

IMPORTANCE OF TEACHING ENVIRONMENTAL EDUCATION AT AN EARLY AGE

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Summary

This chapter focuses on early childhood learning and, in particular, on why it is important to educate young children about the natural environment and about how to relate to it in a way that would preserve its integrity in the interests of both present and future generations.

Although educational psychologists hold differing views on how young children learn, it is generally agreed that early childhood is the ideal time for learning not least because young children have fresh, uncluttered minds as well as strong natural curiosity to learn. Discussion begins with a consideration of the three classic approaches to child learning — the *empiricist*, *nativist* and *interactionist* approaches — of which the last is widely accepted as being the most realistic. The importance of learning in early childhood is then discussed with reference to the highly relevant issues of parenting, motivation and the nature of the learning process itself.

In subsequent discussion it is argued that how we treat nature and the environment is fundamentally determined by our attitude to it, and that our attitude is shaped by our moral values. Therefore, if we are serious about protecting the environment and in achieving at least an acceptable degree of sustainable development in the interests of both present and future generations, then the prevailing exploitative attitude to nature

must give way to one of respect, care and prudent husbandry. It is also argued that this can only be achieved by instilling appropriate moral values in children that would endure throughout their life. But who is, or ought to be, responsible for instilling and nurturing these values in children? Given the pace of social changes now taking place in practically all societies due to pervasive globalization and other factors, it is argued that teachers should take greater responsibility to this end.

It is a fact that educational psychology has evolved, and is evolving, in the particular context of western societies, and the general tendency is to apply it to other societies without adequately taking into account important socio-cultural differences. Obviously this approach is fraught with danger. On the other hand, in many societies there are deeply embedded religious and philosophical traditions, mythology and legends that could be gainfully invoked to instill and reinforce moral values in young minds to respect nature and the environment. These and other germane issues are also discussed in this article.

1. Approaches to Early Childhood Education

There are three different approaches to early childhood (1-8 years) education (Bruce, 1997). One of these, called the *empiricist* approach, views the child as an ‘empty vessel’ to be filled with knowledge, information and skills, or as a ‘lump of clay’ to be molded into shape, meaning that in adulthood he or she will have imbibed the value-system, attitudes and behavior specific to his or her society and culture. The objective is to guide the development of the child to adulthood in accordance with the moral values and nuances specific to his or her society and culture. In this approach, derived from the philosophy of John Locke (1632-1704) and later promoted by psychologist Watson (1878-1958) and others, children are taught life-skills in a step-by-step fashion by ensuring that they become creatures of habit as it were.

At the other extreme, what is called the *nativist* approach views the child as one biologically pre-programmed to behave in certain ways (presumably determined by his or her genetic inheritance). In other words, knowledge is innate. This view, influenced by the ideas of the French philosopher Jean-Jacques Rousseau (1712-1778), does not adequately acknowledge the impact of external factors (such as socio-cultural, climatic and other factors) on the development of children. Interestingly, this view resonates with that of René Descartes (1596-1650), himself a nativist, that all lesser animals are ‘automata’ in the sense that they are biologically pre-programmed to behave in the way they do.

There have been periods when the empiricist approach was dominant, mainly in the USA, while the nativist approach gained favor at different periods primarily in Europe. However, both these approaches are obviously constructs advanced as approximations to what the true nature of education in early childhood is or ought to be, and, not surprisingly, both have been the subject of well-founded criticism. Typically, Gardner (1983) takes the view that it would be wrong, if not dangerous, to adopt either of these approaches exclusively or ideologically, not least because this could deter or even prevent the search for more effective approaches to early childhood education and modalities for their implementation.

The other approach, called the *interactionist* approach, originated from the ideas of philosopher Immanuel Kant (1724-1804). It is actually a combination of the empiricist and nativist approaches, because it views children partly as ‘empty vessels’ and partly pre-programmed. This approach is in line with recent advances in the science of genetics confirming that while a part of how children (and adults for that matter) behave is determined by their genetic inheritance (biological pre-programming), the physical environment as well as external stimuli plays a significant role in shaping behavior too. However, there is dispute over how much of behavior is inherited and how much of it is determined by external environmental factors. This dispute is responsible for the ongoing *nature* versus *nurture* debate among psychologists.

In this context it is instructive to consider the ‘subject’ as a ‘system’. If the system is subjected to external stimuli, it would respond (behave) in its characteristic way depending on its physical, chemical or biological properties. For example, consider the system as a given mass of water and the external stimulus as heat. As the amount of heat applied to the water increases, system response (behavior) changes (rising temperature for example), and, in this case when the boiling point is reached or exceeded, even the physical state of the system changes from liquid to gas (steam). This behavior is *universal* in the sense that the temperature of water will *always* rise as the amount of heat applied to it is increased. It is hard to imagine a situation when this could not be true.

Demonstrably, all physical systems are characterized by their stimulus-response (cause-effect) relationships determined by their physical and/or chemical properties and ambient conditions. Indeed, much of physics is concerned with the prediction of the response (behavior) of physical systems subjected to external stimuli. The exercise is to predict, using theoretical models or experimental observations, how the system would behave when it is subjected to known external stimuli under given ambient or initial conditions.

The question is, could we possibly extrapolate such cause-effect relationships to humans too, and, if so, under what circumstances and to what extent? A heuristic to this would be to say that humans also exhibit such cause-effect relationships because, other things being equal, our behavior also deviates from the norm under high or very high temperature for example. We become more easily irritable and short-tempered. Presumably this bio-physical trait is pre-programmed in our behavior to ensure our survival. But, on the other hand, we also exhibit other behavior patterns, learned through socio-cultural conditioning, that are culture-specific and certainly not universal. For example, a native Englishman is said to have the ‘tight upper-lip’ syndrome that prevents him from showing his true feelings even under intense provocation, because in his culture he has been conditioned to accept that it is bad behavior to do so. However, there are other cultures in which not to show true feelings is considered strange if not offensive behavior.

Typically, John Steinbeck’s novel, *Grapes of Wrath*, gives a vivid portrayal of how profoundly both individual and group human behavior can change in response to extreme external stimuli. In this dramatized but historically correct work Steinbeck shows how an erstwhile ‘civilized’ farming community in mid-western US descended to

a kind of barbaric behavior under conditions of severe and prolonged drought that created the infamous ‘dust bowl’ in America. Of course, geneticists may argue with some justification that such behavior changes caused by external stimuli are also ‘written’ in our genetic code, meaning that we are biologically pre-programmed to respond to external stimuli in the way we do.

Be that as it may, increasingly educationalists are favoring the interactionist approach to early childhood education in preference to the empiricist or nativist approach. The main features of the interactionist approach are (Bruce, 1997):

- It is a much more sophisticated view of the child because it acknowledges the child’s interaction with external factors and stimuli, as well as interaction within the child through the senses. Such interactions bring important changes to the child’s behavioral development.
- It integrates empiricism and nativism, and thus recognizes the two fundamental components that shape behavior — biological pre-programming and external factors, in particular the socio-cultural context in which the child grows up.
- It acknowledges the great diversity of both socio-cultural contexts and external environmental conditions in different geo-political settings that influence the development of behavior.
- It is *not* a one-way ‘top-down’ approach in which knowledge flows from adults to the child (as in the empiricist approach). It is a two-way process in which both adults and the child participate. Sometimes the adults lead the child’s learning, and they make sure that the child takes his or her turn to lead the process too.

Bower (1975) claims that in the interactionist approach behavior development occurs as

“.....environmental events interacting with maturationally generated behaviours. The major causal factors in cognitive developments are behaviours interacting with other behaviours in their application to environmental events.”

Currently the interactionist view of the child may be said to be in ascendancy, and increasingly it is supported by the findings of both socio-cultural research (Rogoff *et al.*, 1993) and neurological research (Greenfield, 1996).

As we have already pointed out, at present there is dispute over how much of a child’s behavior is biologically pre-programmed and how much of it is shaped by external factors. The other pertinent questions are these: are the relative proportions of the two (whatever they are) fixed in an individual, or do they change over time? And, are there interactions between the two with implications for overall behavior?

A consideration of the evolution of the humankind would suggest that the pre-programmed part has probably grown over time through the storage of coded survival skills and vital body functions. In other words, it is plausible that as we evolved, increasingly sophisticated bits of information vital to our body functions and survival became programmed in our *hypothalamus* over time, thus creating what are now the sympathetic and parasympathetic branches of our autonomous nervous system (ANS) over which we have little or no voluntary control. As for the second question posed

above, it is clear that our behavior is influenced by our pre-programming. But is the converse also true? That is, is it possible for one or more traits of learned behavior to become so crucial to our survival that nature might program it into us (here we distinguish between ‘habit’ or ‘second nature’ on one hand, and pre-programming into the ANS on the other). The truth is that at present we do not know the answer to either of the two questions posed above. We only can surmise.

2. Importance of Education at an Early Age

It is clear that with the passage of time the empty part of the ‘vessel’ gradually fills up with received knowledge and information, and, as religious evangelists would confirm, it is far easier to convert an atheist than one who already subscribes to a particular faith or belief-system. Because, in the case of the former, the ‘vessel’ is already empty and therefore easier to fill, while in the case of the latter, the ‘vessel’ must be emptied of existing knowledge and information before it could be re-filled with new knowledge and information. The process of emptying and re-filling can be difficult because, as a child grows up, he or she accumulates life experience and norms and values specific to his or her socio-cultural context. Also, with advancing years we become set in our ways and comfortable with what is familiar to us, and so it becomes more and more difficult for us to change our values or attitudes unless forced to do so by circumstances.

It would follow, therefore, that early childhood is the ideal time for instilling environmental awareness in children and for educating them on the need to care for and respect the natural environment instead of exploiting it mindlessly or degrading it. If done effectively, imaginatively and universally, such education would sustain them through their lives’ sojourn in ways that would ensure that a reasonable global environmental capital is left behind for future generations.

From the psychological point of view, too, there are important reasons for imparting environmental education in early childhood, as will be gathered from Section 3.

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Bibliography

Anderson J R (1995), *Learning and Memory: An Integrated Approach*, Wiley, Chichester, UK. [In this text the author describes the key elements of learning and memory and tries to develop an approach by integrating the two].

Bower G H (1975), ‘Cognitive psychology: an introduction’, in W. Estes (Ed.) *Handbook of Learning and Cognitive Processes*, Vol. 1, Hillsdale, Lawrence Erlbaum Associates Inc., New Jersey. [In this article the author provides a lucid introduction to cognitive psychology, including child development under the interactionist paradigm].

Bruce T (1997), *Early Childhood Education*, Hodder & Stoughton, London. [This book gives an excellent account of early childhood education including the ten principles of learning in the modern context and how they are to be applied in practice].

Coon D (1983), *Introduction to Psychology*, Third Edition, West Publishing Co, St. Paul Minnesota, USA. [This is a comprehensive text that deals with most of the key aspects at the introductory level].

Fontana D (1995), *Psychology for Teachers* (third edition), Palgrave, Basingstoke, United Kingdom. [This text gives a comprehensive and practical guide to psychology for teachers, taking into account new classroom research findings and the widening range of teachers' concerns and responsibilities].

Freud S (1933), *New Introductory Lectures on Psychoanalysis*, Norton, New York. [In this text the author shows how moral development is closely related to other aspects of his psychoanalytic theory. He shows how the three elements of personality ('id', 'ego' and 'superego') constitute the psychic apparatus of personality].

Gardner H (1983), *Frames of Mind: The Theory of Multiple Intelligence*, Basic Books, New York, USA. [In this book the author argues that early childhood tradition is too complex to be characterized as dominantly empiricist or nativist, and that such characterization can thwart the development of more effective learning methods].

Geen R G (1995), 'Social motivation', In B Parkinson and A M Colman (Eds.) *Emotion and Motivation*, Longman, London. [In this contribution the author argues that motivation is a process which energizes, directs and sustains a person's behavior including hunger, thirst, curiosity, etc.].

Goldfarb W (1955), 'Emotional and intellectual consequences of psychological deprivation in infancy: a re-evaluation', In P Hoch and J Zubin (Eds.), *Psychology of Childhood*, Grune, New York. [In this study the behavior of children raised in an institution for the first three years of their life prior to fostering is compared with that of children fostered at a much earlier age. Results showed the former to be less mature at adolescence, less capable of giving or receiving love and emotionally less stable].

Greenfield S (1996), 'A physical base for consciousness', *RSA Journal*, Vol. CXLIV, No. 5470, June, pp. 34-40. [This study on the brain supports the interactionist view of the child, which is that he or she is partly an empty vessel to be filled with knowledge and information and partly pre-programmed to behave in certain ways].

Gross R (2001), *Psychology: The Science of Mind and Behaviour*, Fourth Edition, Hodder & Stoughton, London. [This is a very good text offering a clear introduction to all the key subject areas. In addition, it addresses some of the major applied areas of psychological research].

Harlow H F and Harlow M H (1969), 'Effects of various mother-infant relationships on rhesus monkey behaviour', In B M Foss (Ed.), *Determinants of Infant Behaviour*, Methuen, London. [This study showed that rhesus monkeys, when deprived of adequate parental care and affection in the first six months of their life, find it extremely difficult to form successful social or sexual relationships at maturity and cannot adequately care for, or show affection to, their own offspring].

Kohlberg L (1981), *Essays on Moral Development*, Harper & Row, New York. [Following on the work of Piaget, in this text the author suggests that the moral development of a child progresses through six distinct stages].

Main M and Cassidy J (1988), 'Categories of response to reunion of parents at age 6: predictable from infant attachment classifications and stable over a one-month period', *Developmental Psychology*, 24, pp. 415-426. [In this study the authors demonstrate that the attachment classification of a child remains constant though the early years, unless there are major intervening changes in family circumstances].

Nath B and Talay I (1996), 'Man, science, technology and sustainable development', In B. Nath, L. Hens and D. Devuyt (Eds.) *Sustainable Development*, VUB Press, Brussels. [In this contribution the authors discuss certain pertinent issues of sustainable development, including philosophical aspects, and draw attention to some of the practical problems of implementing policies for achieving true sustainability].

Piaget J (1932), *The Moral Judgement of the Child*, Harcourt, Brace and World, New York. [As an alternative to Sigmund Freud's model of the 'superego' the author explains, by analyzing how children think, how they build up a moral sense as they grow up].

Porritt J (1991), *Save the Earth*, Dorling Kindersley, London. [This excellent publication contains a

large number of short contributions by eminent environmentalists and others concerned with the environment. Much to be recommended for children and adults alike].

Rae A I M (1993), *Quantum Mechanics*, Third Edition, Institute of Physics Publishing, Bristol, UK. [This text gives a mathematical treatment of Quantum Theory. More interestingly, it also gives an excellent discussion of the various philosophical conclusions that emanate from that theory].

Rogoff B, Mistry J, Goncu A and Mosier C (1993), *Guided Participation in Cultural Activity by Toddlers and Care Givers*, Monograph of the Society for Research in Child Development, 58, serial number 236. [The behavior of toddlers and care givers is assessed in this study. The authors conclude that learning by the toddlers approximates more to the interactionist paradigm than that of nativism or empiricism].

Skinner B F (1953), *Science and Human Behaviour*, Macmillan, New York. [This text includes an empiricist approach to child learning. This pioneering author spent about 50 years of his life on experimental psychology, and the book is based on his experience].

Tizard B (1977), *Adoption: A Second Chance*, Open Books, London. [The results of this study show that institutional children adopted into good homes even after the age of three can develop satisfactorily].

WCED (World Commission on Environment and Development), (1987), *Our Common Future*, Oxford University Press, Oxford. [This remarkable document is the report of the Brundtland Commission established by the United Nations in the mid 1980s. It gives much useful data on the state of the global environment and urges nation states to adopt the modalities of sustainable development which, it argues, is the only kind of development that has potential for ensuring a sustainable quality of life for both present and future generations].

Biographical Sketch

Professor Bhaskar Nath received his Bachelor's degree in Civil Engineering from the Indian Institute of Technology, Kharagpur, India, in 1960, followed by the Ph.D. degree from the University of Wales, UK, in 1964. In 1983 he was awarded the D.Sc. degree by the University of London for his outstanding original research (according to citation) in numerical mathematics. In 2001 he was awarded the *Doctor Honoris Causa* (Dr.H.C.) by the University of Chemical Technology and Metallurgy, Sofia, Bulgaria, for his contribution to environmental education.

After having taught at the University of London for more than 27 years, currently Professor Nath is Director of the European Centre for Pollution Research, London; Executive Director of International Centre for Technical Research, London; Editor of *Environment, Development and Sustainability* published by Springer; visiting professor to several European universities, and consultant to a number of international companies and organizations. Professor Nath's research interests include Numerical Mathematics, Elasto-Hydrodynamics, Philosophy, Environmental Economics, Sustainable Development, and Environmental Education. He has more than 100 scientific publications in these and related areas including 13 books.