

HEART WISDOM: THE SEARCH BEYOND HEAD KNOWLEDGE

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The thesis is proposed that the conventional approaches to the teaching of science, and particularly biology, has failed to place sufficient emphasis on the affective domain. The concept of knowledge is examined and suggestions are made as to how the situation might be improved. *

WAVING A RED FLAG!

There is a very real danger that conventional approaches to the teaching of science, particularly biological science at school level, has resulted in the closing of as many educational doors as it has opened. Unfortunately the rather one-sided emphasis on information gathering and processing, while forming a sound basis for the development of problem-solving skills, often seems to discount as trivial the very values and feelings that contribute towards creative solutions to problem-solving. One of the doors that seems more closed than open is our approach to our environment! Not much is known about promoting caring, concern, appreciation and commitment; in fact, these words are not even remotely associated with classical science teaching. The very subject that claims to be able to enlighten pupils about their environment is all too often guilty of approaching it with a clinically sterile diagnosis and a naïve optimism regarding technological or genetic solutions to problems that need to be addressed at the level of human emotions. This omission could result in promoting an anti-environmental ethic by studied neglect of commitment of any sort. In our frantic pursuit of information we may be guilty of ignoring wisdom.

HEAD KNOWLEDGE IS NOT HEART WISDOM!

If KNOWLEDGE is that which is known, and may be equated with the possessing of information, then schools are largely organisations that disseminate knowledge. Before we protest this generalisation, let us reconsider the goals we set ourselves in teaching science and honestly admit those we strive hardest to achieve as measured by any standard. Refer to Table 1.

This gap is appalling, frightening and understandable! Some things can be taught, others must be caught. The problem is an old one.

IT IS MY BELIEF THAT

FACTS *WITHOUT* FEELINGS

ARE AS DANGEROUS TO MANKIND AS

FEELINGS *WITHOUT* FACTS.

"Learn where knowledge is, where strength, where understanding, and so learn where length of days is, where life, where light of the eyes and where peace.

But who has found where (wisdom) lives, who has entered her treasure house?"

The Book of Baruch Chapter 3: 14,15.

If knowledge is knowing; then WISDOM is the ability to make the right use of knowledge, to perceive the higher knowledge, to tune one's life to the harmony of spiritual awareness which originates from God and permeates all His works.

TABLE 1 Ranking of perceived goals in science teaching.

A SYNOPSIS OF THE OBJECTIVES IN THE PRIMARY SCHOOL: GENERAL SCIENCE COURSE	ACTUAL ATTAINED OBJECTIVES (RANK ORDER) (AUTHOR'S PERCEPTION)
1. To guide pupils to respect and appreciate the wonders and beauty of nature ...	6
2. To inculcate in pupils a love of and interest in nature ...	6 if at all
3. To stimulate eagerness to learn ... through independent investigation ...	6
4. ... to learn and use correct scientific terminology.	2
5. To inculcate the desired attitude towards research by encouraging them to perform investigations of their own ...	3
6. To provide pupils with those basic concepts and with that factual knowledge that is essential ...	1

Adapted from: *The Education Gazette* 5/10/1978.

There is a knowledge from without; a truth that is isolated, analysed, reduced to bite-sized chunks in our classrooms and divorced from feelings, values and opinions. Intuition, emotions, spiritual insights and awareness are fractured away from these facts, which are seen in lonely isolation. Objectivity and neutrality are prized. Subjectivity and commitment are suspect. This is a by-product of our classical, science-dominated, western-world view. Never before have we known so much and cared so little. Head knowledge alone is a totally inadequate goal for science teaching tomorrow. Our Western tradition of science emphasises facts, reasoning, intellect, quantitative analysis and matter. These are qualities normally associated with left-brain functioning (Figure 1a). Most of this knowledge comes from without. We load the mind and ignore the spirit. How can children learn to care under these conditions? (Figure 1b).

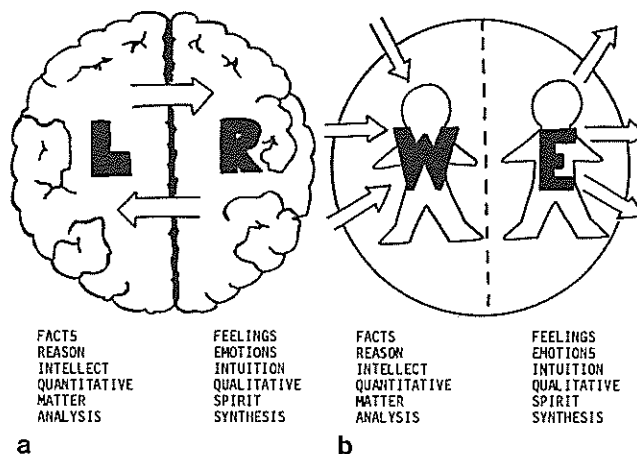


FIGURE 1

There is also a knowledge that comes from within. An awareness of a greater reality too often ignored. The Eastern tradition focuses on the innermost flowering of knowledge, feelings, emotions, intuition, qualitative evaluation, synthesis and spiritual matters take on special meanings. People and what they think and feel really matter.

* This paper is adapted from a lecture and video presented to the 12th National Convention of teachers of Mathematics and Science. Grahamstown, July 1987.

"Your hearts know in silence the secrets of days and nights. But your ears thirst for the sound of your heart's knowledge.

You would know in words that which you have always known in thought."

Kahlil Gibran

Today some science teachers are searching for ways and means of promoting knowledge which also touches the heart and flows through to the hands as informed acts of caring and commitment. Facts are an essential part of this process, but never a final goal!

The past fifteen years have witnessed an exciting rediscovery in the West of the human heart as well as the mind. A wondering *why* in addition to what, how and when! We are beginning to find ways and means of blending our 'hard empirical sciences' with 'soft right-brain learnings' in recognition of a whole new dimension in learning, long understood in the arts but suppressed in the sciences.

THE STRING THAT CONNECTS

Facts without feelings are irrelevant, meaningless and downright dangerous! The world is not run on facts alone. Too often the string of wisdom that links the beads of fact is missing in the necklace of reality. (Figure 2).

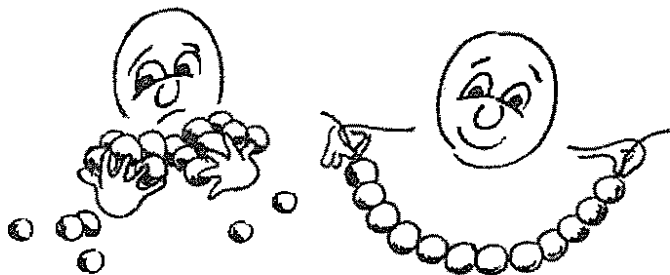


FIGURE 2

"By the beginning of the 1980's almost everyone had come to accept that the way the world still operates - and probably always will operate - is governed as much by how people feel about things as by the cold, hard, logical application of 'just the facts'."

David Hanselman

Objectives we claim to strive for for pupils (see synopsis of objectives items 1, 2 and 3 in Figure 1) do not flow from good information alone, but from an amalgam of their beliefs, emotions and past experiences regarding themselves, significant others and new information. Each child responds out of a totally different mixture where the only common ingredient may be the educational experience shared. We are sometimes naïve to expect all children to respond in the same way to a beautiful experience. How can they? We will need to spend much more time promoting the experiences that develop feelings if we want to see the emergence of a new science that moves our pupils towards caring adulthood that invests our pupils' lives with human dignity again.

SOME EXPERIENCES THAT PUT PUPILS IN TOUCH WITH THEIR FEELINGS

(This section was originally illustrated on video tape and the following represents a synopsis of these ideas and other related activities).

1. Match a musical experience to a slide presentation and know ...

2. Create a visual feeling and know ...
 - ... in water colours; inks; natural pigments; clay; plasticene; wood.
 - ... on bark peelings; on stone; on paper; on natural artifacts; in the sand.
 - ... of a reflection; a shadow; a form; a movement; a texture; a contrast; an association; an outline.
 - ... using brushes, pens, pencils, fingers, natural objects, a chewed twig.
3. To touch and look and know about ...
 - ... Colours in rock pools and sand
 - ... Textures on surfaces
 - ... Pliable, yielding things
 - ... Without seeing it (blindfold)
 - ... Using legs and wrists and shoulders and bare feet
 - ... Things we love to touch
 - ... Things we are afraid to touch
 - ... The beautiful
 - ... The ugly.
4. To listen and know ...
 - ... to be quiet together
 - ... to be quiet alone
 - ... to hum it
 - ... to sing it
 - ... to feel it vibrating around one
 - ... to hear its inside sounds (stethoscope).
5. To look at from another view point ...
 - ... from above it
 - ... from below it
 - ... from a worm's-eye view, alongside it
 - ... from floating around it (underwater)
 - ... from being buried beneath it (leaves)
 - ... from being very close to it (microscope).
6. To discover a feeling and share it.
 - ... to identify it
 - ... to analyse it
 - ... to talk about it
 - ... to refine it
 - ... to cherish it
 - ... to value it
 - ... to communicate it, in mime; in poetry; in prose; in song.

SEEDS OF HOPE

If we want our science to engage the heart and hand as well as the head, then we must set aside time for feelings to develop. This means planting seeds of hope for an unseen harvest and it will take the same faith as the farmer who invests in what is yet unseen for the certainty that is eventually assured.

"Glorious intoxication of soul is the reward of all who seek it in the bosom of nature."

Kahlil Gibran

Can these things be measured? Are they worthwhile? Yes to the first! As to the second, it all depends on what you believe the goal in education to be. This has certainly been reflected in our experience with student-teachers at Mowbray. (Box 1). Is this the sort of environmental response you are looking for in your teaching? I am!

Clearly this is for all - not just the primary school child. The secondary school pupil wants and needs this experience as well, and teachers will discover with surprise and delight that once the right climate is created, pupils are amazingly willing to get involved. The sooner we start the more readily these life-changing lessons are integrated and internalised in the personality of the child ... and head knowledge can begin to move towards a right use of their environment ... the beginnings of heart wisdom.

Is anybody listening out there?

REFERENCES

- CORNELL J.B. 1979: *Sharing Nature with Children*. Altacal Audubon Society.
- OPIE F.W.J. 1987: 'Seeds of Hope: Some reflections on the dawning and growth of environmental consciousness in young children'. *Veld & Flora*. Vol. 73 No. 1 p. 36-40.
- OPIE F.W.J. 1987? 'All things wise and wonderful: Moving on with children from environmental awareness towards environmental appreciation'. *Veld & Flora*. Publication pending.
- STERLING S.R. 1985: 'Culture, ethics and the environment: Towards a new synthesis'. *The Environmentalist*. Vol. 5 No.3 p. 197-206.
- The Education Gazette*. 5 October 1978.

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field. This course thus re-inforces and provides a stimulating extension to the practical teaching programme which is an integral part of the training of each student at Edgewood. Teaching out-of-doors however, makes its own particular demands upon the teachers. For the enterprising Fourth Year student, this provides a new challenge and something refreshingly different from what they have been doing during their previous three years of training.

CONCLUSION

It is common knowledge that students often feel unmotivated by many of the courses they are offered in the fourth year of their training. In most instances this is not due to the quality of the lecturing but because, to put it bluntly, they are 'tired of being lectured to'. It seems that there should be a clear break between the type of tuition offered in the first three years and in the final year. I submit that the course outlined above could serve as a model for some other fourth year courses. Clearly other models might be found to be just as, if not more, appropriate. This course follows closely the structure of one which was pioneered by the Johannesburg College of Education. I was impressed by the unstinting praise given by senior students at that college to their own Environmental Elective; seldom had I seen students so motivated by a course.

It is unfortunate that, at present, the Environmental Elective is offered only to Geography students. If, as at the Johannesburg College of Education, it were open to students from other disciplines, the course itself would be enriched; it could more justly claim to be an example of holistic education, and a far greater number of students could participate. Ideally lecturing staff from a number of disciplines should participate in the programme. It appears that this will be achieved only if a greater degree of flexibility is built into the Fourth Year timetable; this, in turn, can only be made possible if less time is spent *lecturing* to these senior students.

REFERENCES

- BAILEY C. 1984: *Beyond the Present and the Particular - A Theory of Liberal Education*. Routledge & Kegan Paul. London.

BOX 1

STUDENT RESPONSES

- I learn't so much about myself as well as the environment. What an amazing feeling - I was in a spell; in another world. (Raised Beach Trail)
- A beautiful experience - I was 'on a high' and will never think of Silvermine as just a picnic site again. (Forest Encounter)
- I think all my fears related to some of the wonders of nature have come to an end. ... I saw some beautiful things that have only been in books and on films for me. (Underwater Adventure Trail)
- We spent an extra three hours under the stars discussing and learning. What an exciting evening with friends under the stars, enough to whet the appetite for more. Awe inspiring and humbling. (Star Trail)
- I came with a very negative attitude, but my attitude had changed and I have found the experience to be most worthwhile. I feel different towards nature; I have become far more positive. I intend to do far more with nature. (After a three-day Wilderness experience)

- BIRD E.C.E. 1966: 'The Role of Field Studies in Conservation Education.' in Cavernor S. & Whitelock D.H. (eds). *Conservation in Education*. University of New England. Armidale.
- BLOOM B.S. (ed) 1956: *Taxonomy of Educational Objectives: The Classification of Educational Goals, Handbook I: Cognitive Domain*. Longmans, Green & Co. New York.
- DEWEY J. 1929: *School and Society*. University of Chicago Press. Chicago.
- GOLD S.M. 1972: 'Environmental Education: An Educational Prospectus'. *International Journal of Environmental Studies*. Vol.3 No.1.
- HMSO 1972: *How do you want to live? A Report on the Human Habitat*. HMSO. London.
- IUCN 1970: *Final Report on International Working Meeting on Environmental Conservation Education in the School Curriculum*. IUCN Publications. Morges.
- IUCN 1972: *Final Report - European Working Conference on Environmental Conservation Education*. IUCN Publication New Series. Morges.
- LUCAS A.M. 1972: *Environment and Environmental Education: Conceptual Issues and Curriculum Implications*. Ph.D. Dissertation, Ohio State University. Columbus.
- LINKE R.D. 1976: *Environmental Education in Australia, Part I. Final Report on a National Survey of Environmental Education in Australia, 1973/1974*. Cyclostyled, Faculty of Education, Monash University. Monash.
- MINISTRY OF EDUCATION 1960: *Geography in Education*. Pamphlet No. 39. HMSO. London.
- PERROT E. 1975: *Man and his Environment: Biology: An Environmental Approach*. Murray. London.
- O'NEILL B.E. 1970: 'Environmental Education in Australian Schools.' in Evans J. & Bryden S. (eds) *Education and the Environmental Crisis*. Australian Academy of Science. Canberra.

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