# EDUCATIONAL RESOURCE IDENTIFICATION IN THE ENVIRONMENT

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Identification of educational resources in the local environment is of increasing importance as financial and technological constraints impose limitations on educational opportunities. It is possible to identify four broad categories of resources which are available at least to some extent in all local areas and which require only recognition of their varied educational potential to be utilised without prejudice of circumstance.

INTROOUCTION

Awareness of, and a positive attitude towards, the environment, its complexity and interactions is of increasing concern in Southern Africa and throughout the world, particularly at present as human population pressures rapidly exert greater demands on available resources. The educational process should reflect this concern in efforts being made at all levels to teach about and through the local environment, including studies of the problems and issues pertinent to local communities. Unfortunately many educators are hesitant to use local areas and opportunities as resources, probably because of a lack of confidence arising from superficial knowledge of the systems with which they are dealing and from a lack of awareness of the educational potential of elements of the environment.

Increasingly, with economic pressures on education and all facets of life, teachers and others involved in the less formal approach to education are required to improvise and to use their imaginations. This situation exists particularly, but not only, in rural areas where greater demands for education are associated with very limited facilities. As a result more reliance is being placed on materials which are readily available at little or no cost and which do not require the availability of sophisticated technology. In other words more emphasis is placed on the educational potential that can be drawn from the local environment. Variations in environment and experience dictate that there are variations in learning and awareness, but there are many components of the environment which have the potential to be utilised in the educational process without prejudice of circumstance.

It is intended in this paper to present some rudimentary ideas on the nature of educational resource materials which may be drawn from local environments, taken from the standpoint that financial support is lacking and that electricity and associated technology are not necessarily available. The ideas are not new, nor are they exhaustive, but are presented in the hope that at least some readers will be stimulated to realise their own potential as educators through recognition of local opportunities.

THE ENVIRONMENT AND EDUCATION

The environment to which a person is exposed and in which, or through which, a person learns, plays an important role in his development and understanding of processes and interactions. It is obvious that the experience of each individual is unique, but there are always common elements which can be recognised from person to person, the potential of which can be optimised.

The concept of an environment has been summarised by Imperatore (1969, p.3) as:

> "... all those elements surrounding a person which influence his development. There are natural and cultural categories of environmental elements. The natural are those that are 'of nature'. Man's natural environment varies from place to place because the set of natural elements occurring at any one place varies infinitely. The natural environment is significant because it is from the natural environment that man obtains the materials he uses to satisfy his needs.
>
> Cultural environmental elements are 'of man'. Man's cultural environment also varies from place to place because the set of cultural elements occurring at any one place varies infinitely. The cultural environment is significant because it serves as a framework through and within which man views and uses the materials of his natural environment."

The environment is of greatest significance in education when the teacher realises and utilises the learning potential afforded by the environment - both natural and cultural.

During recent years more and more attention has been focused on the use of local environments in teaching and learning experiences, both in the formal school situation and in the less formal trails and wilderness experiences. This has varied from the use of school grounds to local parks and nature reserves for field trips, excursions and other outdoor activities. All disciplines have been involved in such utilisation, but subjects such as Biology, Geography and History have made particular use of outdoor experiences and local resources in learning situations.

Each circumstance is unique and there are of necessity variations in the availability of resources and in the needs of the audience. *In all environments there is an almost infinite number of educationally valuable resources which are available at little or no cost, but which must be recognised in order to be optimised.* This has meant that increasing attention has been devoted to the use in learning situations of what is readily available from the environment, especially as economic and locational demands have limited the use of commercially available resource materials.

The base line appears then, for everyone involved with learning from the environment, to be the *recognition* of availability and usability of an environmental element and its *optimisation* - often the stumbling blocks to effective educational use. At this juncture it is presumed that the common starting point for all is the total environment, in which there are natural and cultural artefacts, all of which have a certain value in the teaching and learning processes, and that these may be developed irrespective of the availability of technology and such basic conveniences as electricity.

THE NATURE OF EDUCATIONAL RESOURCES

A resource is defined as anything which is needed (or sometimes wanted or used) by an organism, population or ecosystem (Miller, 1979). As such resources are an integral part of all educational processes. Although a resource may be used for teaching, unless that teaching is effective that same resource will be of little value in learning. Effective teaching must aim to promote understanding of aspects of the environemnt and thereby enhance the perception of problems and issues and their solutions. Effective teaching requires an enthusiastic, imaginative

teacher who is flexible in his approach to learning, and who can utilise both the natural and cultural environments in learning situations.

Such resources allow for concrete experiences of the surrounding environment and for the gradual development of associated abstract concepts. They also allow for the development of the five senses as for example in touching a leaf, hearing the wind, seeing flowers, smelling scents and tasting fruits - of special importance in the very young.

These concepts apply not only to those disciplines and areas which are traditionally involved with outdoor experiences, but to all disciplines, and do not necessarily demand an emphasis on outdoor experience. Very often elements of the outdoor environment can be readily introduced into the classroom and imaginative exercises, especially in the arts and sciences, will relate well to the person's experience. In other words all disciplines are included in the utilisation of resource materials from the environment in various ways to a greater or lesser degree.

One of the starting points in the learning process relating to the environment is the recognition of what is needed. There is increasing emphasis in this respect on the re-use of resources - each element or situation may have many possible educational uses other than the one for which it was originally designed. For example a feather may be used for painting in Art, for the study of birds in Biology, for the study of flight in Science, for the measurement of dimensions and forces in Mathematics and for stimulating creative writing, poetry and related activites in the languages.

In order for the educator to realise the full potential of these resources it is necessary for him to ask continually of everything, especially that which he would normally dispose of as garbage,

*What can I do with it?*

and

*What can I teach with it?*

Such questions force one to examine an element through different eyes and to search for opportunities which may otherwise be missed.

The use of this approach has more than just the benefits of low cost and low demand for technology; it tends to promote an awareness of what is around both teacher and student and to relate to personal experience. It also does not prejudice any group in terms of not being able to participate.

Kefford (1978) identified man's quest for knowledge of his world with four needs:

- to find out about
- to make sense of
- to tell others about, and
- to make judgements about

all of which involve cognitive, psychomotor and affective processes of learning through the various curricular areas.

The education process is obviously complex and the environment so infinitely varied that it is difficult, if not impossible, to propose a 'recipe' for what can be done and used in a universal approach to educational resource identification. Suffice it here merely to indicate some examples from which the reader may infer appropriate items from his environment or local situation to be useful aids.

## IDENTIFYING EDUCATIONAL RESOURCES

Educational resources available within the local environment may be identified in four broad categories:

### Individual elements of the environment

Individual elements of the environment consist of any number of individual components identified from any facet of the environemnt. Each component has a potential to allow students to discover things about it. It also has the potential to be used to illustrate different principles, and can be used at all levels and in all disciplines to great effect. These elements may be derived from both the natural environment and the cultural environment.

The natural environment is the area of greatest variation and is probably the one in which educational potential of components is the most difficult to identify. It is essential that such resources are used selectively so that negative environmental impacts are avoided. For example, if a bird's nest is selected for study it should be one which has been abandoned and which no longer has any specific apparent use. Such an artefact is useful in illustrating the need for shelter, protection, the intricacies of construction, measurement of columns and mechanics, the generation of writing and graphical skills apart from many others depending on the focus of interest.

Other examples include:

- regurgitated owl pellets from which lessons about the owls themselves, food chains and skeletons may be learnt;
- a piece of local rock from which landscapes are formed and soil can be made;
- leaves, honeycombs,twigs and driftwood which all have stories to tell and lessons to share.

Far more ubiquitous in terms of materials available is the cultural environment. Even in the most remote areas it is often possible to find a plastic bottle, a waxed carton or a tin can. These can all be used to illustrate principles, to demonstrate different measures of volume and so on. Natural and cultural artefacts of the environment can of course be used in combination with each other in order to illustrate similarities and differences between what occurs naturally and what man has tried to reproduce for specific purposes as in for example moisture or liquid containers.

There are also from the environment specialised elements which are particular to certain areas and are therefore less common. These include such components as archaeological tools, local art and architecture which can be used to illustrate principles such as the historical development of the area, art appreciation, restoration and conservation of cultural artefacts.

### Printed or published sources

Printed or published materials which can be utilised for educational use are legion. Many of them were originally produced as literary works or for some other specific purpose, but contain information which can be used very readily to determine environmental conditions and characteristics. Such sources include poetry, prose, works of art, sculpture, decals, posters, and so on. Perhaps the most ubiquitous is the 'junk mail' which contains advertising material, which, if scrutinised carefully will provide illustrations, factual materials, and any number of other uses. In between the two is a range of newspaper and magazine articles, calendar pictures and other similar materials which can be utilised in teaching. None of them were necessarily prepared for teaching and learning situations originally, but a little imagination and enthusiasm on the part of the educator will realise considerable hidden potential in most of these materials.

Basic materials such as paper and card required for preparation of local charts, dioramas and so on can also be derived from scrap materials. Thus very little, if any, expenditure is required for the production of 'home-made' educational resources.

A considerable amount of free material is also avail-

able from agencies and organisations such as the Department of Environment Affairs and the National Parks Boards. Once again this was not necessarily designed for educational purposes originally, but can easily be utilised for such purposes. Such materials are usually available on request - either a letter or a telephone call providing details of where they are to be sent or from where they can be collected.

It is thus possible for the local teacher or educator to compile many of his own materials such as charts and posters at little or no expense by using available source and basic materials. Such aids are usually of far more relevance in the local situation and are far more meaningful to the user who has been involved in the development of them.

## Prepared resources

Educational resource materials are prepared by many organisations who regard this role as part of their community responsibility. Such materials range from booklets and charts to posters and models and are usually distributed free or for a nominal fee. They may consist merely of a set of ideas for local adaptation, or they may involve sets of materials including charts and booklets which are far more complex. Although these materials are usually cheaper than many others which are commercially produced they do sometimes require considerable initiative on the part of the educator to be used effectively.

There are of course also aids prepared for sophisticated technology, but these are not the concern of this paper. Suffice it to mention them as fulfilling a particular role in a community where both finance and technology are available.

## Field experience

Increasing emphasis is being placed on the direct use of the local environment, natural and cultural, as a teaching aid. It is within this context that students can observe many of the ecological processes and environmental problems and issues at first hand. Such experience costs nothing, represents the environment in action, and often provides variety in a programme by enabling out-of-door observation in the local area.

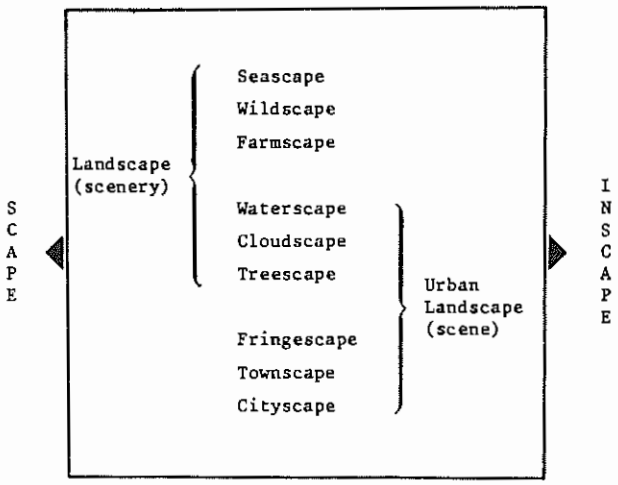


*FIGURE 1 The spectrum of scapes which may be used in field studies to provide a framework for observation (after: Kepes, 1976).*

These fieldwork environments vary in terms of proximity and scale, as well as in detail of elements. Apart from a classroom, the school grounds, a garden, a local park or any open space can be explored. Progression then takes experience to the total local environment of streets, houses, shops, industries, mines, farms and other local components. The remote environment is seldom visited and then usually only at great expense and as part of a particular fieldwork exercise and experience.

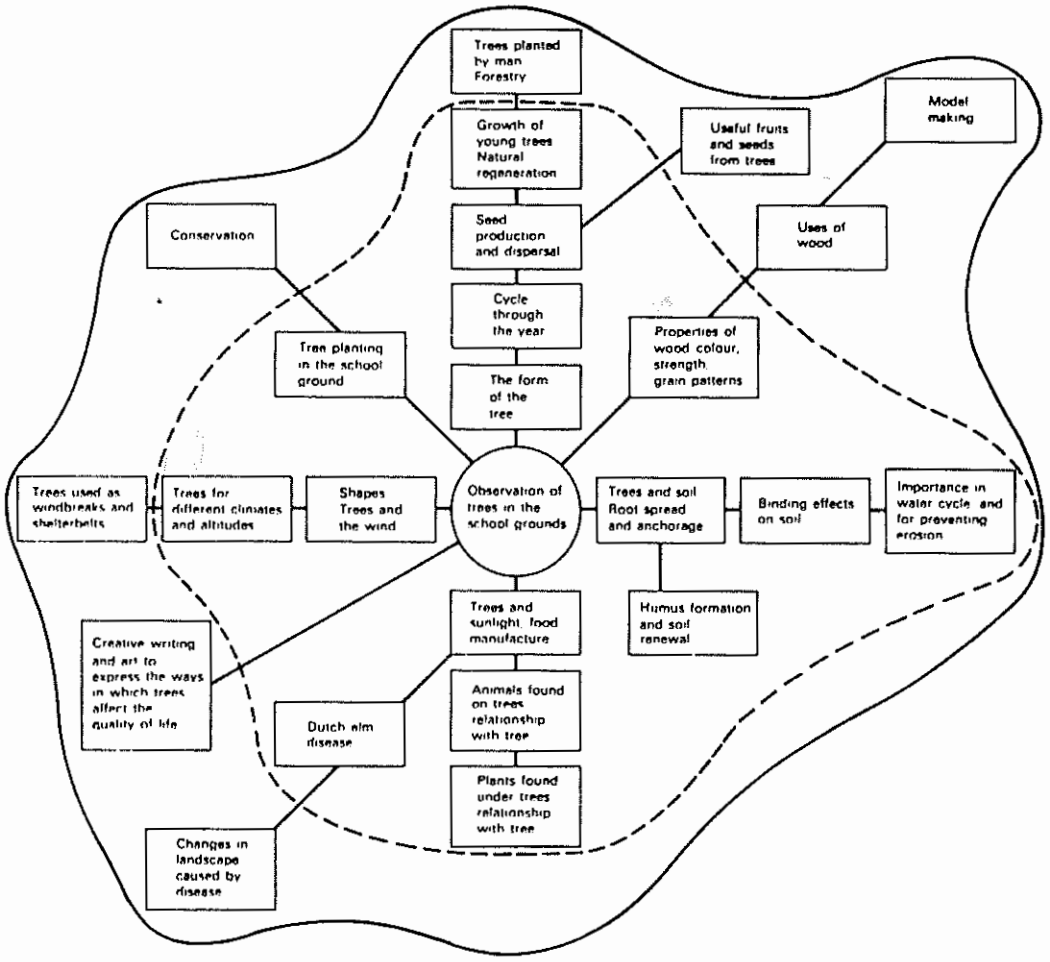


*FIGURE 2*
*Example of a splash image which may be used as a framework for structuring field studies of a particular area or species (after: Trotman, 1978).*

Many pupils are not at this stage privileged enough to be involved in any of these types of field experience, often because the teacher is afraid of embarking upon something new and is uncomfortable and lacking in confidence about teaching within a framework with which he is not completely familiar. Such teachers should take strength from the fact that no-one can possibly be expected to know everything about a certain situation and should thus be happy to learn together with other educators and students. It should also be recognised that attempting to tackle the 'whole' is a difficult and onerous task, made much simpler by dividing up the environment and seeking patterns and explanations in the component parts. Division of an environment may be based on what it visible - a series of scapes (Kepes, 1976). See Figure 1. Splash images (Figure 2) also provide useful frameworks within which to study a particular area (Trotman, 1976). Tackling programmes within such frameworks as these makes students aware of the detail of the environment around them and with which they are at least superficially familiar.

It is obvious that urban and rural environments are studied at least to some extent using different approaches as different aspects of the environment require emphasis in the two situations. *This does not mean that any person is at an advantage over any other person because of the type of environment or systems studied.* Rather it means that there is a diversity of experience and of expertise available in looking at the total environment. The variety of educational resource materials available from any local environment is almost infinite. In general such materials are always available for direct or indirect use, requiring merely the recognition and optimisation of their potential on the part of the educators.

CONCLUSION

In conclusion two points should be reiterated. Use of materials from and within the local environment in educational situations provides an infinite supply of cheap or free, low technology aids of direct relevance to the immediate situation; and secondly these materials have only to be identified by the educator - a task requiring a little imagination and enthusiasm and simplified by continually questioning the possible educational values of elements.

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blootgestel. Na drie tot vyf jaar is die subvolwasse voëls gereed om in die broeipopulasie opgeneem te word. In hulle nomadiese tydperk kon hulle etlike duisende kilometers ver beweeg het.

Groot roofvoëls is al oor groot gedeeltes van Suid-Afrika heeltemal uitgesterf.

Die Afrika Roofvoël Inligtingsentrum (ARIS) is tans 'n werksgroep van die Trust vir Bedreigde Natuurlewe. ARIS stel hom dit ten doel om die bewusmakingsproses aan te moedig. ARIS en sy vrywilligers poog om 'n spreekbuis vir roofvoëls te wees. Die samewerking van alle ander bewaringsorganisasies is van groot belang. Opvoeding word as eerste prioriteit beskou. Opvoedkundige programme sal hoofsaaklik op volwasse teikengroepe gemik wees. Wanneer kinders in 10-20 jaar se tyd in 'n besluitnemende posisie is, sal die toekoms van groot roofvoëls reeds bepaal wees. *Die huidige geslag van besluitnemers sal grootliks die verantwoordelikheid moet aanvaar vir die bewaring en oorlewing van ons roofvoëls.*

Die houdingsverandering van ons mense is 'n stadige proses en dit mag moontlik te stadig wees vir die roofvoëls met so 'n stadige omset. Roofvoëlbewaring het almal se verantwoordelikheid geword. Bewaarders behoort vryelik oor die grense van organisasies en administrasie te kan beweeg.

ARIS beoog om met alle bestaande bewaringsorganisasies saam te werk. Daar is reeds verskeie aksies waarby ARIS betrokke is. Daar bestaan ook 'n arend aanneemskema. Potensiële voogde kry die geleentheid om 'n arendpaar in 'n gebied aan te neem. ARIS onderneem om as 'n middelman op te tree. 'n Sekere bedrag geld word dan beskikbaar gestel vir die uitsluitlike doel van bewaring van dié paar arende. So sal dit byvoorbeeld nodig wees om die boom waarin die paar broei te omhein, of om 'n bestaande draad te elektrifiseer. Eindelik kry die voëls die voordeel. Hierdie skema is net tot arende beperk. Afgesien van die feit dat beskerming by 'n nes verleen word, is daar die bewusmakingsproses wat van groot belang is en waaruit die spesie, en roofvoëls in die algemeen, voordeel trek.

Lidmaatskap tot ARIS sal gedurende Mei 1988 tydens die Roofvoëlfees van stapel gestuur word. Die Nasionale Dieretuin van Suid-Afrika in Pretoria, het reeds fasiliteite vir die fees aangebied. Daar sal onder andere 'n uitstalling van gemonteerde roofvoëls wees en ook 'n kunsuitstalling met roofvoëls as tema. Lewendige roofvoëls sal tydens praatjies deur kundiges gebruik word.

VERWYSINGS

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