QUANTIFYING WILDLIFE ORIENTATION

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The need for simple instruments to be used to evaluate environmental education programmes has led numerous researchers worldwide to develop a wide variety of techniques. The major problem in devising such an instrument arises from the fact that 'change' due to a given environmental education experience occurs normally not only in the cognitive, but more often in the affective and conative domains. This precludes the use of a conventional 'questionnaire'. Attitudes and values are very difficult to quantify directly and it requires a great deal of ingenuity to devise instruments that elicit valid responses.

An exploratory study undertaken by the author in 1986/7 aimed at developing a simple instrument to assist teachers in evaluating their own efforts resulted in some interesting and encouraging conclusions. This article sets out to communicate the findings of this study. In Southern Africa, co-operation in this field is of vital importance.

An aspect that always irritates a dedicated environmental educator must be the questions arising from a successful - or sometimes an unsuccessful - teaching experience. Questions such as 'Why do pupils feel the way they do about nature?', 'Why do they enjoy the outdoor experience?', 'Why did a certain teaching strategy work/not work?', are very difficult to answer.

At this point the more daring venture out to try and 'evaluate' a programme. Although various experts have expressed serious doubts concerning the 'measurability' of either a programme or the mind of a human being, many fascinating projects have been undertaken in this field.

With the view of developing some kind of measuring instrument to quantify change in pupils who had been exposed to some kind of environmental education experience, an experiment was designed as a purely exploratory study where a group of 70 Afrikaans speaking Std. 8 pupils were pre-tested before being subjected to a field experience at the Potberg Environmental Education Centre. Thereafter they were tested again, using the same instrument as in the pre-test.

BACKGROUND

The instrument was designed after models developed by Triandis (1971), La Hart and Tillis (1974) and Newgard, Adams and Thomas (1986), assuming conservation and wildlife orientation to be a function of three characteristics or experiential areas, namely:

1. Perception of the natural environment, or the way in which a person experiences or understands certain concepts relating to the natural environment (P);
2. Attitudes expressed towards the natural environment (A);
3. Activity, or the involvement of a person in conservation actions in the broader sense (I).

Different combinations of these functions give rise to four typologies of orientation (Newgard et al., 1986) in the following way:

TYPOLOGY	CHARACTERISTICS
ACTION	P A I
SATISFACTION	p A I P a I p a I
FRUSTRATION	p A i P A i P a i
APATHY	p a i*

* A score above the mean is indicated by a capital, while those below the mean by a small letter.

These typologies are described as follows:

ACTION — Individuals with high aspirations prone to studying, learning and acting.

SATISFACTION — Individuals with a degree of involvement, although indifferent towards aspirations.

FRUSTRATION — Some degree of aspiration, but low involvement; repeated success denial.

APATHY — Individuals low in aspiration, indifferent and lacking involvement.

The project was based on the assumption that these four typologies would occur among a local population. It was further assumed that if these could be identified, a well designed education programme would bring about a shift towards the action category. Conversely, no shift in certain categories could possibly indicate weaknesses in the programme. The background of the experimental group was such that a very high percentage could be expected to fall into the action and satisfaction categories, with relatively low (if any) in the other two categories. As it turned out, these expectations were confirmed to a large degree.

THE INSTRUMENT

It was decided to design an instrument where line drawings would depict wildlife and detrimental human actions to elicit specific responses. This decision was made in the light of the known pitfalls of written questionnaires and the problem of results being influenced when respondents are aware of being 'tested'.

Respondents indicated their responses on a semantic differential 7-point scale, where

adjective pairs or opposite statements were used. The same drawings were used for the section on perceptions and those on attitudes.

Drawings were simple black-and-white line drawings of factories, a natural area, a scorpion, a protea, a bulldozer, a snake, highrise city buildings, a springbok, a cat, and a hunter shooting geese. In the perceptions section the sets of opposite statements were the following:

Makes the world a better place/Makes the world a worse place

Necessary for healthy human existence/Not necessary for healthy human existence

Improve the quality of life/Devalues the quality of life

Beneficial to nature/Detrimental to nature.

The adjective pairs used for assessing attitudes were the following:

Pleasant..... Unpleasant
Bad ..... Good
Dark ..... Bright
Beautiful ..... Ugly
Clean ..... Dirty

The section on activities consisted of 18 simple questions about various possible activities ranging from fishing, reading about nature, watching nature films, sleeping in the open, birdfeeding, using recycled material, visiting nature reserves, to membership of Wildlife Society etc.

The questionnaires were treated as a group in that the pre- and post-questionnaires of any given respondent were not matched or compared. Therefore no individual analysis of any item, or any aspect of individual responses was attempted. Serving purely for exploratory and broad development purposes, the subtotals for each section were calculated, as well as a mean point, taking the totals of pre- and post-tests into account. The results are summarised in Figure 1. The graphic representaton (Figure 2) shows the shift amongst the categories more dramatically.

Although there are numerous shortcomings and pitfalls in the project, the mere fact that the four categories could be identified by such a simple instrument was exciting. Despite the fact that the intervention was also not predesigned to bring about specific changes that could be identified, some interesting changes in the perception and attitude categories were apparent.

Interesting tendencies regarding shifts from the frustration and apathy categories towards the action and satisfaction categories could be detected. This could mean that the intervention brought about changes especially concerning attitudes and perceptions.

The fact that there was an increase in the satisfaction category (always high in involvement; perceptions and/or attitudes lacking) could mean that most respondents in the frustration and apathy categories improved in either perceptions or attitudes. Also, the programme may have had a major influence on their sense of involvement.

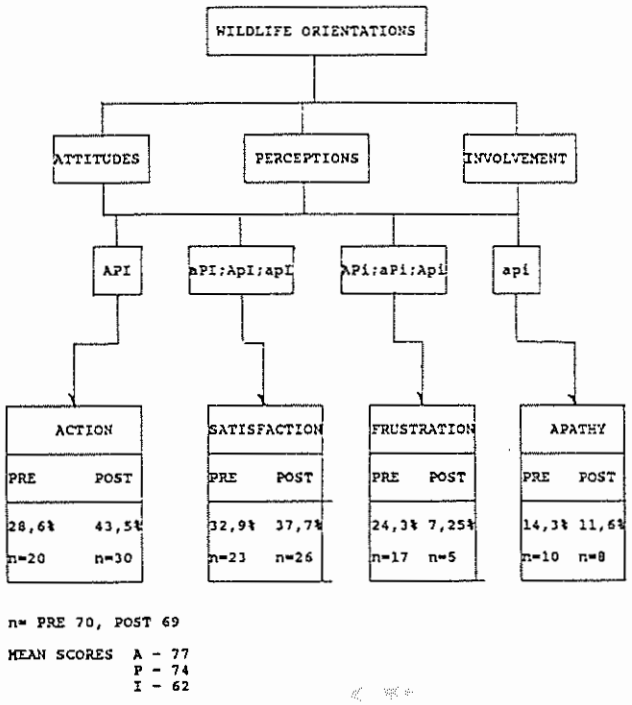

FIGURE 1 *Summary of results*

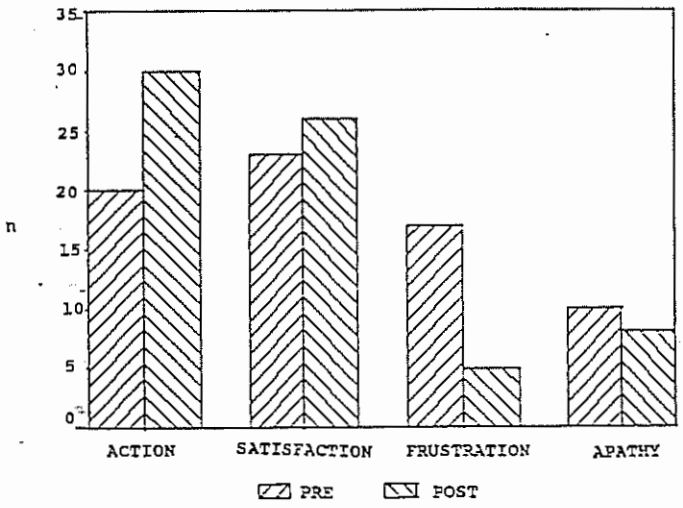

FIGURE 2 *Graphic representation showing number of respondents in different typologies before and after intervention*

FURTHER DEVELOPMENT

Very few tendencies can be inferred from the findings, and certainly even fewer generalisations can be made due to a number of factors rendering findings less dependable. In further developing this instrument, the following should be considered:

1. A larger group should be involved.

2. A control group (i.e. a group not exposed to the programme) should be included.

3. A delayed post-test (about six months after the first post-test) should be considered to establish the permanence of any changes identified.

4. Adjective pairs specific to each drawing should be decided on (not a generalised set).

5. Proper item-analysis should be undertaken.

6. The section on involvement should be carefully planned to correspond with the other sections.

Similar research in this field has been conducted by Kellert (1984), Adams (1986), Born and Witters (1976), Maloney and Ward (1975) and La Hart and Tillis (1974) with the aim of quantifying aspects of orientation towards nature. An interesting research project (Schreuder and Le Roux, 1988) was also recently completed by the author in assessing the impact of a music programme about nature conservation on a group of white and black youths. There is little doubt that change in orientation, perceptions and values can be quantified, and as a result certain aspects of education programmes can be evaluated.

This type of research might serve to supplement intuition in designing and improving environmental education programmes, and continued development of instruments should be encouraged.

While there is serious doubt that a standardised instrument is at all possible in the Southern African context due to vast differences in socio-economic status and cultural and ethnic variety and the resultant influence on perceptions and values, I am optimistic that some kind of instrument can be developed with at least the potential of being sufficiently versatile for our unique set of circumstances.

REFERENCES

BORN, T.J & WIETERS, N.E. 1978: Non-Reactive Measurement of orientation toward the Natural Environment. **Journal of Environmental Education.** Vol.10 No.1 pp.40 - 43.

FISHBEIN, M. & AJZEN, I. 1975: **Belief, Attitude, Intention and Behaviour: An Introduction to Theory and Research.** Addison Wesley. New York.

KELLERT, S.R. 1984: Urban American Perceptions of Animals and the Natural Environment. **Urban Ecology.** Vol.8 pp.209 - 228.

LA HART, D.E. & TILLIS, C.R. 1974: Using Wildlife to teach Environmental Values. **Journal of Environmental Education.** Vol.6 No.1 pp.43 - 48.

MALONEY, M.P. & WARD, M.P. 1975: A revised scale for the Measurement of Ecological Attitudes and Knowledge. **American Psychologist.** Vol.30 pp.787 - 790 July.

NEWGARD, L., ADAMS, C.E. & THOMAS, J.K. 1986: How High School and College students feel about Wildlife: Implications for Curriculum Development. **The American Biology Teacher.** Vol. 48 No.5 pp.263 - 267.

SCHREUDER, D.R. & LE ROUX, A. 1988: Die impak van 'n musiekprogram 'Sending out an SOS' op die persepsie ten opsigte van die natuurlewe van 'n groep jongmense. Publikasie hangend.

TRIANDIS, H.C. 1971: **Attitude and Attitude Change.** Wiley Publishing Co. New York.

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REFERENCES

BALLANTYNE, R.R. & OELOFSE,C.G. 1988: Implementing Environmental Education Policy in South African Schools. (Unpublished paper).

COUNCIL FOR THE ENVIRONMENT 1986: **White Paper on a National Policy regarding Environmental Educaton.** Council for the Environment. Pretoria.

KNAMILLER, G.W. 1985: Environmental Education for Development - a Course at the University of Leeds. **Reed.** Vol.13 No.2 pp.3 - 5 Autumn.

MAHER, M. 1986: Environmental Education, What are we fighting for? **Geographical Education.** Vol.5 No.2 pp.24 - 25.

O'DONOGHUE, R. & TAYLOR, J. 1988: Towards Participant-Centred Resource Development for Environmental Education. **Southern African Journal of Environmental Education.** No.7 pp.3-5. April.

STERLING, S. 1987: Provision of Environmental Education in Rural Areas. **The Annual Review of Environmental Education.** No.1 pp. 12 - 13.

WILLIAMS, G. 1987: Environmental Education in Third World Schools: Rhetoric or Realism? **The Environmentalist.** Vol.7 No.1 pp. 11 - 19.