ALTERNATIVE ASSESSMENT METHODS: IMPLICATIONS FOR ENVIRONMENTAL EDUCATION

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INTRODUCTION

The need to build an equitable system of education and training

South Africa is embarking upon a period of much needed educational and training reform. Numerous challenges face South Africans who are committed to an equitable, just and unified system of education and training that is also regarded as of high quality.

It is essential that all South Africans are given the opportunity for learning and personal development which, in turn, will allow them to contribute to and gain from economic growth. There must be provision for life-long learning for those who have been denied opportunities in the past.

The need to improve the quality of education and training

The country clearly lacks a productive work force that can meet the needs of employers and contribute to economic growth. The fact that a large proportion of South Africans have had little or no access to education and training in the past is largely responsible for the inadequately skilled work force. One also needs to look in a critical manner at the nature of training and education. Traditionally academic learning was stressed at the expense of vocational learning and there were no structures in place to facilitate movement between the two systems. Furthermore, academic learning tended to focus on low-level thinking at the expense of analytical, critical or creative thinking. Learners were often passive voyeurs in the classroom, rather than active participants in the learning process. As a result, many learners left the classroom without the abilities and skills needed in the world beyond the classroom.

The aim of the National Qualifications Framework (NQF) is to establish a structure whereby an integrated approach to education and training may be achieved and social, economic and personal needs fulfilled. An important paradigm shift that will accompany the introduction of the NQF is the adoption of an outcomes-based education and training system. Such a paradigm shift will have significant implications for the nature of teaching and the assessment methods used.

OUTCOMES-BASED EDUCATION (OBE)

What is meant by an outcomes-based approach?

An outcomes-based approach is a means whereby success for all students can be achieved through a focus on student outcomes and curriculum/assessment alignment. Outcomes-based instruction and learning requires a paradigm shift from a focus on teacher input to learner outcome. Advocates of an outcomes-based approach consider current practices in education to be warped because they focus on the means rather than the ends of instruction. The outcomes-based approach has its roots in educational thought that has developed over the past thirty years. It is considered to be a melding of the principles of mastery learning and criterion-referenced assessment into coherent reform that addresses many current ills in education.

Outcomes may be thought of as the end products of a learning process. In the literature on the NQF a distinction is drawn between essential outcomes and specific outcomes. Essential outcomes are those outcomes that underpin the system in that they are cross-curricular and generic in nature. Communication and problem solving skills could be considered two such essential outcomes. Specific outcomes, on the other hand, are those that can be demonstrated or achieved within a specific context or area of study. Outcomes are seen to be the departure point when planning an educational programme. One should begin by clearly stating what outcomes a learner should demonstrate at the end of a course of study. Programmes of learning are then designed to help the learners achieve these outcomes. Programmes must, however, be flexible, allowing room for unintended outcomes of the learning process. It is important to see an outcomes-based

approach as a process, rather than as a recipe for programme development.

A popular development

Internationally outcomes-based education is a very popular option in current debates on educational reform, offering sound and practical suggestions. The notion of an outcomes-based approach to instruction and learning is attractive to many educational stakeholders:

* Policy makers frequently view the outcomes-based approach as a useful platform from which to propose educational reform.

* The philosophy that underpins the outcomes-based approach, namely that all learners can achieve the desired outcomes, appeals to both teachers and learners.

* The alignment between policy, curriculum and assessment promotes a more unified educational system.

* Potential employers are encouraged by education becoming more responsive to the needs of the world of work; this in turn implies the involvement of employers in decisions on educational outcomes.

* Outcomes-based education promotes professional accountability in that it inspires teachers to question their teaching practices and strengthens the link between teaching and assessment.

* Outcomes-based programmes already in operation report positive results including higher test scores and improved student motivation.

Outcomes-based education should, however, not be regarded as a panacea for all educational ills. There are significant implications of and challenges posed by the introduction of such an approach, many of which are still being debated internationally.

While, on the whole, impressions of outcomes-based education have been favourable, it is difficult to evaluate as an educational reform because approaches vary considerably depending on the contexts within which programmes are implemented. It is important to address the following issues when introducing an outcomes-based approach:

Who will determine what the outcomes will be?

If outcomes are determined by policy makers at the central government level standardisation of outcomes will result and educational quality may become questionable. Standardisation requires everyone to be slotted neatly into the same system. The needs of individual students may be disregarded and the distinctive nature of local contexts lost. Those in political power may prescribe valued outcomes and there is a danger that cultural minorities may be excluded from the process.

> What is validated as knowledge and what is counted as important to learn, far from being politically neutral, remains under the influence of the power of those who determine the outcomes. (Capper & Jamison, 1994:426).

If outcomes are, however, left to the discretion of individual teachers, the issues of subjectivity and comparability surface. In South Africa, where many teachers are under-qualified and have had limited professional responsibility, the burden of determining and measuring outcomes may be considerable.

Clearly the involvement of as many and varied a group of stakeholders as possible in the determination of outcomes is the ideal solution. Such an approach will inevitably be time consuming and costly.

With what degree of specificity should outcomes be defined?

If outcomes are phrased too broadly they become ambiguous and interpretation thereof highly subjective. It will, as a result, be extremely difficult to make reliable judgements on what learners can or cannot do. On the other hand, outcomes may be phrased extremely narrowly and thus become too detailed and prescriptive. Small, discrete and unrelated aspects of behaviour may be measured, providing limited insight into the general competence of the learner.

How can an active learning process be ensured?

Outcomes may come to be seen as a pre-specified list that a learner has to master and 'tick-off'. Outcomes should rather be seen along a continuum against which performance can be monitored

(Masters, 1994). This will promote an active rather than a passive approach to learning and will provide scope to demonstrate excellence.

ASSESSMENT

The need for assessment reform

Discussion on educational reform inevitably involves debate on how such programmes should be assessed. This is considered to be essential if the validity of the assessment is to be ensured and if assessment is not to inhibit curriculum change. Outcomes-based education necessitates a close link between curriculum and assessment as well as the introduction of new assessment methods. Workable, balanced and valid assessment can be seen as the hub around which the outcomes-based wheel rotates.

Assessment has in the past been used mainly for purposes of selection. Stress has been placed on summative evaluation and, in particular, the once-off, final examination. This has been justified by the argument that examinations are an objective assessment mechanism that has the advantage of identifying talented individuals who will be able to play an active role in the economy. In recent years there has, however, been growing criticism of traditional methods of assessment. There is a growing belief that school-leaving students are ill-prepared for work or for tertiary study. This is a concern to governments and to private enterprise who have to compete in an increasingly competitive world economy (Furman, 1994; Hywel-Davies, 1988; Oakland & Hambleton, 1995). Major areas of concern include:

* End-of-course examinations have tended to focus on skills and factual knowledge that can be assessed in a short and structured time period.

* An over-emphasis on academic skills has led many students to be labelled non-academic and have to be excluded from the certification process.

* Grades have only been norm-referenced. Thus information on the specific abilities and skills of a student is not available. One only knows how well a student performed relative to a group of students.

* Competitiveness and the once-off nature of the final examination have led to students experiencing stress and frustration.

* Teachers have tended to 'exam-teach' at the expense of broader educational objectives.

* Assessment feedback has not adequately described the knowledge, skills and abilities that students have learnt, nor have they provided adequate feedback for career and vocational planning.

In South Africa, at present, students' education culminates in a set of once-off examinations for the school subjects that they have chosen. The matriculation examination system is questionable in terms of its assessment functions:

* Few employers, tertiary institutions or outside agencies are satisfied that the final examination is a successful selection instrument.

* Its diagnostic function is extremely limited in that as it takes place at the end of the student's school career, the information derived therefrom is of little value as a guide to future action. Furthermore, the secrecy that surrounds the examination means that few teachers gain diagnostic information therefrom.

* The final examination has had a strong monitoring and control function; but this is seen to have played a considerable role in maintaining separate and unequal education in South Africa and hence brought the role of assessment in South African schools into question (King & Van den Berg, 1992).

The final examinations have tended to focus on the recall of facts and lower-order learning objectives at the expense of skills and conceptual knowledge. The examinations have also placed undue emphasis on linguistic ability and thus have not revealed the true potential of the large number of candidates who

wrote matriculation in their second or frequently third language. Furthermore, the school leaving examination has taken the form of norm-referenced assessment which means that assessment procedures discriminate between the achievements of pupils relative to one another. This also raises the issues of validity and reliability, given the vast inequalities between the former education departments. Finally, the emphasis placed upon the final examination has strongly affected teaching and learning in the years preceding the final year of schooling. Teachers are frequently judged by the way their students perform in the final examinations. Hence they spend their time instilling strategies in their students that will allow them to cope with examinations and the approach to learning that they require. Thus broader educational objectives are frequently overlooked.

> If teachers, in a well-meaning spirit lead their pupils by the nose through the demands of an assessment system, pupils fail to learn how to learn independently. Instead, some learn a whole range of 'smart Alec' tricks for survival. Many learn how to despair (Desforges, 1989:35).

ASSESSMENT WITHIN AN OUTCOMES-BASED PARADIGM

Learning, teaching and assessment are aspects of one whole and all are essential if meaningful education is to be achieved. It is of little value to assess when learning has not taken place. Similarly, the effectiveness of learning and the accountability of teaching cannot be determined without assessment. Assessment practices must, however, be relevant and have meaning to the type of learning and teaching taking place in the classroom. There have been calls for a greater sensitivity to understanding and theory to guide assessment (Dwyer, 1994).

In an outcomes-based system assessment results should be used to promote student learning and to improve educational programmes. The process would begin with the identification of outcomes. Thereafter methods and instruments of assessment that will be able to measure such outcomes should be determined. A number of terms are used with regard to the assessment types applicable to outcomes based education. Most common amongst these are the terms 'performance-based' or 'authentic assessment'. Performance assessments seek to determine what learners can do as well as what they know. The word 'authentic' is used to imply that performance should have bearing on some aspect of the real world (Kerka, 1995; Torrance, 1994). Neither performance-based assessment nor authentic assessments will be new concepts to many teachers and learners. The change will rather be one of emphasis.

In this paper the term alternative assessment will be used to describe those forms of assessment consistent with an outcomes-based approach which have been disregarded or underplayed in traditional assessment strategies. The term includes both performance-based and authentic assessment types.

Alternative assessment should exhibit the following characteristics (Bergen, 1994; Oakland & Hambleton, 1995):

* Contribute to instructional improvement,
* Be based on an integrated approach,
* Have intrinsic value,
* Involve learners in meaningful and motivating activities,
* Promote greater accountability from all stakeholders,
* Be able to measure outcomes of varying complexity,
* Have relevance to the world beyond the classroom,
* Promote learning potential and uncover hidden abilities,
* Be able to accommodate a variety of learning styles,
* Be adaptable and flexible in nature,
* Focus on the learning process,
* Provide structures for teacher development.

If an assessment system is to assess a broad range of outcomes it must incorporate a large variety of assessment tasks and activities (Masters, 1994). This implies a shift in emphasis from summative assessment (a summary of a learner's achievement at the end of a course) to formative assessment (assessment that takes place during a learning process).

Teachers should use *self-evaluation* wherever possible as a method of assessment. Self-assessment encourages learners to reflect and critically evaluate their work (Kerka, 1995). Methods of assessment that learners use to evaluate their work may be traditional in nature. What makes it different is the

purpose to which those assessment methods are put (Farhangpour, 1995).

Greater relevance to the world beyond the classroom is a feature of alternative assessment. Thus assessment methods tend to be more practical in nature and make use of a lot of *fieldwork*, which can be very useful in promoting the doing as well as the knowing.

Teachers should conduct ongoing assessment using these as well as the vast array of other assessment methods. Other examples are: *simulations, essays, demonstrations, interviews, oral presentations, project work* and *artifact examination*. Instruments such as questionaries that seek out information can prove useful for detecting unanticipated outcomes (Bennett, 1989).

One of the most popular authentic assessment techniques of recent years is *portfolio assessment*. A portfolio is a collection of a learner's work that is developed on an ongoing basis throughout a unit of work. The learners select the contents of the portfolio themselves in accordance with a set of standards or objectives. This inspires the learner to reflect on the learning process and identify areas of improvement. Thus by the end of a course a learner has a documented history of learning which has the added bonus of acting as a resource whereby the learner is able to present himself/herself to a prospective employer. This promotes ownership of the process amongst learners, provides greater meaning for work done during class time and improves the image of assessment as a diagnostic tool (Fueya, 1994; Kerka, 1994; Oakland & Hambleton, 1995; Stone, 1995).

Table 1: **Some differences between traditional and emerging trends in educational assessment**

TRADITIONAL	EMERGING
Emphasise learned abilities	Emphasise learning abilities
Emphasise assessment of learned abilities	Emphasise assessment of higher-order cognitive applications
Rely on external regulation of achievement	Promote self-regulation of achievement
Teachers and tests evaluate degree of attainment	Student, along with other sources, evaluate degree of attainment
Assessment focused on past and present	Assessment focused on present and future
Assess achievement separately in content areas	Assess achievement across content areas
Exclude assessment of feelings and personal attitudes	Include assessment of feelings and personal attitudes
Use paper and pencil methods	Use multiple assessment methods
Test simulated outcomes	Test authentic outcomes
Emphasise summative assessment	Emphasise formative assessment

(Adapted from Oakland & Hambleton, 1995:16)

Teachers may well find portfolio assessment an awkward and unwieldy tool to begin with, but numerous teachers who have experimented therewith have found the effort to be remarkably rewarding:

> Portfolios were a rite of passage necessary to free me from less authentic assessment (Fueyo, 1994).

If teachers make portfolios a part of the instructional day they can ensure that the observations based thereon are used to inform instruction as soon as possible. If a teacher wishes to implement a portfolio programme it is important to:

* Start slowly and on a small scale; portfolio development will prove a learning process that will take a while to implement and manage;

* Communicate clearly the nature and the purpose of portfolios as well as the way in which they will be assessed;

* Learn from the lessons of other portfolio experiments and share resources and ideas on the subject (Doolittle, 1994).

Alternative assessment methods will vary depending upon the context, but will have the following features in common:

* Designed and constructed with desired outcomes in mind,

* Developed in close co-operation with community members, business and specialists in the particular field, in order to ensure real-life applicability,

* Determine what a learner can do as well as what she/he knows,

* Operate within a realistic context,

* Closely linked to a clear, concise and transparent standards framework.

CONSTRAINTS AND CHALLENGES POSED BY ALTERNATIVE FORMS OF ASSESSMENT

Alternative Assessment Methods and Accountability

The use of alternative assessment methods for purposes of accountability is likely to prove problematic. Assessment methods are characterised by observation and the professional judgement of educators. The type of assessment used are also likely to prove highly varied and thus comparisons difficult to make (Gordon *et al.*, 1996). Suitable standards to ensure the reliability and validity of new assessment types would have to be established and maintained. In many portfolio programmes introduced to date, methods to establish validity and reliability have not been clearly identified. Frequently validity is assumed to be inherent given the authenticity of the assessment type, while reliability is commonly not discussed. Issues of validity, reliability and performance standards become crucial given the potentially subjective nature of authentic assessment and the variety of assessment types (Dwyer, 1994; Oakland & Hambleton, 1995).

Assessment bias may be difficult to control, particularly if assessment responsibility is left in the hands of individual teachers. If, however, assessment is standardised and placed under the control of external bodies the strengths of new assessment types may be diluted:

> Much of the argument for alternative assessment has focused on the susceptibility of traditional tests to the pressure and resulting corruption caused by basing high-stakes decisions on test results. Little will be gained if similar pressure is switched ... to performance assessments and 'teaching to the test' is simply replaced by 'teaching to the assessment' (Furman 1994:431).

The Role of the Teacher

The use of new assessment types within an outcomes-based framework will require teachers and learners to move beyond rigid and traditional notions of testing and examinations. This is a challenge that many teacher will no doubt respond to with considerable enthusiasm, but the greater the responsibility given to teachers the greater the demands placed upon them. Teachers need to be trained in the development and planning of authentic assessments as well as methods to record and report results. Alternative assessment is time consuming, in the planning stage and the implementation phase. Assessment will no longer be an afterthought but an integral part of the teaching and learning process. Alternative assessment is, furthermore, not a tried and tested recipe but rather a matter of trial and error based on strong principle. Substantial professional expertise and judgement are required if effective assessment is to be ensured.

The thorny issues of professionalism and accountability amongst teachers with regard to the use of alternative assessment methods has proved problematic in the international context, despite the fact that many countries experimenting in this field are regarded as having highly qualified and professional teachers and educators. The following

comment on teacher-based assessment in the USA highlights this problem:

> Although many teachers have the potential to meet the challenge, they need well-designed and adequately supported staff development in classroom assessment. Moreover, such staff development must connect with the pragmatics of validity and reliability. Authentic assessment promises validity, but technical support for this claim is another matter (Oakland & Hambleton, 1995:40).

Many South African teachers are under-qualified and have been disadvantaged by their backgrounds. Furthermore, assessment is commonly seen only as a tool of selection and in the past of discrimination. Many teachers will be unable to cope with the demands of an outcomes-based approach and the assessment methods associated therewith without the necessary support structures and on-going in-service training.

Classroom Realities

The realities of South African classrooms may well prove a constraint to educational and assessment change. Alternative assessment methods, in particular the use of portfolio assessment, require a wide variety of resources which many schools do not possess and are unlikely to acquire in the near future. Large class sizes will increase the assessment burden upon teachers and individual assessment and feedback may prove difficult. Fieldwork and active learning outside the classroom is considered by many teachers to be almost impossible to manage and control.

The structure of courses is geared more to the calendar than to student need. Thus teachers frequently attempt to slot content into allocated time periods rather than focusing on educational results. The issue of time and competition therefore is a powerful determinant of school practice and hence assessment method.

Financial Implications

World-wide, alternative assessment methods have been associated with increased programme costs. The widespread use thereof will depend upon their ability to promote learning without becoming too costly. The financial implications may be significant when considerable teacher training and support is required.

Multiple Stakeholders

It is frequently difficult to co-ordinate the varied perspectives of stakeholders who may well have different interests in the content and outcomes of assessment.

Political Forces

It is a concern that a government faced with the need for radical and urgent educational reform may introduce policies and practices of assessment without putting into place the necessary support structures to underpin such reforms or promote research into the shortcomings of such policies and practices.

THE SHIFT FROM CONSTRAINT TO CHALLENGE

A Balanced Approach to Assessment

An outcomes-based approach to education and learning supported by alternative assessment methods holds great promise for improving education and learning and developing the human resource potential of the country. One should not ignore the constraints imposed by alternative assessment methods, but should rather seek ways to translate constraint into challenge.

Given the still unresolved issues of accountability with respect to alternative assessment methods, their use for purposes of high-stakes assessment is still subject to question. Unanswered questions regarding reliability, validity and performance are of great significance where educational stakes are high and assessment forms the basis of selection. Comparability is a challenge to any assessment system but becomes all the more acute when assessment is complex in nature. The use of assessment for selection purposes is likely to continue because access to work opportunities and higher levels of education will inevitably remain

limited. Employers and educational institutions will require information that will allow them to select individuals who are high achievers or who possess a specific ability. On the other hand:

> Many proponents of the use of assessments as an instrument of reform readily acknowledge that the high-stakes use of standardised tests in previous reform efforts have had negative side effects, including the narrowing of the curriculum, the overemphasis on simple facts and discrete low-level skills, and the corruption of test results by the narrow teaching to the test. A critical, and still largely untested, assumption in the proposed reliance on new types of assessment is that such unintended negative side effects can be avoided by the new forms of assessment (Oakland & Hambleton, 1995:51).

The nature of the assessment should depend upon the purpose of the assessment. It is a mistake to think that the same assessment type can serve both formative and summative purposes. Alternative assessments can be used along with traditional forms of assessment such as examinations to broaden the picture of learner progress. Outcomes-based accountability systems in other parts of the world are increasingly using traditional norm-referenced tests along with alternative assessment methods (Kerka, 1994; Masters, 1994; McLaughlin & Warren, 1995)

When an educational innovation is adopted on a large scale, there exists a tendency for the innovation to be adopted in place of all that has gone before. The danger inherent within this practice is that if traditional testing is completely replaced by authentic assessment programmes, education stands to lose years of proven, sound and beneficial evaluation practices. Authentic assessments hold the promise of providing evaluators with a rich supply of assessment information. Yet, traditional testing practices, too, continue to offer evaluators a proven source of valuable information. Some of the criticisms levelled against traditional testing methods are valid. Yet, many practical, theoretical and technical questions remain to be answered with regard to authentic assessments (Jones, 1994:109).

Traditional forms of assessment should continue to be used but in a critical and discerning manner. Nitko (1994) has proposed a model of a curriculum-driven examination that possesses criterion-referenced qualities and yet is still norm-referenced. Nitko feels that norm-referencing is essential if students' raw marks are to be properly interpreted, but that it should be coupled with criterion-referencing so as to obtain a fuller picture of a student's performance. Large-scale assessments have frequently been criticised on the grounds that the type of question asked and the skills tested are extremely limited. The rapid expansion in technology in recent years is, however, allowing for an increasing variety in large-scale assessment (Dwyer, 1994).

An assessment system should ideally allow for individual and large-scale assessment based on a broad range of assessment methods and aligned with a standards framework (Masters, 1994).

Teacher Support and Training

The ability of teachers to handle alternative assessment methods will determine the success thereof. It is important not to underestimate just how much teacher support and training will be required and the financial implications thereof. Ways that teacher training can be provided and support structures established should include at least some of the following:

In-service training and outreach programmes
Training should be inclusive, transparent, accountable and relevant. Teachers trained should in turn pass on their knowledge and expertise to others in the community.

Exchange programmes between schools, education departments, research organisations and business
This can build capacity in all areas and promote understanding about practical difficulties and strengths in each area.

Teacher portfolio assessment
Teachers should be encouraged to develop their own portfolios. Such a portfolio will document a teacher's personal growth and achievements. It also provides a means for reflection and can enrich instruction (Doolittle, 1994).

Peer assessment
Fellow teachers assessing portfolio's can frequently provide one another with useful insights. Such assessments could be less threatening than those conducted by an outsider.

Recognition of the professional status of teachers
The professional image of the teaching community needs to be improved and translated into practice. Professionalism may well prove to be a double-edged sword - along with improvement in status comes greater responsibility and accountability.

Ownership of the process
Teachers need to appreciate the value of alternative assessment methods within their own teaching contexts.

Two further requirements are: *Community-based and developed resource materials* and *adequate financial resources and efficient use thereof.*

Research

On-going research on assessment is absolutely essential. Assessment practices have considerable impact on the quality of learning outcomes and education as a whole. Outcomes-based education and the assessment methods that underpin it are in a developmental phase. Research can provide us with insights on theoretical and philosophical issues as well as practical problems. We must make informed decisions based upon reliable and meaningful information and not simply respond to trends or immediate needs.

ENVIRONMENTAL EDUCATION: A LEADING ROLE?

Environmental education lends itself to an outcomes-based approach to teaching and learning. Environmental education seeks to provide learners with more than factual knowledge about the environment. It aims to develop creative and critical thinking, promote an integrated approach to learning, facilitate problem-solving and further understanding of values and attitudes. It can comfortably accommodate and promote the essential outcomes that have been proposed for South African education. Thus, those involved in environmental education have a particular stake in ensuring that educational structures target the teaching and learning of at least the aforementioned skills. In South Africa there are many committed people who can, if energy and ability are combined, use the intrinsic strengths of environmental education to ensure that it plays a leading and proactive role in a new education structure. Environmental education does not to carry the baggage of the past as do many of the more traditional subject disciplines. It can make use of considerable international expertise and the examples of international environmental education programmes.

If environmental education is included in the formal education structure as planned, the issue of the appropriate assessment instruments to support education programmes will become an important consideration. If assessment is planned well and in accordance with the goals and outcomes of environmental education, it may well prove to be the arena where educators can use assessment to improve the curriculum and make that curriculum more relevant to learners. Ultimately, one would hope that learners will be able to translate their environmental education knowledge and skills into appropriate environmental action.

Various stages can be identified when planning assessment of environmental education:

1. **Set expectations**
* Formulate a goal for environmental education that will act as a direction-setting focus.
* Translate the goal into desired outcomes. Outcomes should be both general and specific. Make sure that outcomes are not specified too narrowly and that there is room for unanticipated outcomes.

2. **Plan the assessment**
* Decide upon the timing of the assessment (i.e. formative or summative) and the manner in which it will be incorporated into the teaching programme.
* Determine the assessment methods that will be used.

3. **Undertake assessment and keep a constant record thereof**

4. **Use the results**
* Assessors should report on each of the outcomes and the extent to which they are met. All stakeholders should be provided with feedback

but the rights of those assessed should not be imposed upon.

* Assessment results should provide information about aspects of the programme that need to be adapted, removed or enhanced. Areas of success and major constraints (e.g. time, money or materials) should be identified (Bennett, 1989).

5. **Share teaching and assessment experiences**

Environmental education frequently means different things to different people. If no clear goal is set, conceptual ambiguities and a partial interpretation of environmental education may result. Furthermore, environmental education must effectively bridge issues from the local to the global scale.

International examples do not bode well for the easy and efficient integration of environmental education into the formal education system. Ramsey *et al.* (1992:36) state, with regard to the USA, that environmental education, if it exists at all, is loosely organised and has little sense of direction.

It is generally held that teaching and assessment programmes have concentrated on environmental knowledge and awareness at the expense of problem-solving and the development of analytical skills and environmental behaviour (Adams *et al.*, 1988; Monroe & Kaplan, 1988; Pomerantz, 1991; Ramsey *et al.*, 1992). Nevertheless, while highlighting the aforementioned problems, international researchers have also identified the types of problems that teachers have experienced and have made constructive suggestions about effective strategies to fully integrate environmental education into curricula (Adams *et al.*, 1988; Giolitto & Souchon, 1991; Ramsey *et al.*, 1992). Such research may well prove of great value in the debate over the nature and form of environmental education in South Africa in the future.

The assessment of attitudes and values is likely to prove one of the most difficult assessment tasks for environmental education. Considerable investigation and research into values education must continue if assessment thereof is to be handled in an effective and sensitive manner.

CONCLUSION

The effectiveness of learning and teaching are determined by means of assessment. Thus a shift to an outcomes-based approach will require a simultaneous reappraisal of assessment methods. Undoubtedly there will be a greater emphasis on formative and alternative assessment types. One needs to determine what outcomes should be assessed and the most appropriate methods and instruments of assessment to determine those particular outcomes. Assessment methods should also be used to improve instruction and enhance the learning environment. It has been suggested that environmental education, with its emphasis on critical and creative learning, values and practical skills is in a position to lead the way in the move to the new outcomes-based paradigm and the assessment tools associated therewith. Nevertheless practical problems and challenges are foreseen particularly with regard to the role that environmental education will play in formal education.

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