critical friend’ can assist course developers to develop reflexive competence in relation to course development and design. External evaluators may also play a descriptive role, and could introduce course developers to new teaching approaches through providing comparative insights, drawing on course analysis of other situations or courses.

<table>
<thead>
<tr>
<th>TABLE 2: Combination of evaluation models</th>
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<tbody>
<tr>
<td><strong>INTERNAL</strong></td>
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<tr>
<td>FORMATIVE</td>
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<tr>
<td>Internal Formative</td>
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<tr>
<td>SUMMATIVE</td>
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<td>Internal Summative</td>
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Source: Adapted from Worthen and Sanders (1987:38)

Evaluations, whether internal or external, should be as rigorous as possible. As illustrated in Table 2, both external formative and summative evaluations are important, as they provide a fresh perspective on the course. Similarly, both internal formative and summative evaluations are valuable, as they provide contextually situated perspectives. Course developers can therefore decide on which approaches are (a) feasible given the particular constraints and institutional context surrounding the evaluation, and (b) most appropriate for the purposes and objectives of the evaluation.

**Theory-led, constructivist, naturalistic and reflexive course evaluations**

**Theory-led evaluations**

Course evaluation may be theory-driven in the sense that the evaluation can measure whether course approaches and outcomes ‘match up’ to *a priori* (pre-determined) theories (e.g. a course could be evaluated to ‘test’ whether a particular theory of learning ‘works’ or is appropriate in a particular context).
Clarke and Dawson (1999:32) provide a slightly different view of theory-led evaluations, when they explain that evaluations can seek to identify causal relationships between theories and outcomes. For example, a theory or method can be explained by trying to identify the causal relationships between the theory, the process followed and the outcomes, instead of simply comparing outcomes with the theory, which is the norm in ‘hypothesis testing’ evaluations (as explained above). They describe theory-led evaluations in terms of causative theory and note that such evaluations are concerned with linking theory, process and outcomes through the exploration of a programme’s causal mechanisms and is therefore referred to as causative theory. It is this type of theory that features in evaluations of programme effectiveness and seeks to explain how, and under what conditions, a programme works. The evaluator working with causative theory is concerned with the elaboration of treatment-outcome relationships. In contrast, prescriptive or normative theory looks at what form the structure of a programme should take. Here the evaluator is concerned with identifying problems in the design, implementation and operation of a programme.

Clarke and Dawson (1999) suggest that the evaluator can construct a tentative model of the links between activities, mechanisms, contexts and outcomes (i.e. develop a causative theory hypothesis), either by drawing on his/her own theories of a programme’s theory of action, or by developing this theory of action with stakeholders. This view of the programme theorizing as an interactive process is also a feature of utilisation-focused evaluations. In realist evaluations, the evaluator’s own theories may be used to help to clarify a programme’s theory of action, and in utilisation-focused evaluations, primary importance is normally given to the theories espoused by the major stakeholders, which is also a typical feature of constructivist evaluations. According to Pawson and Tilley (1997:182), the interview has an important role to play in the testing and refining of causative theories in evaluation. They note that “its key aspect is the creation of a situation in which the theoretical postulates and conceptual structures under investigation are open for inspection in a way that allows the respondent to make an informed and critical contribution to them”.

**Constructivist evaluations**

Constructivist evaluations reflect an understanding that the outcomes of any investigation are ‘constructed’ by the people involved. In these evaluations, people are regarded as stakeholders and their views are a critical consideration in the evaluation. In constructivist evaluations, the evaluator normally takes a ‘neutral’ role, facilitating the stakeholders to express their views on a course/programme of study and assisting stakeholders with synthesising and reviewing their ‘claims’ about a particular course or programme of study. These evaluations are participatory in nature. They are also time consuming and normally require high levels of resources, as the success of the evaluation is dependent on the success of the stakeholder interactions.

In constructivist evaluations, ‘naturalistic’ methods such as interviews, workshops and observations are used. These evaluations are often difficult to conduct as they may either result in a relativist view (in which all views are seen as equally valid) or in a situation where some voices dominate the evaluation. The process of negotiating claims also ‘internalises’ the evaluation, and the evaluation outputs can degenerate into reductionist viewpoints.

**Naturalistic and participant-oriented evaluations**

These are normally constituted as richly descriptive accounts of the course or programme, and are clearly positioned within the broader context in which the course or programme functions. These evaluations are often directed to non-technical audiences like teachers and the general public, and use ordinary language and everyday
categories of events. Such evaluations study the course process as it occurs naturally, without constraining, manipulating or controlling it. They are premised on the grounds that the understanding of an issue is based on grass-roots observation and discovery drawing on multiplicity of data. It uses “subjective and objective, qualitative and quantitative representations of the phenomena being evaluated” (Worthen & Sanders 1987:129).

In this approach, the evaluators do not follow a standard plan, but record multiple realities. Such evaluations can provide rich and persuasive information that is credible to audiences, reflecting genuine understanding of the inner workings and intricacies of a course. However, critics of this approach find its subjectivity a limitation. Because it is based on empirical evidence, it may be time consuming and labour intensive if the evaluator has a large data source. Its strength is that the evaluator does not impose his or her own views, “even about what should be evaluated” (City of Cape Town, 2004:4).

Critical, participatory evaluations

Critical participatory evaluations can also be used as an orientation to course evaluation. Within this framework, the focus is on investigating the ‘underlying structures’ that shape action and response. In the context of a course, this may involve trying to establish how institutional structures have influenced the learning outcomes of a course. It could also involve establishing how a particular (dominant) discourse is perpetuated through the course. The aim is to empower participants to see ‘below the surface’ and to identify factors that may inadvertently be oppressive.

Evaluations of this kind are often best conducted by course participants and course lecturers, rather than external parties. They would also need to be conducted over the life of the course as an ‘investigation’ into the teaching and learning processes, approaches and outcomes (and how they are shaped by institutional and other social structures), and dominant discourses. Course evaluations developed within this framework can provide valuable learning experiences for course participants and lecturers/tutors, and presents evaluation as a learning process. This is in keeping with approaches to environmental education which aim to strengthen social change. However, care should be taken to avoid a narrow or simplistic focus on oppressive structures, and oppositional discourses of, say, the powerful and the powerless.

Reflexive evaluations

The notion of reflexivity is relevant to the underlying purpose of evaluation. If an evaluation is carried out — whether summative or formative, internal or external, objectives-based or process oriented, and through whatever theoretical orientation — and course developers fail to adapt their courses in the light of the evaluation process and findings, the evaluation will have served little or no purpose. If evaluators are able to respond to the outcomes and recommendations of an evaluation process by adapting and improving the course, the evaluation will have served a useful purpose and enabled reflexive review and change. Reflexivity describes the way in which we reflect on (think about) our actions and processes, through an evaluation process, and respond actively and positively to the outcomes of these reflections (SANParks, 2002). Reflexivity therefore includes an ‘action’ component. According to Janse van Rensburg (1999, cited in SANParks, 2002) “in our field reflexivity represents environmental education as an evaluative process in itself”.

An evaluation process that has a strong ‘participatory’ orientation will often reveal better ways of working while the evaluation is in progress. This means that the reflexive
competence will build amongst staff and partners who are integrally engaged in the evaluative research process. This reflexive outcome was very evident in the SADC REEP evaluation in 2005 (Rosenberg, 2005).

Reflexivity is therefore an important consideration in environmental education course evaluations, as reflexivity in and through evaluation processes contributes to the broader context of social action and change. Reflective evaluations contribute to the process of ongoing critical contextual review of social action, in action. In this sense, environmental education course evaluation processes are critical to encouraging the initiation and continuation of social change.

**Epistemology (view of knowledge), ontology (view of reality) and educational evaluations**

There is no universal and fixed philosophy or ideology in educational evaluation. A number of different ideological influences are, however, evident in evaluations.

**Objectivist epistemology**

“Objectivism requires that evaluation information be ‘scientifically objective’: that is, that it uses data collection and analysis techniques that yield results reproducible and verifiable by other reasonable and competent persons using the same techniques. In this sense, the evaluation procedures are ‘externalized,’ and are assumed to exist ‘outside’ of the evaluator in clearly explicated form. The assumptions are that externalising the evaluation procedures will allow them to be replicable by others, a process which will produce similar results from one evaluation to the next.

Objectivism is derived largely from the scientific tradition of empiricism” (Worthen & Sanders, 1987:46) and, in educational evaluations, it has been aligned with positivist research approaches. Objectivism is critiqued for its tendency to “conceal hidden values and biases of which its adherents are unaware, because even the choice of data-collection techniques and instruments is not value-neutral, an assumption seemingly taken for granted by objectivist evaluators” (Worthen and Sanders, 1987:47). Objectivist epistemologies are typically used in positivist evaluations in which hypotheses are tested (a priori, theory-led evaluations).

**Subjectivist epistemology**

Subjectivist epistemologies are reliant on the subjective experience of individuals in a given course or situation, and on their particular views on what is happening. Subjectivist evaluations therefore depend largely on accumulated experience as a way of developing understanding, whereas the objectivist approaches depend on replicable ‘facts’ for truth.

Subjectivism is critiqued for its potential to lead to “varying, sometimes contradictory, conclusions that defy reconciliation because that which led to the conclusions is largely obscured within the non-replicable procedures of the evaluator” (Worthen & Sanders, 1987:47). “Subjectivism bases its validity claims on an appeal to experience rather than a conventional scientific method. Knowledge is conceived as being largely tacit rather than explicit” (House, 1980:25). The validity of a subjectivist evaluation depends on the relevance of the evaluator’s background and qualifications, and the keenness of her/his perceptions. In this sense, “the evaluation procedures are ‘internalized,’ existing largely within the evaluator in ways that are not explicitly understood or
reproducible by others” (Worthen and Sanders 1987:47). Subjectivist epistemologies can lead to relativism or methodological individualism (where the views of subjects are taken to represent reality). A subjectivist epistemology is typically used in constructivist, participatory evaluations.

**Stratified ontology and realist evaluations**

Archer (2000) critiques social science practices (including evaluations) which rely on objectivist or subjectivist epistemologies as being ontologically undermining of human agency. An ontological undermining has profound consequences for reflexivity, which, she argues, is one of our most distinctive human properties and powers. Approaches that rely too heavily on objectivist or subjectivist epistemologies can lead to a situation in which we become passive beings to whom things happen, and we are not able to ‘take up’ our agency through being reflexive of our ongoing actions.

Drawing on the social realism of Archer (2000) and other critical realists, Pawson and Tilley have introduced a new framework for evaluations which focuses on ontological analysis, rather than epistemologies. They argue that a stratified ontology provides in-depth perspectives on a programme, and that this approach can address some of the limitations of constructivist or positivist evaluations (which often lead to relativism or methodological individualism).

Pawson and Tilley (2000) argue that realist evaluation is mechanism- and context-driven rather than programmed. In realist terms, it is the contextual conditioning of the causal mechanisms which turns (or fails to turn) causal potential into a causal outcome (Pawson and Tilley 2000:69). According to Pawson and Tilley’s methodology, evaluators should take note of the pre-existing conditions (contextual) in course evaluation and investigate the extent to which these pre-existing structures ‘enable’ or ‘disable’ the intended mechanism of change. The strength of realist evaluation methodology is that it increases the specificity of understanding of the mechanisms through which a programme accomplishes change, the contextual conditions necessary for triggering programme mechanisms, and the outcome patterns according to context and mechanism triggered (Pawson and Tilley, 2000).

**Utilitarian evaluations and utilisation-focused evaluations**

**Utilitarian evaluations**

Utilitarian evaluation approaches determine the educational value of the course by assessing its overall impact on those affected. These approaches have tended to follow objectivist epistemology. Utilitarian evaluation approaches are often used by the government (Worthen & Sanders, 1987). For instance, governments conduct national examinations through the examination boards, or department, to place learners either in relevant higher institutions of learning, or in relevant careers, or to determine the quality of an education system or a particular course.

**Utilisation-focused evaluations**

These evaluations are based on the concept that evaluations should be useful to the stakeholders involved. They are often stakeholder-driven and/or participatory in order to ensure greater ‘buy in’ from all concerned, and much effort goes into assisting participants and stakeholders to interpret and use the evaluation findings.
Which approach to choose?

All of the evaluation approaches discussed above have relevance to course evaluations, as they provide theoretical and social orientation to evaluation processes. They assist course evaluators to decide on how to frame and design evaluations. As shown above, course evaluators may decide to conduct a formative evaluation that is critical and participatory, or a summative evaluation that is expert led and is framed by an objectivist epistemology, for institutional management purposes. Alternatively, course evaluators may decide to conduct both a formative and a summative evaluation, and to use different approaches to both evaluations.

Of relevance to all of the above options and choices is the question of how the particular evaluation can be designed to achieve its purpose, as well as its relevance for the level of course evaluation that is being conducted. It may, for example, be inappropriate to conduct an objectivist, summative evaluation if the course developer is wanting to monitor his/her teaching styles. For this purpose, it may be more useful to conduct a naturalistic and participatory evaluation that is formative in nature. Of further relevance to all of the above choices and options for evaluation design is the way in which the evaluation can foster reflexivity, and support meaningful changes to the course.

A further consideration is that evaluations that are highly context specific and seek to respond to developing issues and needs in a course development process may change shape as the evaluation proceeds. It may only be possible, therefore, to understand the epistemology or ideological orientation of the evaluation when one looks back at what happened. This is a bit like driving a car through busy and unpredictable routes in thick traffic. One can only identify the route, and driving methods, when one looks back, in the ‘rear-view mirror’ as it were!
What to evaluate and when?

What to evaluate?

Evaluating a course

When evaluating a course, the evaluator may be interested in a number of variables, including the way in which the environmental education course is designed, its quality and relevance, the time spent on the course and whether the course was inspiring. The course evaluator may also be interested in establishing how the course is contributing to the broader goals of environmental education, which may include reflexive social change and/or better environmental management choices or action. In-service course evaluation may include the suitability of the course in terms of its relevance to the work context of the learners.

As outlined in the next chapter, evaluation data may be generated by means of questionnaires, interviews, observation or document analysis. Feedback may be sought on each unit of instruction or on part of a course. The course participants may be asked to indicate what they thought were the best or less interesting aspects of the course, and to specify any particular problem they encountered. In analysing feedback from the course participants, the evaluator should consider the participants’ subjectivity. “They may all have different reasons for studying a particular course or set of materials, have varying amounts of relevant prior knowledge and experience in the area of study and be undertaking their studies in a variety of financial, geographical, domestic and, possibly, occupational circumstances” (Allan & Kirkwood 1998:1).

Course writers and tutors may be interested in evaluative feedback on course materials, which could include a review of the style of presentation, in terms of layout, design, and coherence and clarity of the material. They may also be interested in an evaluation of the course curriculum, which could include a review of the curriculum framework, relevance and orientation as well as curriculum development strategies and approaches. Course writers and tutors may further be interested in establishing how well the course tutors and learners are using learning support materials in the context of the course.

See source book 3, Course Materials Development for Adult Learning, for a set of useful criteria for evaluating course materials. See source book 1, Deliberating Curriculum Frameworks in Adult Learning, for useful insight into a framework for evaluating course curricula. See source book 4, Development, Adaptation and Use of Learning Support Materials, for insight into issues associated with learning support materials use in courses.
Evaluating the course tutor, tutoring approaches and learner support

The course evaluator may be interested in the tutor’s knowledge of the subject matter as well as her/his enthusiasm, course organisation and teaching skills, and whether the tutor provided good guidance and support to learners. This could involve an evaluation of the pedagogy of the course (teaching and learning approaches, methods and orientation). For a deeper analysis of the role of the course tutor, the evaluator should also consider whether the teaching methods used by the tutor are consistent with the learning theories that inform or underpin the course. In environmental education courses, reflexive and critical pedagogies are widely used, and the evaluator would need to establish (a) how these pedagogies are planned for, (b) how they play out in practice, (c) how learners respond to these pedagogies and (d) whether they lead to relevant course outcomes.

If the evaluator is considering learner support he/she may wish to investigate the relevance of the course to the learners’ contexts and interests, language related support, power relations that exist between tutors and learners and other issues that may affect learner participation on the course. Constructivist, participatory and naturalistic approaches to evaluation are normally more useful for evaluating tutor-learner relationships. Critical realist approaches which explore the mechanisms, activities and outputs are also useful for evaluations that focus on tutor and learner support and tutor and learner relationships.

Evaluation of facilities

In carrying out a systematic course evaluation, the evaluator may include as many relevant aspects as possible. For instance, the evaluator may assess the physical facilities provided, such as classroom space, furnishing, availability of required learning materials and the general learning climate. As Stokking et al (1999:19) put it, the reasons for carrying out a systematic evaluation “… might be to determine whether an activity corresponds sufficiently to the interests of the target group [the participants], to determine what participants learn from it, to discover what aspects of a product can be improved, to make the value of your work clear to administrators, clients and others and so on.” The course evaluator may include an evaluation of equipment, such as functioning computers with internet services for the learners and the library with up-to-date publications.

Evaluating course effectiveness

Course effectiveness data can be obtained from questionnaires, interviews, focus groups, document analysis and observations. Reeves and Hedberg (2003) identified five categories on which course effectiveness may be focused. These include:

- **Knowledge**, which is diverse as it is defined in a variety of ways. For instance, evaluation may encompass testing knowledge of course content. “Often knowledge is quite diffuse, involving a complex network of associations among concepts and rules …” (Reeves & Hedberg, 2003:178).

- **Skills** acquired during course delivery. Skills are also diverse, encompassing general skills gained during the course, and the way in which these are related to course objectives.

- **Attitudes**, which are notoriously changeable and difficult to ‘measure’. Examples are motivation, morale, values, and prejudices. “These are frequently measured with self-report instruments, but the differences between self-reported
attitudes and actual attitudes are often considerable. Sometimes people are pur-
posefully deceitful in reporting attitudes, but more often they just don’t know
how they feel or are unable to express their attitudes” (Reeves & Hedberg

- **Appeal of the course** for educational value and relevance to the workplace or to
  the learners’ career paths. This dimension relates to the learners’ understanding
  of the course, and provides insight into whether learners perceive the course to
  be desirable and enjoyable. Reeves and Hedberg (2003:179) stated that “enjoy-
  ment generally creates internal states that support learning, such as alertness,
  motivation, and stimulation”. However, challenge and uncertainty may also cre-
  ate a stimulating climate for learning, and should not be seen as a negative
  dimension of the course process. Identifying challenge and uncertainty as nec-
  essary processes for learning requires reflexivity on the part of the course par-
  ticipants and tutor, and this is not always ‘obvious’ or easy to establish.

- **Course implementation**, or how the course actually took place. Evaluation of
  the course implementation involves a check on disturbances, deviations and
  any problems experienced during the course. It also relates to relationships es-
  tablished on the course.

In environmental education courses, evaluators may also want to consider other di-
  mensions of course effectiveness, such as:

- **Contributions of the course to a community of practice**: Since environmental
  education processes are not simply for individual benefit, but often aim to con-
  tribute to society more broadly, course evaluators may want to consider how the
  course is contributing to the broader community of practice. This may be in the
  context of the learners’ institutions or communities, or both.

- **Application of learning and reflexivity**: Evaluators may also want to establish
  how learners are applying the insights they are developing in the course, and
  whether they are developing reflexive competence, which enables learners to
  contribute to change in context.

When to evaluate?

**Time allocated to evaluation**

There is no point in starting a course evaluation if the evaluators are not prepared to
invest the time needed to make it a meaningful evaluation, and if they are not pre-
pared to consider the evaluation outcomes. Time is necessary for course evaluation
planning, designing, and sourcing expertise if an external evaluator will be needed.
Time is also necessary for implementing the course evaluation plan. Stokking et al
(1999) suggest that if inadequate time is allocated for reflecting on evaluation results,
or putting the results to good use, there is no point in doing an evaluation. This re-
quires careful consideration of when the evaluation results will be most useful, as
described by Woodley and Kirkwood (1998:8):

> It is important to collect information and data at a time when it can be of most use. Very
> often, evaluation studies are undertaken during the initial presentation of a course in
> order to inform changes for future presentations. However, there may be reasons to
> believe that the first cohort of students is not typical of the students who are likely to
> study the course, for example they may be highly motivated to take that particular
> course. In those circumstances, a second or subsequent cohort may be considered more
> appropriate. If changes are to be implemented during the current or in a subsequent

*Read through the cases in Section B. Are any of the course evaluators including the last two foci in their evaluation designs?*
presentation of a course, the evaluative information must be available in time to be acted upon. If amendments are to be made to printed or recorded materials, production time is necessary [...] if tutorial or assessment arrangements are to be revised, adequate notice is required.

Summative course evaluation results should be presented shortly after the course has ended, so that they inform future developments and provide immediate feedback. Evaluations should also be well timed, as “… an evaluation that is conducted too early in the life of a programme may also not enjoy the support of the programme staff, particularly if the purpose of the evaluation is more summative than formative…” (City of Cape Town 2004:2)

**Pre-course, on-course and post-course evaluations**

- **Pre-course evaluation**
  
  To establish relevant course evaluation starting points, pre-course tests may be conducted to determine prior knowledge of learners and to see if course materials are appropriate for learner groups and context. Pre-course evaluations can guide the course developers and provide an opportunity for reflections, modification or acceptance of the course as it evolves. It allows the course evaluator to discover unintended outcomes and to observe the intended effects. The results of the pre-course evaluation can form the basis for a comparison with on-course evaluation results.

- **On-course evaluation**
  
  On-course evaluation is characterized by different possibilities, such as session evaluations, module evaluations and programme evaluations. On-course evaluations should be carefully timed so that the evaluation activities do not interfere with the other course processes. Care should be taken not to ‘over-evaluate’ during the course, and evaluation interventions should be carefully planned to be integrated as naturally as possible with the rest of the course processes and activities.

- **Post-course evaluation**
  
  This is done when the course activities have already taken place, to determine the effectiveness of the whole course so as to draw conclusions about its impact and success.
Data generation\(^1\), analysis and reporting

In deciding on the use of different methods for generating data in environmental education course evaluation, the evaluator needs to consider the approach or orientation of the evaluation. This is closely associated with the purpose of the evaluation, the nature of the course, characteristics of course participants and the theory and intended purposes of the course. Normally, course evaluators would apply a mix of methods to obtain a range of different types of data in a course evaluation, but this depends on the purpose and orientation of the evaluation.

Qualitative or quantitative?

In the planning of evaluation, the evaluator should be prepared to consider both qualitative and quantitative evaluation techniques. Both are appropriate, depending on the purpose of the study and the questions it is addressing.

There is no single method of data generation that can satisfy the evaluation question. “You can triangulate findings by using more than one method to collect data about an issue in the evaluation” (Reeves & Hedberg 2003:77). For instance, a questionnaire can be used in a course evaluation; useful data can be derived through this method, but it may provide little insight into course participants’ reactions. In such a case, it may be necessary to follow-up the questionnaire by conducting interviews to elaborate or clarify the results of the questionnaire, and to probe those areas that are not well covered by questionnaire-type data.

The many different methods that can be used to generate course evaluation data include anecdotal records, interviews and observations. It is important to ensure that the evaluation methods align with the chosen approach/orientation of the evaluation and with the evaluation questions.

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\(^1\) The term ‘data generation’, rather than data collection, is deliberately used here. In the social sciences, data is usually co-constructed through social interactions rather than being extracted from particular evidence.
Methods to generate data

Use of questionnaires in course evaluation

A questionnaire is a useful tool in data generation particularly when collecting primary data from individuals. The type of data generated through the use of questionnaires depends to a large extent on the aims and objectives of the evaluation. For instance, a questionnaire can be used to generate descriptive data about the relevance of course content to individual participants, or quantitative data on how many people have completed different modules in a course. Questionnaires can also be used to establish impact, and the evaluator can decide to administer a questionnaire before and after the implementation of the course to determine whether the “planned intervention has had a positive effect on individuals” (Clarke & Dawson, 1999:68).

The course evaluator may also use a post-instruction questionnaire that tutors and learners complete. The evaluator should invest considerable time in planning the questionnaire (or evaluation forms). It is equally important to pilot questionnaires with participants who are as “… much like eventual respondents as possible. Even the most carefully crafted questionnaires are likely to have items that are confusing for some and misunderstood by others” (Reeves & Hedberg 2003:184).

Use of interviews in course evaluation

Interviews are commonly used in naturalistic styles of evaluation to get a full understanding of the nature of the course, its objectives and implementation progress. Interviews can be used to generate both qualitative and quantitative data to address the evaluation questions. “The nature of the evaluation questions, and the context in which the study is undertaken, will largely determine whether or not interviews will be used as a method of data collection” (Clarke & Dawson, 1999:72).

The interviewer/evaluator has to decide on the type of interview questions. The interviews may be structured or unstructured, or may have open or closed questions. However, interviews are also about listening, as noted by Clarke and Dawson (1999:75): “Regardless of whether the interview is structured or unstructured, the successful management of the process is partly dependent upon the interviewer being an active listener and being able to establish a rapport with the interviewee”. In addition, the evaluator may decide to use either focus group or individual interviews.

Planning interview protocols normally involves conducting trial interviews, with subsequent revisions of the questions (Reeves & Hedberg 2003:184). Focus groups interviews in evaluation create opportunities for in-depth discussions with groups of learners on the course, as well as to get group-based views on the course and course processes. One of the challenges of focus group interviewing is the need to stay focused, and this requires careful management of the process. The quality of the evaluation analysis is contingent upon the accuracy with which the data are recorded. Data can be recorded on audio or video tape, or by taking notes which are later transcribed for analysis. Note-taking is less time consuming, while transcribing from tapes is more laborious.

Use of observation as course evaluation tool

Observation is a method of collecting empirical data in qualitative evaluation. It entails sensitivity to various ways in which course tutors and/or learners behave and how

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1 Naturalistic styles of evaluation try to influence the social context being studied as little as possible. In this sense they seek to be a ‘natural’ part of the course or study context.
they interact in a particular setting (e.g. during course delivery). When using observation, the course evaluator acts as the main instrument of data collection/generation.

Observation as a methodology for data generation requires that the evaluator be skilful in gathering, recording and analysing data to avoid concerns about the reliability and validity of the data. Clarke and Dawson (1999) observe that the direct involvement of the observer in the situation under investigation may be a potential source of bias on two counts: first, there is always the possibility that individuals will consciously modify their behaviour if aware that they are under observation; and secondly, observation can lead to bias when the evaluator gets caught up in the activities under observation. “The evaluator needs to be careful not to appear to be developing too close a relationship with any one group as this can lead to accusations of impartiality” (Clarke and Dawson, 1999:82). Issues of objectivity may be a concern in objectivist approaches to evaluation, but in more subjectivist orientations the objectivity of the data is less cause for concern.

Clarke and Dawson (1999:83) further note that

Methods of observation can be overt or covert, can include collecting structured or unstructured data in the form of audio-visual recordings, taped interviews, completed checklists or detailed field notes and involve the researcher as a participant or non-participant observer. There are no universal rules governing the choice and application of observational techniques in evaluation … designs.

Use of tests and examinations in course evaluation

Testing and examinations are conventional tools in educational assessments and evaluation. Testing is widely accepted as an effective tool to measure a variety of domains and learning categories such as knowledge, understanding and skills. However, the environmental education course evaluator should be wary of tests and ensure their acceptability, feasibility, reliability and validity. “Paper-and-pencil tests using multiple choice test items are pervasive as evaluation methods, but the reliability and validity of the instruments are often suspect” (Reeves & Hedberg (2003:187).

There are many types of questions for test-based course evaluation. They include written essay, multiple choice items, short answers, and true-false items. The evaluator should choose a viable testing alternative in relation to course objectives. For example, environmental education course trainees may be required to demonstrate the knowledge, skills and attitudes as the course objectives may stipulate.

There are also limits to test-based evaluations, as they normally only test knowledge acquisition and skills development. Application and reflexive outcomes are less easily tested. These are often important outcomes in environmental education courses, and test-based approaches (when used in isolation) may therefore not be the most useful in establishing the value of environmental education courses.

Document analysis in course evaluation

Document analysis in course evaluation may be one of the quickest techniques for obtaining information on environmental education course worthiness or processes. Documents may be reliable in getting first-hand information, although this may be an issue if the goals of the evaluation are different from the aims of those who compiled the course documents. The use of documents in course evaluation may provide the course evaluator with valuable insights into the trends and contextual issues pertaining to the success or failure of the course objectives. The environmental education course documents that may be analyzed include learners' assignments, tests and examination scripts, course materials, and project reports.

See Case 4 in Section B: At the University of Botswana, course participants are required to submit project reports which may be analyzed to determine the success or failure of the course objectives. In Case 2, portfolios of evidence are used as data in the evaluations.
Analysis, or ‘making sense’ of the evidence

Analysis is concerned with ‘making sense’ of the evidence that is generated in the evaluation process. There is little point in generating data through questionnaires or interviews unless it can be interpreted and synthesized in relation to the aims, orientation and purpose of the evaluation. How the data is interpreted depends very much on the nature of the evidence, which in turn is dependent on the evaluation approach. In evaluating courses, evaluators collect evidence that can provide them with information that can help them to answer some key questions, such as:

- Is the course achieving what it set out to do?
- Are the original objectives still appropriate? Should they be changed in any way?
- Is the design of the course suitable for its intention? Is it able to respond to learner needs and to changes in context?
- Are the methods being used appropriate? Are there better ways of teaching or involving learners? What could they be?
- Are the course tutors adequately informed and able to teach the course? How are the learners responding to the tutors?
- Is there good communication between all stakeholders? How could it be improved?
- Is there adequate institutional and other support for the course? Can alternatives be found that can improve the way the course is supported? (questions adapted from SANParks, 2002).

There are many other evaluation questions, and these are dependant on the individual context, and on the purposes of the evaluation. The analysis should be informed by the need to address these questions. As shown in the above questions, an important component of any evaluation is to make constructive recommendations. Analysis should therefore be focused towards this wherever possible.

- **Seeking patterns and trends**
  
  In making sense of the evidence collected in an evaluation, it is important to look for patterns and trends (SANParks, 2002). In identifying a ‘pattern’, the evaluator will be looking for particular themes or ideas that keep recurring in the data. ‘Trends’ tend to occur in longer-term programmes and they may describe particular directions within a course.

- **Intended outcomes**
  
  Most analysis in evaluations is focused on what the course was intended to achieve. This involves analysis of the data in relation to the intended outcomes (the objectives) of the course. It is normally fairly easy to analyse data in relation to the intended outcomes of a course, so as to see whether or not the outcomes have been met.

- **Unintended outcomes**
  
  If the analysis is too focused on the intended outcomes, it may be possible to miss out on other valuable outcomes. Examples of such unintended outcomes could be the establishment of a professional network amongst course participants or the development of professional skills of course tutors. The identification of these unintended outcomes can provide valuable information on the ‘hidden values’ and future directions of the course (SANParks, 2002).
Contradictions and conflicts

The evidence gained from different sources can often be contradictory. Contradictory evidence can point to conflicts or tensions within a course, and it may be necessary to probe the contradictions and tensions by generating more evidence or asking more questions so as to find what ‘lies behind’ the contradictions. It is also important to explore the reasons why the contradictions and tensions exist, as this may provide valuable insights that will help the course co-ordinators to change aspects of the course.

Different stages in an analysis

SANParks (2002) describe a number of stages in the process of analysis. These are:

- **Undertaking a comparative analysis** — Combining the evidence from different sources can provide a full picture of the course in relation to the evaluation questions being asked.

- **Compiling a reflective summary** — Identifying the most important aspects of relevance to the purpose of the evaluation helps to sharpen the focus for making recommendations.

- **A feedback analysis** — Discussing the reflective summary with course tutors, institutional managers, learners or other stakeholders can help to deepen the analysis. It also provides a useful check to establish how accurate the evaluators’ interpretations are.

Validity, trustworthiness, rigour and ethics

A key issue to consider when generating and interpreting evaluation data is the question of reliability, validity and trustworthiness. The reliability and validity of instruments and methods must be considered in light of the purposes of the evaluation (Patton, 1997). Reliability deals with the consistency of measurement or data collection. Validity or trustworthiness is about the degree to which an instrument or method achieves its aims, and whether it generates trustworthy findings. According to Clarke and Dawson (1999:67), “normally a range of techniques form the core of an overall … strategy, thus ensuring that the information acquired has the depth and detail necessary to enable the evaluator to produce a report from which conclusions can be drawn with a certain degree of confidence”.

Evaluations should also be conducted with due respect to the participants involved in the course. Where appropriate, learners or tutors should be allowed to contribute in confidence, and confidential information should be respected and dealt with sensitively by the evaluator. Other important aspects of ensuring that the evaluation is conducted ethically are the negotiation of all evaluation activities with the stakeholders and the protection of identities where necessary.

Ensuring quality

The quality of any evaluation, including course evaluations, can be assessed in relation to four broad sets of evaluation standards, advocated by the American Joint Committee on Standards for Educational Evaluation (1994). These have been adapted by the African Evaluation Association in 2004. A summary can be downloaded from www.wmich.edu/evalcrt/jc/. These quality standards require evaluations to be:

- **Ethical** — ensuring due regard for the welfare of those involved in the evaluation, and those potentially affected by its results (the propriety principle);
Feasible — the evaluation should be “do-able” in terms of scope, costs, time, diplomacy, etc.;

Useful — to all intended users (the utility principle); and

Accurate — the information given about the features of the programme should be accurate.

In longer-term formative evaluations, the principle of reflexivity can also be considered as a sign of a high quality evaluation. This will indicate that the evaluators have been able to adapt and change their evaluation design and process to the context of the evaluation over a period of time.

**Evaluation reporting**

Course evaluations should be followed by a reporting of the findings. It is advantageous to clarify the reporting purpose and process during the planning stages of the evaluation. Reporting may be used for specific or for multiple purposes. The report should be structured to support course improvement (Worthen & Sanders 1987). It is important to have clarity on who the audience of the evaluation findings might be — such as the funders, the institutional managers, the learners, the tutors, colleagues, or employers. The report should be written in such a way that it is relevant to the aims and purpose of the evaluation, and the expectations of the audience. The evaluator should bear in mind that different stakeholders are likely to have their own expectations and criteria. Each of the stakeholders is likely to have a slightly different interest in the evaluation results and each may exercise some power. The evaluator needs to consider the power relations surrounding the evaluation, and as Ashcroft and Palacio (1996:93) note, “although those that control the resources seem to be in the ascendancy at the moment, we suggest that their interests should not be the only ones to be considered”.

Course evaluation results are significant to course sustainability, as they provide performance indicators which can be used for informing future revision and review. Evaluation findings also inform quality assurance procedures. Moreover, the findings enable ongoing reflexivity and change amongst tutors and learners, and provide service providers and course co-ordinators with an informed opportunity to improve responsiveness to arising and changing environmental issues and risks and new policy developments. The findings have the potential to strengthen fundraising possibilities and to inform and or contribute to institutional reporting and institutional changes.

**Using evaluation findings in future course review and revision**

Course evaluation findings can serve as a warning that something is going on wrong, and as guidance for improving the course. The findings can offer new ways of looking at a familiar problem or provide the institution with further opportunities to mobilize support for the course. It is necessary for all those involved in the course to have a total picture of what is happening. Environmental education course designers, tutors, learners, and administrators need to cooperate and be involved in making sense of the evaluation findings, and in the decision making process.

It is also important to assess the influence of the evaluation on decisions and on follow-up actions by stakeholders — for instance, environmental education course providers, such as educational institutions, may take actions such as improving course content or the mode of delivery.

**Read through the cases in Section B. Have any of the authors reflected on how they plan to ensure quality in the context of their evaluations?**
Section B

Case stories of course evaluation processes
Case 1

Ongoing evaluation in the Mauritius Coastal Zone Environmental Education Course

Context: Non-Governmental Organisation
Place: Mauritius
Institution: Mauritius Wildlife Club
Evaluators: Khemraj Sooknah and Nazeen Parboteea
Case story authors: Khemraj Sooknah and Nazeen Parboteea

Context

The Mauritian Wildlife Club has produced course materials for a Certificate in Environmental Learning for the Coastal Environment. These materials were developed over a period of two years through the Course Development Network. This course aims at informing and training those who have a keen interest in the coastal environment of Mauritius Island, situated in the Indian Ocean. The course is open to everyone, regardless of their educational background. A good command of the English language is not essential. The participants are encouraged to carry out discussions in the language of their choice — i.e. English, French, Creole, Hindi or Bhojpuri. About ninety percent of the course content is also being utilized in a Bachelor of Education course module on sustainable environment (20 hours) at the Mauritius Institute of Education, the only teacher training centre within the Republic of Mauritius.

Purpose of the evaluation

The research and development team found that there is a lack of relevant practical training documents on aspects of the coastal environment as per the Environment Act of 2002. It was recommended that a non-formal education pack be developed as part of the training and awareness programme. Following the deadly Tsunami events in the Indian Ocean, the need to educate people living along the coastal environment is essential.

The evaluation focused on the relevance and application of the study pack in promoting knowledge about the coastal environment. With regard to relevance, the purpose of the evaluation was to ensure that the information in the pack is appropriate to the topics covered. With regard to application, the purpose was establish whether the contents of the study pack will lead to appropriate discussions, research and field studies.
Evaluation approaches adopted

The evaluation was undertaken at two different stages during the preparation of the study pack. Both evaluation exercises involved the preparation of a questionnaire and in-depth interviews on the topic. Two samples of participants were selected, these being end users and those involved in the curriculum development.

The formative evaluation comprised a questionnaire with ten criteria: design, flexibility of use, openness of learning topics, flexibility of research, role of the resource persons, application of knowledge, language, validity of information, stereotyping, and follow-up. The summative evaluation was carried out through a series of interviews, each lasting about forty minutes. The interviews consisted of answering a series of open questions in the language of the interviewee’s choice.

The information contained in the questionnaires and the interview data were analysed. A grid was constructed based on the topics covered in the questionnaire and the main topics in the interview. A scoring system on a scale of 0 to 5 was used, whereby 0 represented no score and 5 the highest score. The scores in the grid helped with the interpretation of the data from the evaluation exercise to identify topics which had to be rewritten with specific attention to developing a holistic approach to the subject.

What was the value of the evaluation?

The outcomes of the combined study showed the lacunae and an appreciation of the study pack. This early evaluation led to the reengineering of the study pack as it was being developed. The pack now has more holistic topics and open learning methods. The inclusion of two new topics — ‘People of the Coast’ and ‘Natural Disasters’ — has provided for a more holistic education.

It is too early to comment on the longer term value of the course evaluation exercise, as the course development process is on-going. An early change is a move away from a ‘textbook’ on coastal ecology to a study pack on coastal environment and sustainability. The outcomes of the study pack can be evaluated at a later stage, when the participants will have put the issues and topics that they have learnt during the course into practice. This future evaluation should ideally be designed to explore the outcomes of the learning processes. This will hopefully concentrate on the value of learning process, not only in terms of ‘mastering the text’, but also the application of the knowledge to specific situations — especially since we are living on an island which can be affected at anytime by natural disasters such as Tsunami.
SOME QUESTIONS FOR DISCUSSION:

- What is the purpose of the evaluation? Is it clearly stated?
- What evaluation types and approaches are the evaluators using? Are they appropriate for the purpose of the evaluation?
- Have the evaluators followed a systematic evaluation process?
- Is the evaluation design feasible and practically implementable, or is it over-ambitious?
- What are the evaluators evaluating, and what are they not evaluating? Are they, for example, evaluating contributions of the course to a community of practice, or application of learning and reflexivity, or are they simply evaluating the ‘mechanics’ of running a course?
- What methods have the evaluators selected for the evaluation? What are the strengths and weaknesses of these methods? Are the methods appropriate for the purpose of the evaluation?
- How have the evaluators approached the analysis of the data?
- What is the evaluation being used for? Could the evaluation findings be used for other purposes?
- Have the evaluators provided information on ethics?
- Have the evaluators provided insight into how they plan to ensure quality in the evaluation process?
- Is there any evidence that the evaluation is leading to enhanced reflexive practice?

In this case (Case 1), the authors are planning to evaluate the course to establish how learning is applied in context. What advice could you give the evaluators? How could they design such an evaluation?

Consult the different chapters in Section A of this book to critically consider these questions.
Case 2

Evaluation in the Swaziland Participatory Certificate Course in Environmental Education

Context: Non-Governmental Organisation
Place: Swaziland
Institution: Swaziland Environmental Justice Agenda (SEJA)
Evaluators: Sivumelwano Nyembe and course tutoring team
Case story author: Sivumelwano Nyembe

Background

The Swaziland Participatory Course in Environmental Education (SPCEE) was first run in 2000 with eight participants. The participants were drawn from a wide range of professional disciplines and institutions. The course is an initiative of the Swaziland Environmental Justice Agenda (SEJA), a non-governmental organisation involved in environmental education at the national level.

The course is conducted by a team of tutors drawn from the National Curriculum Centre (NCC), Teacher In-service Unit, the Swaziland Environment Authority (SEA), the Swaziland National Trust Commission (SNTC) and selected schools. Although the tutors’ institutional affiliations are essential for bringing a diversity of approaches and views, and political acceptance of the project, the winning prerequisite is tutor commitment and participation due to a personal interest. Most of the tutors support the course in their individual capacities.

About two hundred people have been awarded the course certificate since 2000, and most of them continue to be actively involved in environmental education processes. The majority of the participants are practicing teachers and officers of non-governmental organisations working in development education. In 2005, 62 participants were involved from all four regions of Swaziland. There was a great diversity of participants in terms of professional backgrounds. There were, for example, participants from the teaching fraternity, the security forces, the tourism sector, the commercial sector, trade unions and social activists.

The course has been changing in form and format over the years, as it attempts to respond to the diverse needs of the participants and the personalities and skills of the tutors. As a matter of principle, the tutors have been actively trying to change the content of the course to ensure greater relevance. In the beginning of each course year, the tutors conduct an evaluation and planning workshop that focuses on any emerging issue(s) that may need to be highlighted in the course material. Past participants’ assignments are also selected for inclusion in the course material as ‘readings’.
Elizabeth Motsa has conducted an academic evaluation of the course during her Rhodes University Master of Education (Environmental Education) studies. Her findings have illuminated the assumptions and shortcomings of the course within Swaziland’s political and cultural context, which does not always encourage innovation and change and is intolerant to applied social praxis (Motsa, 2004).

An orientation to evaluation in the SPCEE

Evaluation is an important aspect of the learning process. It is not a signal of the end of learning, but an integral part of the learning process. Evaluation cannot be an accidental part of the teaching and learning process, but must be a deliberate occurrence. It must be planned for, and adequate preparation for it should be made with diligence. The nature of the evaluation process and the selection and application of evaluation tools must be guided by the education theories informing the educational process. This may be illustrated by considering how key educational ideas in the SPCEE influence evaluation decisions which, in turn, introduce a responsive and constructive evaluation model. The SPCEE process is based on the following guiding principles:

- **Open Entry Open Exit**

  The essence of this principle is that the participant can be allowed to undertake the course from an expression of interest and having basic competencies like reading and writing. The only strict pre-requisite is that the participants should be involved in environmental education processes, either at an occupational level or as a special social interest. The general understanding is that the participants should be engaged in the teaching of environmental concepts in their official duties, or be participating in the activities of a social group seeking solutions to environmental problems, where the sharing or generation of information and knowledge is paramount.

  Experience over the five years of course delivery have shown different interpretations of these principles. Some participants undertake the course for reasons that are far removed from this understanding. This has a major bearing on the nature of the evaluation and the selection of evaluation tools. Evaluation should ideally be meaningful to all course stakeholders — participants (including those of past and future courses), tutors, accrediting university (institution) and employers.

- **Knowledge is constructed in collaboration with others**

  In accordance with the NGO Forum principle ‘we are all teachers and learners’ (NEES 2000), there is a deliberate process in the course design to create opportunities for the participants both to learn and teach; to learn from each other, from tutors, from practitioners, course material and situations. This is one of the reasons why the SPCEE evaluation processes include various non-academic happenings around the course process, since meaning-making takes place both in and out of the lecture rooms. It is, of course, difficult to quantify the level of each participant’s “participation” in group activities.

- **The responsibility of learning lies with the individual participants**

  The evaluation process is therefore part of the learning process. Wherever possible, it must facilitate the learning and teaching activities. In order for the evaluation to be of use to each participant, the participant needs to first formulate the assessment criteria in negotiation with the tutors and fellow participants.

  The process of assessment criteria formulation and negotiation is a fundamental step in the process of internalising learning as an individual responsibility. It creates a
forum, whereby individual participants set their own learning outcomes, based on their individual contexts: educational background, personal interest, institutional needs, etc. These are negotiated with tutors to ensure appropriate rigour, but at the end of the day the evaluation process for the learners is self-reflexive and developmental, not norm referenced. This approach to education is possible within an NGO setting, where there is no external authority with rigid assessment specifications that need to be satisfied at a particular ‘level’ — as is the tradition with norm-referenced assessments.

Evaluation considerations in the SPCEE

There is a need for synergy between predetermined evaluation activities and those that are developed as the process unfolds. Supporting learning and teaching activities from a responsive evaluation perspective (as outlined above) means that a space for flexibility needs to be deliberately created. This has an impact of the level of planning that needs to take place. Since the course is an educational process, there are predetermined evaluation tools and undetermined ones that are developed on the unfolding process with stakeholders.

The course has three assignments designed for the purpose of evaluation. An assignment question is phrased in such a manner that the participants are free to contextualise the assignments, but still need to provide adequate evidence of her/his learning and level of interaction with the course processes. The tutors and the fellow participants assist the participant with the learning process by providing critical evaluation of the assignment. This fundamental principle is to ensure that environmental education is in itself an evaluative process.

Evaluation from a responsive orientation is not about passing judgment, but is a means to open up opportunities for further inquiry and meaning-making. This approach to evaluation serves to democratize the learning process and opens up learning in other avenues. An assignment is not completed by simply submitting it and receiving some judgment, but is completed when the participant feels it is in the best possible form. This demonstrates that learning is not a process with a particular end-point, but an ongoing process of reflexive review and change.

Professional development

Learning is not a passive activity and does not have one identified outcome, but multiple outcomes. In order for the participants to maximize the benefits provided by the learning opportunities inherent in such a course, several activities are integrated to allow participants to learn multiple skills. The public presentation of the assignments, for example, is an integral part of the course. This is meant to allow the participants to grow as professionals, since presentation skills are an invaluable part of being a professional. This process is also part of the evaluation of the individual and the programme.

Portfolios and participation as foci for evaluation

The individual portfolio is a valuable resource for both summative and formative evaluation. A portfolio is a compilation of evidence collected by the individual participants and presented for evaluation purposes at the end of the course. An important aspect of the portfolio evaluation is that the participant selects the work that he/she wishes to present as evidence of his/her learning. The compiling of the portfolio also gives the participant the opportunity to redo some of the assignments that he/she feels are no longer a reflection of his/her abilities. Portfolios provide illuminating evidence about both the individual participant’s growth during the course, as well as being a reflection of the meaningful learning offered by the course.
Assignments

The assignments submitted for evaluation must undergo three evaluative readings. First, the participants must check the assignment against the assessment criteria and make comments on the assessment sheets. The assignments should then be given to a fellow participant, who must read and comment on the assessment sheet and then pass these to the tutor for further reading and comments. All the assignments should also be presented to the regional group (or focus group) for verbal comments. All the comments need to be documented in the portfolio, so that it can be used as evidence in the future or presented to the monitoring body (SADC-REEP) on behalf of the accreditation authority (Rhodes University). The assignment remains open to the participants for changing throughout the duration of the course; in this sense, these are ‘public documents’.

The level of participation in academic activities

The participants are obliged to write the stipulated assignments, to participate fully in lectures and excursions, and to make critical comments and contribution to other assignments and general discussions. These contributions also form part of course processes that are evaluated reflexively by course tutors on an ongoing basis.

The role of reflexivity

A course of this nature needs to bridge the distance between practice and theory. Participants need to work on assignments that emanate from their work/community contexts, so that the course can facilitate better understanding of problems and challenges that the participants are struggling with in context. The theories in the course can be better shaped and reshaped by insights from practice.

Reflexivity is a term used to describe efforts that one makes to reflect critically in situations and respond accordingly. It is important that participants record in their journal their feelings, views and experience. This journal needs to be presented in the evaluation so that participants can develop some understanding and indication of the internal battles that one goes through when one seeks to construct knowledge and understanding.

The level of participation in non-academic activities

The participants are also obliged to participate fully in the logistical planning and implementation. They should be active in addressing the political and economic situations they may encounter in the course process. This involves activities like minute taking, organizing meeting venues, questioning all aspects of the course processes, seeking sustainable ways of doing things, insisting on sustainable actions and decisions, etc. This aspect of participation should also be documented, recorded in the portfolio and submitted for evaluation.

Concluding comments

Evaluation is not a neutral activity, it is value based. It is influenced by political, academic and economic factors interplaying among the stakeholder’s interest and expectations. The evaluation ideas and methods are essential in meeting the needs of the learning context. An externally funded course needs to comply with the policy related agreements between the implementers and the funders. This usually means that an objective-based evaluation needs to be conducted in order to generate the data needed for the funders to determine if their money has been well spent. This requirement
need not prevent the use of descriptive evaluation tools that will allow stakeholders to tell their stories. It also allows for a seeking of insights into the course processes and outcomes.

Evaluation takes place at different levels for different purposes. Evaluation results may therefore be used for different reasons determined by each context. Each situation determines how the results will be packaged and presented. If the results are to be used for political reasons, like soliciting political or financial support, it may become important that the evaluation is objective-based and strong on measurement. However, other purposes of evaluation, where it is seen as being integral to the learning process (as outlined above), have different methods and applications.

Evaluation needs to be sensitive to the needs of each stakeholder, since each is likely to have a differing interest in the evaluation process. For example, tutors and the accrediting body may want to gain insights into the educational worth of the course, while past participants may be interested to know if the course is still as good as it was when they participated in it. Future participants may be interested in finding out if the course generates credits that can be accepted by other learning institutions, and so on.

There is a need to meet the expectations of stakeholders, but also to ensure that the course is able to benefit from the interaction with a rich pool of individuals. The participatory action research model within a responsive, constructive style of evaluation is used in the SPCEE so that the insights gained can be built into further course development. This makes the course a ‘living and dynamic’ entity. It is possible because the SPCEE course is governed by a fairly autonomous process, since SEJA’s administrative structure and philosophy is non-hierarchical and democratic in orientation. This allows for creative evaluation processes to unfold. Evaluation in the environmental education course is not for control or for functional and managerial purposes, but is mostly undertaken to ensure critical learning.
SOME QUESTIONS FOR DISCUSSION:

- What is the purpose of the evaluation? Is it clearly stated?
- What evaluation styles and approaches are the evaluators using? Are they appropriate for the purpose of the evaluation?
- Have the evaluators followed a systematic evaluation process?
- Is the evaluation design feasible and practically implementable, or is it over-ambitious?
- What are the evaluators evaluating, and what are they not evaluating? Are they, for example, evaluating contributions of the course to a community of practice, or application of learning and reflexivity, or are they simply evaluating the ‘mechanics’ of running a course?
- What methods have the evaluators selected for the evaluation? What are the strengths and weaknesses of these methods? Are the methods appropriate for the purpose of the evaluation?
- How have the evaluators approached the analysis of the data?
- What is the evaluation being used for? Could the evaluation findings be used for other purposes?
- Have the evaluators provided information on ethics?
- Have the evaluators provided insight into how they plan to ensure quality in the evaluation process?
- Is there any evidence that the evaluation is leading to reflexive practice?

In this case (Case 2), the authors make a strong argument for consistency between the learning theories that underpin a course and the orientation to the evaluation. They support a constructivist epistemology in their course, and have developed their evaluation to be responsive and constructivist in orientation. How could you design an evaluation that is consistent with the learning theory that underpins your course?

Consult the different chapters in Section A of this book to critically consider these questions.
Case 3

An evaluation plan for the UNISWA Certificate Course in Environmental Management and Training for Industry in Swaziland

**Context:** University Certificate Course  
**Place:** Swaziland  
**Institution:** University of Swaziland (UNISWA)  
**Evaluators:** Mandla Mlipha and stakeholders  
**Case story author:** Mandla Mlipha

**Introduction**

Swaziland, as a country, lacks short courses aimed at enhancing environmental education and appropriate environmental practices within the industrial sector (Swaziland Environment Authority, 2000). The country continues to suffer from a lack of a pool of environmental managers and educators within the industrial sector. The situation persists even after the promulgation of the Environmental Management Act of 2002, which seeks, amongst other things, to compel industries to comply with national environmental regulations, starting with the establishment of environmental units within the industrial context (Government of Swaziland, 2002). While some industries have made strides towards engaging environmentally sound management systems intended to comply with national environmental standards and requirements, the industrial workforce has tended to lag behind in the acquisition of appropriate environmental practices.

The UNISWA Environmental Management and Training Course is intended to build capacity amongst industrial personnel, particularly at the middle management and line manager levels. For its survival, the course has to respond to the needs of industry while at the same time facilitating the implementation of the Environmental Management Act and other relevant pieces of environmental legislation and regulations in the country. Course implementation will follow a pilot process which commenced towards the end of October, 2005.

A properly planned evaluation process is crucial in enhancing the relevance and survival of the course. An evaluation process plan, which details how the evaluation exercise will be carried out and how the evaluation report will be used, is outlined below. The details of the evaluation process include a description of the evaluation context; the context in which the course will be implemented; the purpose of evaluation; what will be evaluated; the evaluation approach and methods; and the potential value and use of the evaluation findings.
Evaluation Context

The course will be offered by the University of Swaziland as a semi-distance course. The university is a formal institution requiring a certain minimum amount of time of face-to-face contact with students, while also allowing them time to revert to their respective industries to continue with their learning activities. Face-to-face contact will involve a total of four days, covering the following:

- **Meeting day 1**: Orientation and introduction to the course, and orientation to Theme 1 of the course as well as collection of course materials.
- **Meeting day 2**: Orientation to Theme 2 and collection of materials.
- **Meeting day 3**: Orientation to Theme 3 and collection of materials.
- **Meeting day 4**: Conclusion of the course, course evaluation and graduation.

Workplace learning activities take place between the meeting days and involve students in doing their readings and writing their assignments, as well as meeting and holding discussions with their tutors. This is the time where students receive verbal feedback from tutors and discuss their progress in the course, particularly during the on-site visits by tutors.

Purpose of the evaluation

It is important that course participants, tutors, course administrators and sponsors agree on the purpose of the evaluation — at least in principle — to allow the evaluation process to have a special significance to all the stakeholders. This course has a special role within the Swaziland Environment Authority (SEA) as a national environmental watchdog and custodian of environmental legislation; the University of Swaziland as the implementer of the course; and the industrial sector as potential sponsors and a source of course participants as well as tutors. All these stakeholders are likely to have their own expectations of the evaluation process. It is, therefore, important to note that the evaluation is seen as a tool to support and build partnerships among the stakeholders. Such partnerships will be crucial for the sustainability of the course, financially and otherwise.

Equally important, the evaluation is intended to monitor the effectiveness and relevance of the course and its materials in enhancing the capacity of industries in their attempts to comply with environmental legislation and associated protection of the environment. The evaluation is also intended to estimate or gauge the level of professional growth and competence pertaining to environmental awareness and practices among industrial personnel.

The evaluation approach to be adopted

As discussed above, the evaluation approach should be guided by the various stakeholders involved in the development and implementation of the course. The evaluation will be participant-centred (at modular, programme and logistics level), SEA-centred (institutional and programme evaluation level), university-centred (modular, programme, logistics and institutional evaluation levels), tutor-centred (modular, programme and logistics), course administrator-centred (programme, logistics and institutional), and sponsor-centred (logistics and programme evaluation levels). Various evaluation approaches therefore need to be utilized. For instance, in the case of the participant- and tutor-centred focus, the evaluation will take place in all stages of
course implementation, i.e. at the beginning of the course (diagnostic evaluation),
during the course (formative evaluation) and at the end of the course (summative
evaluation).

Evaluation methods and instruments

Multiple evaluation methods will be used, keeping in mind that each method will be
informed by what is being evaluated and the questions that need to be answered. The
various stakeholders and the evaluation approaches identified will inform the choice
of evaluation methods and the instruments to be used. The course participants consti-
tute an integral part of course implementation, hence they will be expected to play a
key role in the evaluation process.

Oral and written questions are important techniques in the collection of evaluation
data. The written questions may be conducted through self-administered question-
naires which will be given to students according to the various stages of the evalua-
tion. Focus group discussions, as well as assignment and project reports, will also be
used to acquire evaluation data from course participants, particularly during and at
the end of the course implementation. For course tutors, the evaluation process will
rely on a group discussion in the form of a tutors’ workshop. The evaluation by tutors
will rely on observation, particularly in the visits to the industries. Through observa-
tion, the tutors acquire knowledge of learners’ thoroughness, interests, honesty and
productivity (Avenant, 1990). A key informant approach will be used to collect evalu-
atiation data from course administrator, tutors, SEA and sponsors.

Notably, the evaluation of the course will utilize multiple methods which will yield a
large amount of data. A comparative analysis (triangulation) of the data will therefore
be important. This involves comparing the data generated through the various meth-
ods, to allow for critical conclusions to be drawn.

Items to be evaluated

A holistic evaluation is needed, involving all components of the course — including
the course outline, reading materials, tutors and learners, course administration (lo-
gistics) and the adequacy of UNISWA as host for the course. In evaluating the course
and reading materials, the following may be considered:

Course outline:
- Relevance of content
- Scope and breadth of content
- Course structure, including sequencing and coherence of topics.

Reading materials:
- Readability of the materials, including language, diagrams and style of presen-
tation
- The degree of difficulty of the activities and assignments.

It is also important to evaluate the achievements of the course, as reflected by the
participants in their three individual assignments, in relation to the stated objectives
of the course. The course administration will attempt to evaluate the logistics of course
implementation, including the scheduling of contact sessions and the tutors’ visits to
the participants’ industries. There will also be an evaluation of the adequacy of UNISWA
to offer the course in terms of manpower capacity, resources and other related matters. The evaluation instruments — be they questionnaires, interview or observation guides — will be decided through consultation with all those involved in course development and implementation. The stakeholders will also help to define the specific items to be evaluated, and this will then inform the nature and content of the evaluation techniques and instruments. At the present stage, specific evaluation instruments have not yet been determined.

Timing of the evaluation process

The timing of the evaluation is guided by its purposes and orientation, as well as by what is to be evaluated. The evaluation process will normally coincide with the various types of evaluation, such as diagnostic, formative and summative, as mentioned above. However, the industry course has demonstrated that effective evaluation does take place before the course development and implementation. Some form of evaluation took place in the various stages of the development of the industry course. For example, the course developers relied on information from a variety of sources (curriculum elements) in the course development process. How were these sources selected, if not through some kind of an evaluation process? The selection of the initial methods and techniques of lesson delivery was all decided before the delivery of the first lesson through an evaluation of a variety of methods. While guided by the types of evaluation selected, the evaluation process will be happening more or less throughout the course implementation process in planned and unplanned formats.

Use of the evaluation findings

The findings of the evaluation process are crucial for the survival and growth of the industry course, which hinges upon it being relevant to the industrial and national environmental management and conservation agenda. Moreover, the evaluation is crucial to administrators in government (SEA), UNISWA and industry, as it provides information concerning the course and indicates whether it is worthy of continued support. The evaluation also provides opportunities for participants to demonstrate their understanding and attainment of new knowledge on environmental management and education after participating in the course. It is expected that, at the end of the course implementation, participants should demonstrate a better understanding of the environment and environmental management issues than before enrolling in the course.

The evaluation findings will be compiled into a report to be used for various purposes. Primarily, the evaluation report will be a road map, guiding course review processes as well as providing basic reference material for future course revisions and improvements. Moreover, it will indicate specific areas that need attention while seeking to improve strategies of course delivery and administration. The report will also be used to highlight the successes of the course implementation process in attracting further participation of stakeholders as well as recognizing the value and contribution of short environmental education courses in responding to environmental issues, risks as well as policy development in Swaziland.

Conclusion

The UNISWA Environmental Management and Training Course for Industry is a course offered to adults who are already in the employ of industries and have basic qualifications in their industrial trades. This course is primarily intended to enhance industrial
employees’ capacity to recognize and respond to environmental issues within their industries. The evaluation process needs to prove its worth especially in the assessment of the achievements of the course, insofar as building capacity to respond to environmental issues amongst industrial employees.

What has been noted in the presentation is the need to involve the participants and other relevant stakeholders in the evaluation process, in order to make its findings as accurate and as useful as possible. The participants bring into the course certain aptitudes to be enhanced, as well as certain expectations which are to be achieved through participating in the course. On the other hand, the course seeks to survive and grow through stakeholder support. It is imperative, therefore, that the evaluation process is planned in such a way that its findings enhance the interest of the stakeholders and assist with improving the course so as to ensure its continued support.

The evaluation is anticipated to be a forum for the advancement of the course, particularly in its design and implementation processes. It must also be noted that the issue of who will conduct the evaluation has not been discussed here, though it has been suggested that tutors may be involved in the evaluation. A decision still needs to be made as to whether the evaluation will be conducted by external evaluators or done internally by course tutors and course co-ordinators, or a combination of both.
SOME QUESTIONS FOR DISCUSSION:

- What is the planned purpose of the evaluation? Is it clearly stated?
- What evaluation types and approaches are the evaluators planning to use? Are they appropriate for the purpose of the evaluation?
- Have the evaluators designed a systematic evaluation process?
- Is the evaluation design feasible and practically implementable, or is it over-ambitious?
- What are the evaluators planning to evaluate, and what are they not evaluating? Are they, for example, evaluating contributions of the course to a community of practice, or application of learning and reflexivity, or are they simply evaluating the ‘mechanics’ of running a course?
- What methods are the evaluators planning to use for the evaluation? What are the strengths and weaknesses of these methods? Are the methods appropriate for the purpose of the evaluation?
- How are the evaluators approaching the analysis of the data?
- What is the evaluation being used for? Could the evaluation findings be used for other purposes?
- Have the evaluators provided information on ethics?
- Have the evaluators provided insight into how they plan to ensure quality in the evaluation process?
- Is there any evidence that the evaluation will lead to reflexive practice?

In this case (Case 3), the authors are planning a multi-stakeholder evaluation, with different stakeholders participating in different aspects of the evaluation. What advice could you give to the evaluation team to manage such a multi-stakeholder evaluation process effectively? What are some of the issues they may encounter along the way?

Consult the different chapters in Section A of this book to critically consider these questions.
Case 4

Evaluation of the University of Botswana Participatory In-service Environmental Education Course

Context: University in-service programme
Place: Botswana
Institution: University of Botswana
Evaluators: M.J. Ketlhoilwe
Case story author: M.J. Ketlhoilwe

Context

The Faculty of Education at the University of Botswana has introduced an in-service course targeting environmental education practitioners, particularly teachers from schools and non-formal institutions. The overall aim of the course is to assist environmental educators with appropriate skills to better implement environmental education through the national curriculum. The course covers a total of ten units over a period of six months, with two five-day contact workshops. Participants are involved in a course delivery process to improve their skills in environmental education. Course delivery approaches include a pre-course assignment, assigned readings, investigation of environmental education topics and presentations, critical thinking and problem-solving assignments, field work, group activities and discussions, lectures, projects and reporting.

The course is evaluated formatively and summatively. The evaluation is a systematic participatory process that involves course participants and partners such as supervisors and employers. It is an interpretive process encompassing both formative and summative strategies to identify appropriate changes to its delivery mode, contents and contextual flexibility in view of the participants’ work situations. Formative course evaluation is useful to the course tutor because “it measures project progress against ongoing benchmarks...[and]provides information that helps the programme succeed” (Hernandez, 2003:61). Regular evaluation of the course is conducted to enhance its effectiveness. The evaluation is based on participants’ reports, interviews and observation instruments used to collect data as suggested by Stokking et al (2000). Moreover, pre-course and on-course assignments provide information for analysis during the formative and summative evaluation of the course.

Purpose of the evaluation

The purpose of the evaluation was to generate “relevant information that can subsequently be used as the basis for programmatic fine-tuning, reorientation and plan-
The course evaluation was aimed at identifying key outcomes and aspects of the course in which revisions may be desirable, collecting evidence on how the course is functioning and what parameters influence its effectiveness. This involved formal and informal data gathering, and drawing on discussions with school management teams and course participants as well as a review of written reports. Furthermore, the evaluation exercise was a follow-up to elicit more information regarding the ultimate contribution of the course to the participants’ professional and work context.

**Approaches used in the course evaluation**

The approaches used in the monitoring and evaluation exercise included longitudinal studies. *Longitudinal* or *follow-up studies* were undertaken to indicate whether the desired objectives were being realized and to reveal shortcomings. The participants indicated that they were happy with the course objectives, which they believed were achieved, but felt that the course was too full — with too much content and too many activities. They were happy, however, with the participatory approach, which, they felt, enabled them to interact with the material by summarizing, analyzing and critiquing it. This gave them the opportunity to understand the course readings. Some participants indicated that some of the readings were too theoretical and of little help in their teaching.

Both individual and group information gathering strategies were used to generate these insights. Information was gathered under the sub headings that follow.

- **Evaluation of course content and readings**

  A guided questionnaire was used to gather information to determine whether the participants were happy with the course content. The results revealed that the content was perceived to be good, although participants felt that there were too many readings to read and understand within such a short period of time. The majority indicated that the content was more than adequate for the course. They also indicated that the material will assist them in their teaching and that they could use the file as a resource for future reference as well.

  Course readings were evaluated to determine their relevance to the course and course participants. The participants felt that some of the readings were too academic, and that they only understood them when they discussed them with others and during group presentations. However, they felt that the difficult readings should be kept in the files because they may be useful in future. Most of the course units were found to be relevant. The majority of participants appreciated the inclusion of the School Environmental Policy (SEP) pack in the course because the schools have received it but have no idea of how to implement it. They felt that the course came at the right time, as all schools are required to design local environmental policies.

- **Evaluation of course logistics**

  The participants were asked for their opinion on course logistics, including the arrangements for travel and accommodation. They indicated that the invitations to the training workshop came late, and that this had affected their plans for the
school holidays. Some indicated that transport arrangements were not clarified in advance. However, the evaluation results showed that participants were happy about the classroom arrangements, teaching material and the course file.

### Evaluation of the course delivery

All participants were asked for their opinion about the course delivery. They felt that it was a departure from the common presentation style as it involved different resource persons on different topics. However, they also felt that the time given to read and do presentations was too restricted, and suggested that this be looked into in future.

### Evaluation process

Formative course evaluation was used to provide an early indication of progress — or lack thereof — in the achievement of planned outcomes. This involved field visits to verify and validate progress. During the field visits, meetings were organized with the course participants and with their supervisors to assess progress and identify problems, documenting “the achievements and challenges as they occur” (UNDP, 2003:52). Evaluation is a selective exercise that attempts to systematically and objectively assess progress towards, and the achievement of, an outcome (UNDP, 2003).

### Use of the evaluation findings

The course evaluation was used to generate recommendations, confirm the worth of the course, enable course adjustments and inform future course delivery. From the evaluation data collected, it was evident that progress had been made in the school projects that were initiated following the course sessions. A further follow-up exercise, in the form of summative evaluation, is still necessary to further check on progress and the longer term impact of the course. Some of the course participants identified some readings as difficult, but it was clear that strategies need to be developed to make the readings more accessible, rather than removing them from the course file.

Evaluation outcomes also revealed that participants needed more time to work on their project plans and proposals. It was discovered, during the formative evaluation process, that some course participants were unfamiliar with proposal writing. Future course delivery would need to cater for such course candidates. More time should also be allocated to proposal writing.

Course evaluations can indicate whether or not the course is achieving its objectives. This information is useful for course tutors and for institutional management purposes. For instance, from the evaluation results reported above, one can conclude that the course was successfully conducted. Participants were happy with the course content, although they felt that it was too full.

A summative course evaluation conducted provided feedback to the course organizer and sponsors, and helped to inform appropriate changes for the next course. It identified aspects of the course “which should continue and those which are ineffective” (McNeil, 1981:155). Since there was a limited number of participants, the evaluation process involved all the participants in the first course. This evaluation design is what Hernandez (2003:63) describes as ‘static-group’ comparison, where there is no random sampling of participants.
Conclusion

The evaluation of the in-service environmental educators’ course was a systematic process that involved course participants and tutors, as well as partners working closely with the participants, such as their supervisors and employers. It was both formatively and summatively conducted to allow appropriate changes to its delivery mode, contents and contextual flexibility in view of the participants work situations. It evaluated the course content, the readings (including their clarity and relevance), course logistics, assessment and the delivery mode. A final report was produced to share the evaluation data and insights with tutors, and for submission to course sponsors, institutions/organizations and other interested partners. Constraints or difficulties that need to be addressed were considered, and suggestions made on how these were to be addressed in future.

SOME QUESTIONS FOR DISCUSSION:

- What is the purpose of the evaluation? Is it clearly stated?
- What evaluation styles and approaches are the evaluators using? Are they appropriate for the purpose of the evaluation?
- Have the evaluators followed a systematic evaluation process?
- Is the evaluation design feasible and practically implementable, or is it over-ambitious?
- What are the evaluators evaluating, and what are they not evaluating? Are they, for example, evaluating contributions of the course to a community of practice, or application of learning and reflexivity, or are they simply evaluating the ‘mechanics’ of running a course?
- What methods have the evaluators selected for the evaluation? What are the strengths and weaknesses of these methods? Are the methods appropriate for the purpose of the evaluation?
- How have the evaluators approached the analysis of the data?
- What is the evaluation being used for? Could the evaluation findings be used for other purposes?
- Have the evaluators provided information on ethics?
- Have the evaluators provided insight into how they plan to ensure quality in the evaluation process?
- Is there any evidence that the evaluation is leading to reflexive practice?

In this case (Case 4), the author illustrates how evaluation can contribute to changes in the way that the course is planned and run. What kinds of questions are needed to evaluate the orientation and educational underpinnings of the course? Do you think this has been adequately considered in this case?

Consult the different chapters in Section A of this book to critically consider these questions.
Case 5

Evaluation of the ‘Environmental Education Research in Classroom and Community Contexts’ module for the ACE programme at UNISA

Context: Open and distance learning
Place: South Africa
Institution: University of South Africa (UNISA)
Evaluators: Cheryl le Roux and the Bureau for Learning Development, UNISA
Case story author: Cheryl le Roux

Context

The University of South Africa (UNISA) is an open, distance learning institution with a student population of over 260 000 students world-wide. The majority of the students are from South Africa and other states in southern Africa.

Distance education presupposes self-directed, independent study supported by tutorial matter to facilitate the process. A basic tuition package comprises study guides or manuals, prescribed or recommended books and periodical articles and tutorial letters. The completion and submission of assignments forms an essential aspect of the tuition strategy. Contact sessions like workshops or group discussion lectures are held where student numbers and logistics allow this. E-learning is increasingly being pursued although, since limited numbers of students have access to the necessary facilities, this new tuition mode has not been implemented across the board.

The course module on ‘Environmental Education Research in Classroom and Community Contexts’ is a module developed for a post-graduate Advanced Certificate in Education (Environmental Education). The ACE aims to provide for specialisation in the field of environmental education and to update, enrich and supplement existing knowledge and competence in the field.

The majority of learners who enrol for the course are teachers, although, increasingly, environmental education practitioners from other sectors are applying for admission to the programme. Considerations affecting the orientation and the process of evaluation for this module are outlined in the pages that follow. The evaluation procedure for the module follows the general evaluation procedure of other modules developed and presented by UNISA.
Course evaluation considerations and processes

The fact that UNISA’s qualifications are accredited internationally makes it imperative for the university to constantly assure the quality of its programmes. Consequently, all programmes need to be approved by the national qualifications accrediting body, the South African Qualifications Authority (SAQA). Furthermore, courses provided by the School of Education need to ensure that the standards and requirements of the National Department of Education (DoE) are met and that the outcomes of the National Standards Generating Body for Environmental Education (NSGB[EE]) are covered.

Apart from having to meet the above criteria and requirements set by quality controlling bodies, in practice the principal reason for conducting course evaluation in environmental education courses is to improve environmental education course content and delivery. Ultimately, it is the quality of environmental learning that one aims to improve and, consequently, it is the environment itself that will benefit from the evaluation processes.

Evaluation cycles

Table 1 reflects the main stages and levels of course evaluation processes that a programme or module in environmental education needs to pass through at UNISA. Selected stages and evaluation criteria will be discussed in more detail further on.

<table>
<thead>
<tr>
<th>STAGE</th>
<th>CYCLE</th>
<th>EVALUATING BODY</th>
<th>CRITERIA SET BY...</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Approval</td>
<td>Every 3 years</td>
<td>Senate</td>
<td>SAQA; National DoE; NSGB[EE]</td>
<td>Course developer ensures that the module outcomes meet the requirements set by these bodies. The necessary administration is completed and submitted to the evaluating bodies. Matters referred back to the course developer are dealt with and the amended documentation is submitted for approval.</td>
</tr>
<tr>
<td>Course Development</td>
<td>Every 3 years</td>
<td>Bureau for learning development</td>
<td>BLD</td>
<td>Material is reviewed to ensure that it meets the standards set by the BLD; layout, presentation and tuition strategies are refined.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Critical readers; Colleagues</td>
<td>Experts in the field</td>
<td>Suggestions regarding course scope and content are discussed and incorporated by the course developer.</td>
</tr>
<tr>
<td>Implementation and delivery</td>
<td>On-going</td>
<td>Workers; Course presenters</td>
<td>Course outcomes; Relevance to work situation; Tuition models</td>
<td>Content, tuition strategy and support, presentation of material, etc. strengthened and adapted as required.</td>
</tr>
<tr>
<td>Summative review</td>
<td>Annual</td>
<td>University Tuition Board</td>
<td>University Tuition Board</td>
<td>Lecturers are invited to submit a set of course materials for consideration for an annual tuition award.</td>
</tr>
</tbody>
</table>
From the table, it is apparent that evaluation occurs at different phases in the lifetime of a course and that various bodies and individuals are involved in the evaluation process. Formative evaluation predominates, meaning that courses can benefit from the feedback and suggestions made by evaluators from inception to implementation. The fact that certain evaluation processes are on-going — for example, evaluation at implementation and delivery phases — ensures that courses remain dynamic and sensitive to the changing circumstances and learning needs of learners. The ultimate benefit of such evaluation is that not only is the quality of the course ensured, the sustainability of the course is also secured.

Evaluation processes and criteria

Course evaluation is, in effect, a learning process and capacity building opportunity for course developers and presenters. Given the nature of course delivery at an open and distance learning institution, evaluation of the following aspects of course design and delivery needs to be undertaken: the theoretical basis of the course; the content; the orientation; the structure and outcomes; the course material and its presentation and delivery; and the professional competence of the presenters. The effectiveness, relevance and impact of the course — as well as the ability of the content and assignments to meet the programme outcomes — is also important.

The programme outcomes are, to a large degree, determined by the SAQA, DoE and NSGB(EE) requirements. The lecturer decides, however, how to structure and present the individual courses that constitute the programme, so that each course contributes to meeting these overall outcomes and that all the courses collectively meet all of the set programme outcomes. Evaluation of whether the programme and individual courses meet the criteria as set out above needs to occur prior to designing the individual course. However, this discussion will focus on the evaluation processes and criteria at course (module) level and, specifically, on the processes related to course development and implementation.

Evaluation during course planning and development phases

As mentioned previously, the distance education tuition package comprises study guides, tutorial letters, prescribed material (e.g. books and articles), recommended material (e.g. books and articles), and the assignments. The Bureau for Learning Development, which specializes in assisting with course design and development in the open and distance learning field, works in conjunction with the course developer to ensure that elements of course and materials design are suitably dealt with. They provide the evaluation framework below to guide course developers in evaluating their work.

1 Learning design

1.1 Outcomes

- How and where are learning outcomes provided? Is this effective and useful? Why?
- What is the quality of the outcomes? [Do they cover knowledge, skills, values and attitudes?]
- Do the outcomes meet the requirements of the profession/industry/discipline area?
- How effective are the activities in terms of assisting the learner to meet the specific outcomes?
1.1 How effective are the activities in terms of transferability and applicability? Will the learner be able to practice, apply and transfer the skills learnt in the activities to her/his real-life context?

1.2 Contextuality and authenticity
- To what extent are contextual tools (authentic case studies, real-life problems, narratives, etc.) integrated in the learning experiences?
- How are the contextual tools integrated with activities?
- How is the learner required to solve problems through activities based on his/her life and work contexts?
- How are local and indigenous knowledge used? (Different perspectives from different parts of society.)

1.3 Content and theory
- How is the learner encouraged to be involved in making and exchanging meaning in the discourse of the discipline/subject field?
- How is the learner engaged in critically evaluating or contrasting theoretical perspectives and/or international best practice?
- How effective are the activities in allowing the learner to use and apply new concepts and principles?

1.4 Reflection and metacognition
- How is the learner required to think critically and reflect on her/his own actions/learning processes?

1.5 Activities: learning skills
- Are activities included to help the learner communicate effectively in the language required of the discipline/learning area through sufficient reading guidance, writing guidance, and thinking guidance?

1.6 Feedback to activities: learner
- How useful is the feedback provided to activities in terms of the learner’s ability to assess her/his own progress, skills and understanding?
- How useful is the feedback in terms of the writer’s ability to offer advice and encouragement, predict problem areas and address them, problematise issues, maintain a constant dialogue with the learner, provide indications of competency levels/meeting outcomes, and stretch the learner to higher levels of performance?

1.7 How effective is the feedback in terms of motivating and encouraging the learner?
- How effective is the feedback in terms of the learner’s ability to offer advice and encouragement, predict problem areas and address them, problematise issues, maintain a constant dialogue with the learner, provide indications of competency levels/meeting outcomes, and stretch the learner to higher levels of performance?

1.8 Social transformation
- Is social transformation built in — does the learner have to use and reflect on socio-political issues such as Aids, poverty, violence?

2 Linguistic design — dialogue

2.1 How accessible and appropriate is the language used for the intended audience?
- specialist or new vocabulary
- sentence structure and length
- paragraph structure and length
2.2 Does the writer mostly use the active voice or passive voice? What is the perceived effect on the audience?

2.3 Is the learner addressed directly?
- How does the writer refer to her/hisself?
- How does this contribute to the creation of a dialogue between learner and teacher/writer?

2.4 Is there evidence of empathy with the learner? How does this contribute to the creation of a dialogue between learner and writer?
- motivating the learner?

3 Instructional devices

3.1 How clear are the navigational devices (providing the learner with a consistent ‘map’ of the learning process & content), e.g.
- course overview
- list of content
- bulleted learning items for each digestible chunk/mindmap
- marginal notes (e.g. glossaries)
- consistency in unit structure (e.g. headings, sub-headings and chunks of learning)
- consistency in numbering
- cross-referencing to other units/part of units?

3.2 Are reader stoppers used effectively (e.g. page break after unit; graphic line or page division; verbal text indicating a physical break in the learning process)?

3.3 If other media are used, how are they integrated? For example
- audio/video cassettes
- study schools/group visits
- potential group/pair discussions with peers
- online learning elements

4 Visual design

4.1 How does the cover of the guide contribute to the learning experience for all the learners?

4.2 To what degree is the design appropriate to the content of the study material?

4.3 How does the general layout contribute to the learning experience? Does it, for example, provide
- resting space for the eye?
- the impression of an organised, open, caring learning environment in print?
- contrast in foreground and background?

4.4 Are the headings and sub-headings clearly identifiable and easy to spot?

4.5 Is the font readable?

4.6 Are the tables and graphics visually appealing and clear? Do they contribute to the learning experiences?
4.7 *Are the visuals (pictures, photos) clear?*

4.8 *Are the main structural elements clearly identifiable and consistent, such as:*

- introduction
- outcomes
- activities
- feedback
- learning chunks
- conclusion/summary?

4.9 *Are icons appropriately and effectively applied in relation to the level and the content?*

5 Assessment design

5.1 *Formative assessment instruments (e.g. assignments, journals, portfolios)*

- How do the activities in the materials prepare the learner to successfully complete the formative assessment instruments?
- How are formative assessment instruments integrated in learning materials?
- How is the learner guided in terms of the assessment and the relevant study material?
- To what degree are formative assessment instruments aligned with the outcomes?
- How are assessment criteria and level descriptors used for assignments, portfolios, etc. provided to learners?

5.2 *Summative assessment instruments (examination)*

- What is communicated to the learners about the exam?
- How are learners informed about examination paper format, assessment criteria and requirements?
- How are examination questions aligned with the outcomes?
- Is there consistency and coherence from activities to formative assessment instruments to examinations?

5.3 *To what degree is a balance struck between continuous and summative assessment?*

- Is the assessment coherent?
- Is the assessment consistent with the outcomes?

**Evaluation during course delivery**

Because of the nature of the tuition mode in open and distance learning, questionnaires are the most practical and feasible way of gathering students’ responses to their experiences of the course content and its presentation.

Students are asked to complete questionnaires which are sent out in tutorial letters. The questions posed in the questionnaires require them to evaluate various aspects of the course. Respondents can remain anonymous if desired, but are invited to discuss and take up individual issues with their lecturers as well. Questions cover the following range of aspects:
**Course content and relevance:**

- How the content met the student’s expectations
- Which aspects were perceived to be most relevant
- What other themes should be included in this module
- How the assignments linked to reality and whether the student was able to draw on personal experiences
- The overall academic standard of the material
- Is the student considering furthering her/his studies in environmental education?

**Tuition strategy and professional guidance/competence:**

- Relevance of the content of the tutorial letters
- Scope and comprehensiveness of the tutorial matter
- Readability of the tutorial matter
- Frequency of tutorial letters
- Pacing of the learning process
- Guidance provided in the tutorial matter
- Style, tone and layout of the tutorial matter
- Clarity of content and purpose of the tutorial matter
- Relevance of the assignment tasks
- Guidance provided for assignment completion
- Clarity and quality of feedback provided with the marked assignment
- Promptness of feedback
- Responsiveness to support requested

Apart from questionnaires, assignments also serve as evaluation tools which provide course presenters with insight into students’ experiences of *inter alia*

- Accessibility of the language and style used in the tutorial matter
- Comprehensiveness of the tutorial matter to provide a framework for the completion of assignments
- Clarity of guidelines given to approach an assignment
- Applicability of the assignment
- Relevance of the assignment to work place experiences
- Whether the assignment task is sufficiently flexible to provide for the needs and contexts of learners
- Whether the assignment task ensures active student involvement
- Whether the assignment provides the opportunity to achieve the outcomes of the module

The outcomes of these surveys and evaluation reports are made available to, and are analysed by, the course designer and course presenter — who is generally the same person — and it becomes the responsibility of this person to respond to the various issues raised.
Using the evaluation outcomes

The survey instruments and the items to which responses are sought are unambiguously formulated so that the required action to be taken can be easily deduced. For example, if the readings are perceived to lack relevance, it is the task of the presenter to access and make available to students readings that are applicable to the content and context of the section of the course. If the readings are difficult to follow (i.e. the students find the language inaccessible), the lecturer can suggest ways in which to tackle the reading.

Evaluation serves no purpose unless the findings are implemented. Evaluation outcomes help course developers and presenters make important decisions about the future of the course — which aspects should be retained, which need to be strengthened, which need to be revised and which need to be scrapped. Central to any response to evaluation outcomes of environmental education courses is the need to improve environmental learning, and this should be the guiding force behind reviewing evaluation reports and deciding on appropriate responses.

SOME QUESTIONS FOR DISCUSSION:

- What is the purpose of the evaluation? Is it clearly stated?
- What evaluation styles and approaches are the evaluators using? Are they appropriate for the purpose of the evaluation?
- Have the evaluators followed a systematic evaluation process?
- Is the evaluation design feasible and practically implementable, or is it over-ambitious?
- What are the evaluators evaluating, and what are they not evaluating? Are they, for example, evaluating contributions of the course to a community of practice, or application of learning and reflexivity, or are they simply evaluating the ‘mechanics’ of running a course?
- What methods have the evaluators selected for the evaluation? What are the strengths and weaknesses of these methods? Are the methods appropriate for the purpose of the evaluation?
- How have the evaluators approached the analysis of the data?
- What is the evaluation being used for? Could the evaluation findings be used for other purposes?
- Have the evaluators provided information on ethics?
- Have the evaluators provided insight into how they plan to ensure quality in the evaluation process?
- Is there any evidence that the evaluation is leading to reflexive practice?

In this case (Case 5), the author indicates that at the end of the day, environmental education evaluations should provide insight into environmental change/improvements. Is this addressed in the evaluation design presented above? How would one integrate such a focus into course evaluation? Is it an appropriate purpose for environmental education course evaluations?

Consult the different chapters in Section A of this book to critically consider these questions.
Case 6

Evaluation of the National University of Lesotho Environmental Education Course

Context: Higher Education Institution  
Place: Lesotho  
Institution: National University of Lesotho  
Evaluators: Tšepo Mokuku  
Case story author: Tšepo Mokuku

Context

The Environmental Education course was introduced at the National University of Lesotho in view of national and worldwide calls for education that produces critical citizens that are knowledgeable about threats facing the planet, and capable of making choices about survival practices and values that enhance environmentally sustainable livelihoods. The course focuses on the role of the pedagogy in environmental sustainability. It is a semester course and was offered for the first time in August-December 2004.

Since environmental education is pertinent to all programmes, the course is open to all students. It was, however, first offered to 16 students enrolled in the Diploma in Agriculture with Education programme. All these students are prospective secondary school Agriculture teachers.

Evaluation method

A questionnaire was developed to investigate the following four dimensions of the course: the teaching methods used, the qualities of the course lecturer, the course content and the teaching materials used. The author was also the lecturer of the course and the developer of the questionnaire. A colleague was asked to review and comment on the questionnaire prior to administration.

Evaluation results

Teaching Methods

Guided by the commitment to constructivist theories, and an epistemological commitment to knowledge as open-ended and emergent, the general orientation throughout the course was to employ varied, learner-centred teaching methods.
Role-playing and group discussions were considered by the students to be the most preferred teaching methods (see Table 1). The role-play was used when illustrating the nature of environmental problems, with students assuming the role of different groups with varied interests in a poorly managed dumpsite. The role-play illustrated environmental problems as contestable and more than just biophysical problems with technical solutions. Group discussions were used regularly throughout the course.

The lecture method, which was significantly used in combination with other teaching methods during the teaching process, rated the least preferred method (Table 2).

Qualities of the lecturer

The concern most frequently expressed by the students related to the lecturer’s low voice (see Table 4); and several students mentioned ‘a loud voice’ as a quality that the lecturer needs to have (Table 5). The class was small, with 16 participants. Pointing out, at the start of the course, that he had a soft voice the lecturer had asked the learners to inform him if they had difficulty in hearing him properly. However, no students expressed concern about the lecturer’s voice during the teaching of the course. This may require further investigation.

Other lecturer qualities found useful or desirable by the learners are reflected in Table 5 below.

Content covered

Most students felt that the knowledge content of the course was relevant and appropriate. It is noteworthy that many of their suggestions on additional content...
included some form of action to address environmental problems. While the course engaged learners in critical reflection on local environmental problems and their possible solutions, students did not take any practical action to solve identified environmental problems, and there was no provision of specific (technical) procedures for solving problems.

Course Materials

The videos and the handout were perceived to be the most useful resources by the students. Good quality videos were used to illustrate ecological concepts, the concept of biodiversity, and a critical international debate on environmental issues and problems. The handouts and notes were mainly core content that the lecturer prepared for the lessons. Not many additional readings were provided due to a lack of photocopying facilities.

Many students suggested that a textbook should be used in the course. While excursions may be considered a teaching method rather than course materials, they were recommended for the course by several learners.

Conclusion and recommendations

In view of the students’ preference for the use of field trips and excursions, and the pedagogic value of such activities, its regular use in the course needs to be explored. The lecture method was the least preferred in course delivery, even though it was generally interactive and often used in combination with other methods, and the pedagogic significance of an ‘interactive-lecture’ method needs further investigation in this context.

<p>| TABLE 4: Qualities of the lecturer that participants felt interfered with learning |</p>
<table>
<thead>
<tr>
<th>QUALITIES</th>
<th>FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>His low voice</td>
<td>10</td>
</tr>
<tr>
<td>None</td>
<td>2</td>
</tr>
<tr>
<td>Critique</td>
<td>1</td>
</tr>
<tr>
<td>Afternoon classes not effective</td>
<td>1</td>
</tr>
<tr>
<td>Lecturer failed to motivate students</td>
<td>1</td>
</tr>
<tr>
<td>Use of computer in class</td>
<td>1</td>
</tr>
<tr>
<td>Way of asking questions</td>
<td>1</td>
</tr>
<tr>
<td>Pointing at students during discussion</td>
<td>1</td>
</tr>
<tr>
<td>Picking at random</td>
<td>1</td>
</tr>
</tbody>
</table>

<p>| TABLE 5: Participants’ views of desirable lecturer qualities |</p>
<table>
<thead>
<tr>
<th>QUALITIES</th>
<th>FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>He is already a good lecturer</td>
<td>1</td>
</tr>
<tr>
<td>His present qualities are enough</td>
<td>1</td>
</tr>
<tr>
<td>He must talk loudly and in an active way</td>
<td>4</td>
</tr>
<tr>
<td>He should be strict</td>
<td>1</td>
</tr>
<tr>
<td>Place grater emphasis on the practical</td>
<td>3</td>
</tr>
<tr>
<td>Positive attitude</td>
<td>1</td>
</tr>
<tr>
<td>Use all teaching techniques</td>
<td>1</td>
</tr>
<tr>
<td>Have time for the students</td>
<td>1</td>
</tr>
<tr>
<td>Use simple language</td>
<td>1</td>
</tr>
<tr>
<td>No answer</td>
<td>2</td>
</tr>
<tr>
<td>Be lively in class</td>
<td>1</td>
</tr>
<tr>
<td>Inform the class in advance what will be covered in the following lesson</td>
<td>1</td>
</tr>
<tr>
<td>Critical thinking</td>
<td>1</td>
</tr>
</tbody>
</table>

<p>| TABLE 6: Students’ perceptions of knowledge considered unimportant |</p>
<table>
<thead>
<tr>
<th>MOST UNIMPORTANT KNOWLEDGE</th>
<th>FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>7</td>
</tr>
<tr>
<td>No answer</td>
<td>3</td>
</tr>
<tr>
<td>Three worlds of knowledge</td>
<td>1</td>
</tr>
<tr>
<td>Taught in class instead of exploring</td>
<td>1</td>
</tr>
<tr>
<td>Life of organisms living in the desert</td>
<td>2</td>
</tr>
<tr>
<td>Should be a 1-year course, rather than a semester course</td>
<td>1</td>
</tr>
</tbody>
</table>
The students’ identification of the lecturer’s limitations, and their suggestions on how to address them, attest to the significance of drawing on learner perspectives in evaluating the lecturer for efficient course delivery.

Some learners suggested that some form of action should be undertaken to solve environmental problems during the implementation of the course. This is in line with the objectives of the course, but for the class to take meaningful action within the existing time constraints presents a great challenge.

Many students preferred the use of videos in class. The purchase of low-cost equipment that the class might use to develop videos on the local environment could enhance the teaching. The core-text will continue to be used in the course and will meet the students’ apparent need for ‘handouts’. A textbook has also been identified for use in the course.

Editor’s note:
This semi-structured questionnaire survey raises a number of issues. Firstly, it focuses excessively on what teaching strategies learners preferred, such as role-play or video, although there is no evidence that they are effective. Preferred teaching strategies may even enable/facilitate learning since students are not placed in a position where they have to grapple with uncomfortable conceptual discontinuities or ‘make meaning’ in difficult circumstances. Secondly, role play is sometimes treated as merely a game and this may trivialise the learning. While the use of a questionnaire illuminated some significant pedagogic issues, more critical and rigorous evaluation methodologies are needed to complement the questionnaire.

### TABLE 7: Additional content suggested by learners

<table>
<thead>
<tr>
<th>ADDITIONAL CONTENT</th>
<th>FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>No answer</td>
<td>3</td>
</tr>
<tr>
<td>Content was enough</td>
<td>3</td>
</tr>
<tr>
<td>What should be done to stop environmental problems</td>
<td>4</td>
</tr>
<tr>
<td>Use videos to show students real life situations</td>
<td>1</td>
</tr>
<tr>
<td>Research about the environment to look at things positively and negatively</td>
<td>1</td>
</tr>
<tr>
<td>This should be a 1-year course</td>
<td>1</td>
</tr>
<tr>
<td>Experiment with some practical work such as donga reclamation</td>
<td>1</td>
</tr>
<tr>
<td>Demonstrate in the nearby villages or at our campus</td>
<td>1</td>
</tr>
<tr>
<td>Soil and water conservation, not only animals involved</td>
<td>1</td>
</tr>
</tbody>
</table>

### TABLE 8: Course materials found most useful for the course

<table>
<thead>
<tr>
<th>COURSE MATERIAL</th>
<th>FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Videos</td>
<td>14</td>
</tr>
<tr>
<td>Handouts</td>
<td>11</td>
</tr>
<tr>
<td>Notes</td>
<td>6</td>
</tr>
<tr>
<td>Educational excursion</td>
<td>1</td>
</tr>
<tr>
<td>Showing the dumpsite at Ha-Tšosane</td>
<td>1</td>
</tr>
</tbody>
</table>

### TABLE 9: Suggested additional course materials

<table>
<thead>
<tr>
<th>COURSE MATERIAL</th>
<th>FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excursions</td>
<td>4</td>
</tr>
<tr>
<td>None</td>
<td>2</td>
</tr>
<tr>
<td>Textbook that can be used by both teachers and students</td>
<td>7</td>
</tr>
<tr>
<td>Demonstration</td>
<td>1</td>
</tr>
<tr>
<td>Teaching aids</td>
<td>1</td>
</tr>
<tr>
<td>Material used was enough</td>
<td>1</td>
</tr>
<tr>
<td>Use of videos</td>
<td>1</td>
</tr>
<tr>
<td>Charts</td>
<td>1</td>
</tr>
<tr>
<td>Real material, like herbs, brought to the class</td>
<td>1</td>
</tr>
<tr>
<td>Visit villages to demonstrate the importance of conserving environment</td>
<td>1</td>
</tr>
</tbody>
</table>
SOME QUESTIONS FOR DISCUSSION:

- What is the purpose of the evaluation? Is it clearly stated?
- What evaluation styles and approaches are the evaluators using? Are they appropriate for the purpose of the evaluation?
- Have the evaluators followed a systematic evaluation process?
- Is the evaluation design feasible and practically implementable, or is it over-ambitious?
- What are the evaluators evaluating, and what are they not evaluating? Are they, for example, evaluating contributions of the course to a community of practice, or application of learning and reflexivity, or are they simply evaluating the ‘mechanics’ of running a course?
- What methods have the evaluators selected for the evaluation? What are the strengths and weaknesses of these methods? Are the methods appropriate for the purpose of the evaluation?
- How have the evaluators approached the analysis of the data?
- What is the evaluation being used for? Could the evaluation findings be used for other purposes?
- Have the evaluators provided information on ethics?
- Have the evaluators provided insight into how they plan to ensure quality in the evaluation process?
- Is there any evidence that the evaluation is leading to reflexive practice?

In this case (Case 6), the author has evaluated certain aspects of the course. To do this he used a questionnaire. What other aspects of the course could he have evaluated, and what other methodologies and approaches could he have used? What kind of findings would these methodologies and approaches provide?

Consult the different chapters in Section A of this book to critically consider these questions.
Case 7

Evaluation plan for a Pre-Service Teacher Education Course at Mufulira College, Zambia

Context: Pre-service teacher education
Place: Zambia
Institution: Mufulira College, Zambia
Evaluators: Evaristo Kalumba and stakeholders
Case story author: Evaristo Kalumba

Context

This pre-service teacher education course at Mufulira College of Education, in Zambia, is an environmental education modular course that was incorporated into an existing teacher education programme which has been running for two years. The students spend one year at the college and another in the field.

Purpose of the evaluation

Many courses developed in the past failed to provide for an evaluation process to help determine whether their purposes were being achieved. The evaluation of the pre-service teacher education course, to be conducted after the course is piloted, will have the purposes of monitoring, gaining support for, and adding value to the course, as well as reporting to the funders.

Evaluation approach

Based on the Zambia Teacher Education Course (ZATEC) principle of training students in being reflective, the approach adopted in the evaluation process will be student- and tutor-centred. With this principle in mind, students are inducted at the beginning of the ZATEC course to use log books in which they reflect on each lecture and school experience when they are in the field. The tutors are trained to do the same for their lectures and other activities.

The Curriculum Development Centre of the Ministry of Education will also be involved with the core group in evaluating the course, so that the results of the evaluation process can be triangulated and considered in relation to policy achievement.
What to evaluate and why?

The evaluation exercise will be holistic and therefore aim to cover several issues, including the course structure and orientation as well as its content. The relevance of the course is a crucial issue in Zambia, since the course is linked to the objectives of the National Educational Policy of 1996. The materials will also be evaluated, as they constitute a further critical area linked to learner support in course development. The evaluation will investigate what materials have been developed and whether they are being used in colleges and schools in Zambia.

Tutors and learners will be another focus of the evaluation. Data will be generated on their roles and experiences through the reflections in their log books about their course experiences. It will be necessary to involve the tutors and the learners in the evaluation because they are the main group responsible for promoting changes in attitudes and practices. Tutor and learner engagement in the environmental education activities will therefore be an important aspect of the evaluation.

A key outcome of the evaluation will be to show whether the course needs improvement and reorganization. The course outcome indicators can possibly be measured through action research portfolios, projects and other assignments to be carried out by the students.

Evaluation approaches

Several evaluation methods will be used in the process. By using various methods one is able to ensure a more reliable opinion that is derived from various perspectives. For example, a questionnaire can be used to get the tutors’ and learners’ opinion on specific issues. Assignment analysis sheets will be used to measure the effectiveness and responsiveness of the course among students and the community. Reflections, as an evaluation tool, will be used to assess the learners’ opinions about the course throughout course implementation. Negotiations and interviews will be used to establish the extent to which the course can permeate into the colleges, schools and community. The findings from the various evaluation methods will be analysed and compared, so that conclusions can be made.

Use of the evaluation findings

The evaluation findings will be used to report to the funders, course development partners and other environmental education stakeholders. Funders will need to be informed about how the funds they provided were spent. Institutions such as the curriculum development centre in Zambia will need to be informed about how the incorporation of an environmental education course can enrich and make the curriculum more meaningful and beneficial to the implementation of educational and other policies in Zambia. Colleagues in the college could also benefit from the report as they can compare the methods and tools used in evaluating environmental education with those used in other courses. The findings of the evaluation process will also be used to inform course developers and help them decide whether the course outline needs to be changed in order to enhance the course.

The findings should be especially valuable for curriculum change in teacher education as a whole. This being the first evaluation of an environmental education course in teacher education, it will hopefully reflect on how effective such a course can be in bringing about change to benefit the local needs of the society. The evaluation report
will be presented to the Ministry of Education and will be used to help incorporate cross-cutting issues that other stakeholders are advocating — such as gender and human rights — within the teacher education curriculum and time table.

**SOME QUESTIONS FOR DISCUSSION:**

- What is the planned purpose of the evaluation? Is it clearly stated?
- What evaluation styles and approaches are the evaluators planning to use? Are they appropriate for the purpose of the evaluation?
- Have the evaluators designed a systematic evaluation process?
- Is the evaluation design feasible and practically implementable, or is it over-ambitious?
- What are the evaluators planning to evaluate, and what will they not be evaluating? Will they, for example, evaluate contributions of the course to a community of practice, or application of learning and reflexivity, or will they simply evaluate the ‘mechanics’ of running a course?
- What methods are the evaluators planning to use for the evaluation? What are the strengths and weaknesses of these methods? Are the methods appropriate for the purpose of the evaluation?
- How will the evaluators approach the analysis of the data?
- What is the evaluation being used for? Could the evaluation findings be used for other purposes?
- Have the evaluators provided information on ethics?
- Have the evaluators provided insight into how they plan to ensure quality in the evaluation process?
- Is there any evidence that the evaluation will lead to reflexive practice?

In this case (Case 7), the author indicates that course evaluation is not a widely practiced activity. Their plans are to involve other colleagues in the evaluation. What suggestions can you provide to strengthen collaboration in course evaluation in this institution? What strategies would be most useful in involving the Ministry of Education in such an evaluation process?

Consult the different chapters in Section A of this book to critically consider these questions.
Case 8

Evaluation of the Masters Degree Programme in Environmental Education at Rhodes University, South Africa

Context: Higher Education Institution
Place: South Africa
Institution: Rhodes University
Evaluators: Heila Lotz-Sisitka and M.Ed student group
Case study author: Heila Lotz-Sisitka

Purpose of the evaluation

The purpose of the evaluation in the M.Ed (Environmental Education) programme is threefold:

- To evaluate the course formatively so that the course can change responsively during the two-year period
- To evaluate the course summatively to provide insights that will inform future courses
- To provide a learning opportunity for course participants to design and undertake educational evaluations.

Approaches used in the evaluation

The evaluation is participatory. As part of the module on evaluation, course participants are introduced to a range of evaluation theories and methodologies, and are asked to draw on these theories and methodologies to design an appropriate evalua-
COURSE EVALUATION IN ADULT EDUCATION PROGRAMMES

What was evaluated and why?

The aspects of the course which participants decided to evaluate, and the methods to be used, are shown in Table 1. Different evaluation activities were built into the course to consider some of the aspects outlined in the table. However, not enough time was allowed for the evaluation to develop in a critical and constructivist manner, as course participants did not have enough time to participate in a detailed analysis of the evaluation data. In constructivist evaluations, adequate time needs to be allocated to the participatory synthesis of data and to make claims that are negotiated and accepted by all concerned. Much of the analysis was done towards the end of the course in the form of a summative review of all available evaluation data.

<table>
<thead>
<tr>
<th>ASPECTS EVALUATED</th>
<th>EVALUATION METHODS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course design and orientation (e.g. the deliberative curriculum, the research-based course design, the participatory nature of the course, the reflexive and critical nature of the course)</td>
<td>Questionnaire Focus group discussions Reflexive review of progress on course</td>
</tr>
<tr>
<td>Course components (research-based activities, materials, course sessions, assignments, tasks, excursions, presentations)</td>
<td>Assignments Focus group discussions Reflexive review of experience of different course components</td>
</tr>
<tr>
<td>Course contents (broad focus and specific themes)</td>
<td>Questionnaire Reflection on course themes in relation to assignment progress and progress on course</td>
</tr>
<tr>
<td>Course outcomes (exit level outcomes and specific outcomes)</td>
<td>Questionnaire Focus group discussions on progress being made in relation to intended course outcomes</td>
</tr>
</tbody>
</table>

Use of the evaluation findings

The formative evaluation findings were used to improve the course. For example, halfway through the course, tutors realised that course participants were not reading with depth, and additional activities were introduced to strengthen critical reading and synthesis skills.

The summative review of all the formative and summative evaluation data will be used to inform the next course. Of most value in this evaluation process, however, was
the process of designing and undertaking an educational evaluation, i.e. the undertaking of a course evaluation as a learning process. It allowed the course participants to develop an insight into different evaluation trends, theories and methodologies, and to explore some of these in the context of their own course.

**SOME QUESTIONS FOR DISCUSSION:**

- What is the purpose of the evaluation? Is it clearly stated?
- What evaluation styles and approaches are the evaluators using? Are they appropriate for the purpose of the evaluation?
- Have the evaluators followed a systematic evaluation process?
- Is the evaluation design feasible and practically implementable, or is it over-ambitious?
- What are the evaluators evaluating, and what are they not evaluating? Are they, for example, evaluating contributions of the course to a community of practice, or application of learning and reflexivity, or are they simply evaluating the ‘mechanics’ of running a course?
- What methods have the evaluators selected for the evaluation? What are the strengths and weaknesses of these methods? Are the methods appropriate for the purpose of the evaluation?
- How have the evaluators approached the analysis of the data?
- What is the evaluation being used for? Could the evaluation findings be used for other purposes?
- Have the evaluators provided information on ethics?
- Have the evaluators provided insight into how they plan to ensure quality in the evaluation process?
- Is there any evidence that the evaluation is leading to reflexive practice?

In this case (Case 8), the authors explain that one of the purposes of the evaluation was to enable course participants to learn about evaluation options, possibilities and methodologies. The course participants chose a particular methodology that did not appear to be feasible given the time demands in the course. How could the course evaluators (tutor and course participants) have dealt with this problem? What advice would you give them?

*Consult the different chapters in Section A of this book to critically consider these questions.*
Appendix A — Evaluation: A Brief Historical Context

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Introduction

Many of us assume that monitoring and evaluation will provide us with clear messages about how our projects and programmes are going and how we can change them to make them better. Unfortunately this assumption is seldom true. Monitoring and evaluation, if done well, can certainly help but we must be careful of our assumptions and expectations.

The search for universal definitions and procedures that will capture all of what we would like to achieve through monitoring and evaluation is probably an illusion of modernist thinking. More useful, perhaps, is the recognition that at different times and in different places different forms of evaluation have been appropriate, and it is a testimony to our creativity that there are probably as many forms of evaluation as there are contexts for evaluation.

Scriven summarised the situation as follows:

The proliferation of evaluation models is a sign of the ferment of the field and the seriousness of the methodological problems which evaluation encounters. In this sense it is a hopeful sign. But it makes a balanced view very hard to achieve; one might as well try to describe the “typical animal” or the “ideal animal” in a zoo. (Scriven in Worthen and Sanders, 1987:43)

Rather than trying to propose one method for doing evaluation within environmental education, these notes offer a broad overview of the emerging ideas and some of the key questions that have helped to shape (been shaped by) the many and varied debates around monitoring and evaluation.

Some definitions

Despite the difficulty (impossibility) of developing a universal definition of evaluation, different definitions have been useful for focusing and clarifying our discussions.

- Tyler (1950): The process of determining to what extent educational objectives are actually being realized.
- Scriven (1969): The assessment of merit or worth.
- Nevo (1983): Evaluation is the systematic investigation of various aspects of professional development and training programmes to assess their merit or worth.
- Evaluation is the systematic acquisition and assessment of information to provide useful feedback about some object.
Early evaluation

Developing instruments to evaluate individual performance can be traced back to 2000 BC, testing proficiency of public officials in China.

By World War One, in the US, 40 large school systems were engaged in large-scale assessments of school achievement. Most of these assessments were comparative studies based on standardized testing.

Ralph Tyler began to use the term “evaluation” in the 1930’s.

The educational testing model was characterized as measurement-orientated, quantitative in nature, utilizing quasi-experimental designs and based on positivistic assumptions concerning the nature of knowledge and reality.

- Is it possible to apply standardized tests to a diversity of situations?
- Is it possible to isolate variables and then compare them across situations?

In the early 1930’s, Tyler conceptualized curriculum as a series of planned school experiences, which were designed and implemented with the aim of helping students achieve certain outcomes. These outcomes could be specified in behavioural terms, and could also be assessed by tests drawn up specifically for the purpose.

This orientation to evaluation had a particular appeal during the Second World War and was closely linked to the advances in the technologies associated with psychometric testing and measurement.

The tests were based on intended outcomes and referenced directly to the content of the curriculum. Evaluation was therefore based on evidence relating to the intended outcomes of the curriculum (criteria).

- Is the focus on intended outcomes/objectives and products too limiting?
- Does the attempt to create objectively verifiable indicators result in meaningless measurement?
- Why are the objectives themselves not evaluated?

In 1957 the Russians launched the Sputnik. This amazing achievement unsettled the people of the United States, who had always assumed they were ‘way ahead’ in terms of scientific progress. Calls for reform of the curricula were then made in the United States (and Britain), and an increased emphasis was placed on evaluation as an assumed means of ensuring success.

The emphasis on innovation was not limited to education — the Johnson Administration developed the plan for the “Great Society”. This development had, within it, the early seeds of Development Aid.

The limitations of previous evaluation methods and assumptions began to be progressively challenged, and much of the development of evaluation methodology in the 1960’s and 1970’s was a reaction to the limitations of psychometric testing and behavioural objectives.
Some developments through time

1963: Lee Cornbach proposed that the aim of evaluation should be to provide information for decision-making.

Stake (1967) and Stufflebeam (1971) proposed that evaluation needed to be more holistic in its approach.

Eisner (1967) pointed out the importance of unintended outcomes.

Stufflebeam (1971) developed the CIPP model which emphasized the importance of context, inputs, process and product.

Scriven (1972) developed a model focusing on Goal Free evaluation that tried to move beyond the narrow focus on predetermined outcomes.

1970's: The criticism of evaluation methodologies became more fundamental and challenged the dominance of the scientific method and the current understanding and assumptions about knowledge.

1972: Parlett and Hamilton proposed a new model of evaluation they termed “illuminative”. They recognized that many areas of evaluation are complex, dynamic systems, involving a complexity of influences and realities that cannot be separated from their broader context. The evaluator’s role was essentially interpretive and the aim of the evaluation was to “illuminate” (throw light upon) dimensions of particular situations. In recognizing the relativity of the understanding of the evaluator and the essential subjectivity of the evaluation process they opened the way for others to develop interpretive approaches.

In 1974 Stake suggested a responsive model for evaluation. Responsive evaluation was based on the issues and concerns of those involved within a programme, as well as the issues and concerns of the audiences of the evaluation. The term “stakeholder” was used to emphasise those having a vested interest or concern in the project or development processes. This implied progressive focusing of an evaluation, to enable these concerns and issues to surface.

Guba and Lincoln (1981) drew on these ideas in developing what they termed “fourth generation evaluation”. This approach (described as “responsive constructivist evaluation”) emphasizes participation in the construction of the parameters, focus and outcomes of the evaluation. They also emphasise the socially constructed nature of the evaluation outcomes.

- To what extent did the evaluation models in this period question the basic assumptions in relation to technology, science and knowledge?
- How do we measure complex social processes?
- Whose knowledge counted?

Under the influence of critical theory, the “participatory” turn in educational research and the democratizing political process, participatory action research has been introduced as a model for evaluation in which critical self reflection is placed at the heart of the evaluation process.
COURSE EVALUATION IN ADULT EDUCATION PROGRAMMES

Questions and issues

The results of interpretivist evaluations are often criticized as lacking objectivity and being unscientific.

If the evaluators are lacking in interpretive skills it is very easy to get lost in the complexity and to end up with shallow or unuseful insights.

These evaluations may produce varying, contradictory or incomplete results/insights. Another concern is that the evaluations may lack a critical dimension — there is no challenge to the stakeholders’ judgments.

- How does an internal evaluator create opportunities for “external moderating mechanisms” and critique in participatory action evaluations?
- What evaluative processes may ensure rigour appropriate to particular methodologies?

The situation is however not one of a simplistic shift towards more democratic and process-orientated evaluations. Harland (1996) argues that against a background of increasing interest in efficiency, effectiveness and economy evaluation has acquired a control function. The function of evaluation is the shaping and reshaping of the programme to fulfil certain aims and objectives. Harland distinguishes aspects of the control function concerned variously with compliance, patterning and surveillance:

- **Compliance** — whether you are doing what you should; and if not, why not.
- **Patterning** — a subtle process through which the participants in the programme come to adopt the language through which the values of the originators of the documents (or some broader social discourses) are expressed.
- **Surveillance** — essentially the monitoring of the project, although it could become a part of the evaluation if the information requirements of the funders come to override the requirements of the programme participants.

- How do we avoid dressing up the control function in participatory and democratic rhetoric?
- What approaches can we use to reveal and understand better the issues of power and influence within evaluation as a process?
- How do we as evaluators place greater emphasis on the developmental and emancipatory potential of evaluation as a process?

Harland does not deny that evaluation can serve managerial and enlightening functions (amongst others). However, the tendency is to see evaluation as a control and management tool which is increasingly shaped by technocratic criteria (e.g. logframes).

Reflexivity can be understood as the bending back of a process in such a way that our actions, and the understandings that shape and come to be shaped within these actions, are examined and in the course of that examination we come to change the processes themselves. The insights gained from the evaluation are best shared within and through collaborative endeavour, rather than using them to engineer or facilitate the change of “others”.

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Within the changing and contested arena of evaluation is it possible to accept a multi-method approach?

Evaluation can thus be viewed as an “integral critical element within a process of social change” (O’Donoghue, 1986). This understanding of evaluation has resonance with an understanding of environmental education processes as supporting a critical reflection on environmental issues and risks, their underlying historical causes, the appropriateness of responses and possible courses of individual and collective action. This has led to a number of writers suggesting that environmental education processes are both evaluative and evaluated.

Realistic evaluation

A ‘realistic evaluation’ framework suggests that by probing with Project participants what works, when and where, and what doesn’t work, when and where, one is able to engage in deeper learning about the work, in ways which would inform future planning and activities. A ‘realistic’ methodology combines elements of participatory research (which maximises participatory involvement) with a framework for evaluating a project against criteria such as impact, effectiveness, relevance, equity and sustainability. The participatory manner of working characterises the evaluation planning, data generation and interpretation processes. Interviews are not seen as one-way extractions of information; the member of the evaluation team conducting the interview is allowed to explain the thinking behind questions, and indeed to offer and develop his or her own opinions and emerging hypotheses, as a way of actively generating responses to developing insights (collaborative meaning-making). This principle is also applied in the report-and-respond instrument.

A Report-and-Respond instrument

A Report-and-Respond (R&R) instrument is a hybrid tool for generating and interpreting data, a mix between a draft report and a questionnaire. The evaluation team drafts the R&R in a number of independent sections, summarising all the inputs received (from interviews, case examples, etc), and suggests emerging interpretations. Each R&R draft chapter includes a set of questions, interspersed with the reported data, inviting readers to give further examples to illustrate a point, dispute a point, give contradictory examples, make practical suggestions on how the Project should address a particular emerging issue, or rank items according to perceived priority. In addition, readers may comment on, suggest changes to, or in any other way engage with the rest of the text. The R&R instrument therefore provides a technique for going deeper into the research data and enables all concerned to ‘get-beneath-the-skin’ of what are often superficial interpretations and develop more collaborative meaning making or co-construction of ideas and interpretations. The R&R process, if used successfully, can also provide a framework and structure for the evaluation report.

Meaningful evaluations are unique to a particular social context

In any evaluation the nature of the entity to be evaluated gives rise to a number of key issues, which influence how one goes about the evaluation. Each social context is also

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1 Adapted from Pawson, N. & Tilley, N. 1997. Realistic Evaluation. SAGE, London

2 We first came upon the R&R instrument when its use was described by Ian Stronach and Maggie Maclure in Chapter 6 of their book, Educational Research Undone, published in 1997 by Open University Press, Buckingham.
unique and it is important that the evaluation is responsive to such contexts and does not excessively disrupt the project, unless such disruption is likely to make a useful contribution to the project’s growth or understanding. In this situation the evaluation team needs to be conscious that ‘knowledge springs from discontinuity’ and understanding does not only develop from the rational accumulation of information.

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Appendix B —

Environmental education course evaluation checklist

1. Why evaluate?
   - Purpose of course evaluation
   - Types of course evaluation
   - What to evaluate
   - When to evaluate
   - How would course evaluation shape course delivery mode?
   - Who would benefit from the course evaluation findings?

2. How do we evaluate courses?
   - Using frameworks or forms
   - Contextualising the frameworks for your course evaluation
   - Identifying the strongest features of the course
   - What contributes most to learning?
   - What specific suggestions do you have for changes that I can make to improve the course or how it is taught?
   - How is the pace of the course?

3. Evaluating the physical and learning environment
   - Are the physical facilities provided for this course appropriate (e.g. classroom space, structure and furnishing)?
   - Is the number of participants in the course acceptable?
   - Are all the materials required for the course available?
   - Is the general climate in the course good for learning?

4. Evaluating the course content and design
   - Is the course content appropriate for the level?
   - Is the course content logically organised?
   - Are the course objectives clearly stated?
   - Is the course content correlating with the course objectives?
   - Is the course content adequate for the length of the course?
   - Are the course materials clear and easy to understand?
   - Is there any unnecessary content included in the course?
5. Evaluating the course structure

- Are the course assignments contributing to your learning?
- Is the course tutor responsive to your learning needs?
- Is the course tutor using a variety of methods to help you learn? Were the course objectives clearly explained?
- Are the course requirements, projects or exams explained adequately?
- Is the course outline consistently followed?
- Is there close agreement between the stated objectives and what was actually taught? Did the course content match the course objectives?
- Is the course relevant to your work?

6. Evaluating the tutor

- Is the tutor a good teacher?
- Would you recommend the course to any other person?
- Does the course tutor provide enough time for questions and discussions during class time?
- Does the tutor use concrete examples to explain concepts?
- Is the tutor able to simplify difficult material?
- Is the tutor well prepared for tutoring?
- Do you feel involved in the course?

7. Evaluating the course and its contents

- Were the course objectives clearly explained?
- Are you learning a great deal from the course? Is the course contributing to your professional training?
- Do you have more appreciation of the environment as a result of taking this course? Are you learning to value new environmental viewpoints?
- Is the course outline an accurate description of the course?
- Is the appropriate amount of content presented in this course?
- Is the course content dealt with in great depth?
- Are the course assignments appropriate?
- Are the assignments helping you learn? Is the length of the assignments adequate?
- Is the course fulfilling your expectations?
- Is the level of difficulty in this course appropriate?
- Is the course material helping you to learn the subject matter?
- Is the difficulty level of the assigned reading appropriate?
- Is the evaluation method fair?
- Are the course methods clearly explained?
- Is the evaluation method reflecting the important aspects of the course?
8. Evaluating course effectiveness

- Knowledge — e.g. of course contents or rules related to course goals
- Skills acquired during the course — e.g. diverse and related to course objectives
- Attitudes — e.g. motivation, morale, values, and prejudices
- Appeal of the course to learners — e.g. for educational value, relevance to one’s career path, desirable and enjoyable (motivating and stimulating)
- Implementation — e.g. were there disturbances, deviations, etc.

9. What will be the use of the course evaluation results?

- Significance to course delivery?
- Relevance to the course?
- Relevance to learners, tutors, decision makers, or funders/sponsors?
- Role in future course review/revision?

NB: Depending on the reasons for evaluation, you may add a section or sections if you feel the above do not cover all aspects that you feel would be relevant to your course evaluation.
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Southern Africa is challenged by many environmental and development issues. Education has been identified as an important response to environment and development issues. These source books have been developed to support course developers to strengthen aspects of course development in support of environmental and sustainability education processes.

There are five source books in this series:

Source book 1: Deliberating curriculum frameworks in adult learning
Source book 2: Supporting adult learning and tutoring
Source book 3: Course materials development for adult learning
Source book 4: Development, adaptation and use of learning support materials
Source book 5: Course evaluation in adult education programmes

The sourcebooks draw on the experience of a range of course developers in southern Africa, and are an output of the SADC Course Development Network, established by the SADC Regional Environmental Education Programme in 1999, and funded by Sida. The Course Development Network was strengthened with additional partnership funding and technical support from Danida between 2001-2004. Course experiences informing the books are drawn from a range of southern African country contexts including: Zimbabwe, Zambia, Namibia, Botswana, Swaziland, Lesotho, Mauritius and South Africa (amongst others). The source books therefore provide a regional vantage point on issues of transforming education to address Africa’s socio-ecological and development questions.

The source books are produced at the start of the United Nations Decade on Education for Sustainable Development, and aim to provide inspiration and support to other course developers who are trying to mainstream environment and sustainability into universities, colleges and other life-long learning courses.