

The Potential Contribution of Phenomenography to Study Individuals' Meanings of Environmental Responsibility

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Abstract

There have been calls from researchers (see Rickinson 2001) to address the need of understanding the position of the learner in environmental education settings. In my presentation I propose the use of a qualitative research approach called phenomenography (Marton & Booth 1997) to examine the subjective realities of individuals in relation to environmental phenomena. This research is particularly useful in helping teachers and learners in developing more complex understandings of phenomenon. Therefore, it has potential to contribute to critical outdoor education from a teaching and a learning perspective.

Specifically, this paper contributes to the debate over how to explain and study the meanings that people give to environmental responsibility. This will be achieved by: 1) analysing learning theories in terms of their explanations for how people learn about the meaning of environmental responsibility, 2) analysing the utility of qualitative research methods such as phenomenology and grounded theory to study meanings of environmental responsibility, and 3) by offering an additional approach, referred to as phenomenography, that claims to offer a number of theoretical and methodological advantages for explaining difference and change in individuals' meanings. Finally, the paper will suggest how phenomenography might contribute to improving teaching and learning about environmental responsibility.

Introduction

The need for people to adopt more ecologically sustainable and socially responsible ways of living is evidenced by increasing concern over the state of the world's environment (e.g., (Rio-Earth-Summit 2002). According to the Tblisi declaration (UNESCO 1977), environmental education plays an important role in developing peoples' understandings or meanings of environmental responsibility. In turn, these meanings are thought to guide the actions of people in terms of the extent to which they adopt or practice environmentally responsible behaviours.

Given the link between meanings and action, effective environmental education requires some attention to be directed toward comprehending the process of how people develop their meanings of being environmentally responsible. In a recent review of environmental education literature conducted by (Hart, P. & K. Nolan 1999), the authors argue the dominant framework to comprehending this process has been through a positivist approach, and that this approach, makes certain questionable assumptions about the nature of peoples' meanings. In broad terms, this approach assumes that meanings are universal and relatively static phenomena. Whilst this may be the case, the problem with the approach is that individual difference in meaning and the dynamics of change in meaning tend to be under-emphasised.

In response to this situation, researchers have called for additional approaches to study the development of individuals' meanings of environmental responsibility (Hart, P. & K. Nolan 1999; Rickinson, M. 2001). Some researchers (Connel, S., J. Fein, J. Lee, H. Sykes, and D. Yencken. 1999; Loughland T., A Reid and P Petocz 2002; Loughland T., A Reid, Walker K. and P. Petocz 2003) have begun to address this need by using qualitative research approaches to examine the subjective realities of individuals in relation to environmental phenomena.

The purpose of this paper is to contribute to the debate over how to explain and study the meanings that people give to environmental responsibility. This will be achieved by: 1) analysing learning theories in terms of their explanations for how people learn about the meaning of environmental responsibility, 2) analysing the utility of qualitative research methods such as phenomenology and grounded theory to study meanings of environmental responsibility, and 3) by offering an additional approach, referred to as phenomenography, that claims to offer a number of theoretical and methodological advantages for explaining difference and change in individuals' meanings. Finally, the paper will suggest how phenomenography might contribute to improving teaching and learning about environmental responsibility.

Theoretical Accounts of Learning

Theories of learning provide different explanations for how learning occurs. While it is not the aim of this paper to cover all theories or to provide a detailed description or critique of each theory, the intention is to illustrate four theoretical accounts of learning, referred to as behaviourism, cognitivism, and individual and social constructivism. To assist with explanation, these theories will be examined in the context of how individuals might learn to form their meanings of spiders. Although the context of comprehending the meanings of spiders might seem naive, how people understand spiders and their subsequent reactions to the presence of spiders might be reasonably indicative of their broader sense of what it means to be environmentally responsible. In this way, a picture of the value of each theory of learning can be examined.

Behavioural learning theory emphasises the idea that individuals act on sensory awareness and develop knowledge through responses that emanate from the external environment. Behavioural theorists, in various ways, hold that individuals are conditioned to stimuli in the environment and that conditioning leads to the formation of a learned response or habit. The behaviourist model of learning can be used to describe the fear and disgust sensitivity that many people appear to form in relation to the presence of spiders. While not all people are afraid of spiders, a large number of people are afraid and feel disgust because they receive messages from external sources that often emphasise the dangerous qualities or visually unappealing characteristics of spiders. "Don't touch that spider in case it bites you", or "oh it's hairy and ugly" are common exemplars of such messages. Repeatedly hearing such messages may then be sufficient to associate the presence of spiders with avoidance or destructive behaviours.

Cognitivist learning theory holds that knowledge is a product of the internal workings of the mind and that a set of rules or schema are used to build a mental representation

of the phenomenon that is stored in memory for later retrieval. Whilst theorists differ as to the initial source of data, the theory appears to favour the importance of internal dispositional sources above external sources. Learning occurs when a representation is modified in relation to data about a phenomenon and a new representation is assimilated into awareness. In the context of forming a meaning about spiders, cognitivist theory suggests that the meaning of spiders generates from experience informed from innate knowledge.

Individual constructivism posits that individuals generate meaning through a process of social interaction in which they symbolically transform knowledge shared with other individuals into their own individual interpretation. Learning occurs when a new interpretation is developed that fits with the individual's changing experiences and needs. From this perspective an individual learns about the meaning of spiders through sharing observations and ideas about spiders with other individuals, and then internalises this knowledge into their own subjective interpretation of spiders.

Social constructivism posits that communities, institutions, and groups play a major role in the making of knowledge. In particular, the interaction of people within social situations mediates the construction knowledge through participation in social practices that convey meaning. In this view of learning, interaction is related to the desire to fit in with socially appropriate forms of practice. An example of a social constructivist explanation of meaning in relation to spiders is demonstrated in the context of watching individuals interact with spiders and for an individual to appropriate the same or similar practices (i.e., meanings) as expressed by the group.

Each of the four theories of learning presented above appear to offer viable explanations for how people might learn to form their meanings of spiders. However, questions need to be raised as to whether they effectively explain individual differences and whether the constitution of meanings as habits, mental representations, individual interpretations and social constructions are amenable to change.

In relation to the capacity of the theories to explain individual difference, behaviourism and social constructivism emphasise that knowledge is primarily derived from sources outside of the individual and that such knowledge is shared across individuals. Therefore the ability of an individual to form his or her own subjective reality of a phenomenon is limited by parameters established by outside sources.

Conversely, cognitivism and individual constructivism focus on the acquisition or interpretation of knowledge obtained from sources within the individual. Although this suggests a greater role for individual subjectivity, cognitivism presupposes that knowledge is largely derived from internal dispositions. If this is the case, then meanings are characterised as being somehow 'preformed'. This characteristic therefore limits the possibility of intra-individual difference such that an individual would have to change their internal disposition to form a different meaning of a phenomenon. Because individual constructivism presupposes that knowledge is a product of an individual's unique interpretation, it is difficult to know how others individuals can access and comprehend the meaning of that unique interpretation.

Thus, the theory implies that meaning becomes relative to an individual and cannot be truly shared.

The ability of the theories to explain difference is further challenged by their capacity to explain change either in the same individual or across different individuals. There are two reasons to support this challenge. First, habits, internal dispositions, individual interpretations and socially appropriated practices, imply forms of the knowledge that are relatively fixed in nature and that may be resistant or difficult to change. Second, as forms of knowledge: habits, dispositions, interpretations and practices are limited in explaining agency in relation to how people subjectively relate to experience. These forms of knowledge may therefore eschew more relational and contextual forms of knowledge that are shaped by the individuals experience with the world.

Phenomenological and Grounded Theory Approaches to Studying Meanings

Whilst numerous theories have been proposed to explain how individuals come to gain knowledge or meaning about phenomena, several methodologies have been proposed for studying what knowledge or meanings individuals possess. For the purposes of this review, we will focus on two commonly cited qualitative methodologies-Phenomenology and Grounded Theory-that are claimed to provide direct access to individual meanings. Similar to the review of learning theories presented above, we recognise there are some important differences of opinion among proponents of each methodology as to how each methodology can be understood and practiced. Subsequently we will restrict our descriptions of the two methodologies to their essential features.

Both Husserl's descriptive phenomenology and Hiedegger's interpretive phenomenology aim to describe the essence of the meaning of a phenomenon in the individual's life-world. Consequentially, a phenomenological investigation of individuals' meanings of environmental responsibility would seek to describe or interpret the 'essence' or 'commonality' of meaning across the study population. As Van Manen (1990, p.19-40) suggests: "... Phenomenology appeals to our immediate common experience in order to conduct a structural analysis of what is most common, most self evident to us," and further on: "... phenomenology is less concerned with the ... peculiarities or difference of the meaning structures of human experience." Moreover, the perspective adopted by many phenomenological researchers is that of the 'philosopher's point of view'. This perspective implies the role of the researcher is to describe or interpret his or her philosophical understanding of the experience of a phenomenon as it is lived by others.

Collectively, these two characteristics of phenomenological research suggest the methodology is not primarily interested in the subjective experience of individual meanings, or at the very least, it is not focused on emphasising individual perspectives or variations in these perspectives. Thus to return to our example of studying individuals' meanings of spiders, a phenomenological study would seek to describe the meaning of 'spiderness' that holds true for all individuals in a given situation, and

that concomitantly represents the researcher's philosophical reflection of how the lived experience of 'spiderness' appears to individuals.

In writing about grounded theory, Corbin & Strauss (1998, p.24) describe the methodology as " . . . a qualitative research method that uses a systematic set of procedures to develop an inductively derived grounded theory about a phenomenon." In grounded theory, meaning is an important part of the inductive process of understanding phenomenon, but it is a relatively lesser part of a larger aim that seeks to specify predictive or explanatory theoretical relationships among variables that form the phenomenon of interest. Thus it is difficult to imagine the methodology being used to research A Grounded Theory of Individuals' Meanings of Spiders, but more likely, A Grounded Theory of the Relationship Between Meanings of Spiders and Reactions to Spiders.

In order to conduct a grounded theory study, Strauss and Corbin (1990) outline a series of highly detailed analytical procedures that lead to the discovery of properties, dimensions, sub-categories and a core or central category. In writing about the nature of the central category, the authors conceptualise its status in terms of its ability to explain what the research is all about, to pull together all the sub-categories, and to be able to account for all the variation within categories. This reading suggests that the product of a Grounded Theory study is directed toward a theoretical description of a phenomenon that is intersubjectively shared across most or all individuals.

There are two important implications for studying individuals' meanings of environmental responsibility to be gained from this reading of Phenomenology and Grounded Theory and that cast doubt on the utility of the methodologies to reveal subjectivity in meanings. The first implication is that both methodologies assume that knowledge can be intersubjectively shared, but fail to account for the idea that knowledge can be differentially distributed across a study population. That is, not all individuals in the population may have the capability for being aware of the same meanings that other individuals give to spiders or environmental responsibility or whatever other phenomenon is of interest. This limitation is problematic in educational contexts where interest is directed toward individual learners understandings and where starting with these understandings is seen to be a desirable point for facilitating change.

A second implication to be gained from the analysis is that neither methodology provides a descriptive basis from which different meaning can be compared and contrasted. Such information is useful in situations where evaluative judgements are brought to bear on the knowledge that individuals hold in relation to the meaning of environmental responsibility. One could imagine that such a situation would be an important part of helping individuals to discern among different meanings of being environmentally responsible.

Overview of Phenomenography

In recognising some of the theoretical and methodological issues identified in the previous section, a relatively new qualitative research approach called phenomenography has been proposed (Marton, F. & S. Booth 1997).

Phenomenography offers both a theory of learning and a methodology to study learning, and focuses on qualitative variation in learner meanings and the development of meanings. This approach appears to be particularly useful in examining intra as well as inter-subjective differences in learning.

The goal of a phenomenographic study is to determine how individuals' constitute the meaning of a phenomenon and how these meanings differ across individuals. In phenomenography, meaning is described as a relationship formed between the individual and the world. The internalising of the relationship results in what Marton and Booth (1997) refer to as an internal relation, and should not be confused with the mind making meaning but rather that knowledge is acquired through a relational awareness of 'being in the world'. In this way, internal relations become the units of awareness, consisting of both pre-reflective and reflective thoughts and feelings.

Internal relations or experiences of a phenomenon are conceptualised as having two components: a referential and structural component. The referential component describes the 'whatness' of a phenomenon; i.e., what this phenomenon means in everyday language, whereas the structural component, refers to a deeper level of phenomenal meaning. In turn, the structural component is made up of three aspects: (1) how the parts that make up an experience and the phenomenal meaning of these parts, form a 'holistic' or 'gestalt' like appearance; (2) how these parts appear to be organised or arranged in awareness; and (3) how the phenomenon is delimited from other phenomenon. Differences in meanings within the same individual or across other individuals reflect differences in these three aspects. The analytic procedures for conducting a phenomenographic study are outlined below to illuminate how the methodology takes account of the subjective difference that an individual may have as well as the differences between individuals.

Conducting a phenomenographic study starts with interviews that aim to elicit individuals' referential descriptions of the phenomenon and then probes these descriptions for the structural aspects of experience. Analysis of interview transcripts aims to sort and pile descriptions of experience on the basis of their similarity and dissimilarity using the structural component as the analytic tool for comparison. The results are generally reported in terms of 'categories of description' that reflect differences in the meanings of experiences. The combination of categories makes up an experiential field of awareness for the study population and is referred to as the outcome space.

The next stage in a phenomenographic study is to interpret the outcome space as a continuum of categories that display relatively less or more complex meanings of the phenomenon. The justification for understanding the categories as a continuum of experience can be justified on two grounds. First, some categories may contain aspects of other categories, in which case they are more complex because they not only reflect these categories, but they also extend meaning beyond what other categories indicate. Second, the structural aspects of some categories might display deeper or richer meanings in the parts that make up the experience; the parts of an experiences may be arranged in a more sophisticated (e.g., integrated) pattern of organisation; and the phenomenon may be delimited in ways that are more concrete or perhaps more abstract. In either case, less complex categories typically reflect more partial understandings where as more complex categories; reflect less partial or more

complete meanings. Determining complexity calls for critical judgements that can be made either by the researcher or by the participants, or by the researcher and participants working in collaboration to explore the possibilities of meaning in relation to their potential for action.

In summary, this brief overview of phenomenography acknowledges that knowledge can be differentially distributed across a study population such that not all individuals in the population may have the capability for being aware of the same meanings that other individuals give to the phenomenon. Because phenomenography recognises that knowledge is both qualitatively different and differentially distributed, change in meanings can be addressed at the point of learner's subjective awareness. This differs from other theoretical and methodological approaches because its prime purpose is to differentiate subjectivities of meaning in the attempt to comprehend awareness and the learning process.

Problems with Phenomenography

Critiques of phenomenography can be categorised into two areas of concern. Firstly phenomenography can be criticised in similar ways to that of other qualitative methodologies. The second type of criticism concerns how phenomenographic method has been conducted. I will briefly outline the issues and give signposts to the sources of these debates.

The foremost criticism of phenomenography is that the procedures invariably fall foul of the dilemma of qualitative method in that the researchers search for interpretive authenticity is moderated by the need for scientific rigor (Richardson, J. 1999). In the actual method of analysis this dilemma occurs at two stages. Firstly when the researcher categorises the transcripts to see patterns of similar content and structure of phenomenon. Webb (1997) argues that the tension between the qualitative interpretations of the researcher to empathise with the Other is at odds with the positivist pressure to develop scientific rigor. Phenomenography with its usually short and semi structured interview techniques have difficulty in the development of what hermeneutical understandings of the research call 'authentic openness to the Other'.

In addition to the problems of validity, the issue of reliability are present in the process. However at this stage the problem can be avoided to some degree by having and external review examine exemplars and outliers of each category.

The second stage after the mapping of meanings has been made is the categorisation of the complexity of the categories based on the content and structure of the meanings elicited. This stage of the analysis is more problematic than the first stage. In order to determine what denotes a more complex meaning from another meaning these problems are to some extent overcome by again obtaining a referential third party researcher. Also the results of the ordering of the complexity of meaning can be 'fed back' to the learners for verification of the classifications of complexity.

In addition to the interpretive dilemmas faced by Phenomenographers the next criticism is that of the problem with the discursive accounts of individuals in the

interview situation. Richardson (1999) suggests the accounts are not mental entities (internal relations) about the particular phenomenon under study but rather the accounts are the experience of the interview. This means that the social construction of the interview deems that the individual is subject to influences within the interview when recounting the experience of the phenomenon. Because of this, the authenticity of the account of the phenomenon outside the interview is again questioned. Cross-referenced questioning that recount experiences and also feeding the results of the mapping back to learners will help to confirm the categorising of meanings. .

It must be stress here that the mapping of meanings and the ordering of the meanings by the researcher represent the relationship between the researcher and the data. This relationship need not be the only relationship between the researcher and the data. As such the findings cannot be empirically proven but the outcomes can be 'argued for' by the researcher (Akerlind, G 2002).

The next two issues relate to how the methodology has been typically undertaken. The first relates to the researcher empathy and life world of the learner and the last issue relates to gender.

First issue is about the authenticity of the responses in the interview process. The question of how the researcher enter into the life world of the learner, is partly answered by(Ashworth, P. & U. Lucas 2000). They outline some guidelines for the conduct of research to ensure that an empathetic understanding of the life world is undertaken. In particular they emphasise the interview should elicit the emotional meanings of the participants' experience to help determine the dimensions of change from one complexity of meaning to another.

(Hazel E., L Conrad and E. Matin 1997) draws conclusions similar to Ashworth and Lucas (2000) but uses a feminist lens to critique the methods of typical phenomenographic approaches. The major contribution of this critique to the improvement in phenomenographic technique is their observation that the 'outcome space' tends to be defined in cognitive terms and does not allow for affective dimensions. Thus 'feminine ways of knowing' are not usually reported in the results of the outcome space. Attention to gender sensitive questioning techniques and the attention to the gendered construction of disciplinary knowledge whilst categorising and analysing the data are vitally important to improvement in the outcomes of the outcomes space.

These critiques offer direction to the study of difference and change because the theme of criticism is that the method need to sharpen authentic comprehension of experience. The bracketing method seems to be a reasonable attempt at mapping difference but the focus on understanding individuals meanings of experience needs to be sharpened. Not withstanding these criticisms the method does have merit in the pursuit of understanding the subjectivities of learners and the learning process of environmental responsibility.

Potential contribution to outdoor environmental education research and practice.

To date the studies targeting environmental education that use phenomenography are few. The accounts of phenomenography I wish to outline are Loughland's et al. (2002, 2003) research and research into the democratic awareness of young people.

Loughland's et al. (2002, 2003) focused on young people's conceptions of environment using phenomenographic analysis. In their research the phenomenographic approach was used to examine how students responded to the question: 'I think the word environment means...?'. This research used written questionnaires to elicit responses to this question and although they state that further interviews are planned this limitation means that the published research cannot explain how young people can develop more complex ways of understanding the environment. What they did find was that the majority of young people studied from the Australian country town understood the environment to be an 'object out there' but there was a minority of young people who saw it as a 'relation' indicating a more complex meaning. This result, in part, answers the call from Payne (1998) who emphasises that unless researchers and curriculum planners understand the needs, interests and understandings of learners then our educational efforts will be ineffective. However there are problems with the Loughland et al. (2002, 2003) research.

The difference between written interviews and in depth face-to-face interview has been outlined by a reflexive research account by Taylor (1996). He concluded that face-to-face interviews lead to a different conclusion about the complexity of awareness of students. This finding is important because the published findings of Loughlan's et al. (2002, 2003) may need validation. Further research based on interview data is needed to determine how learners shift towards more complex ways of understanding the human-world relationship so that teachers can help students develop this awareness.

The other study that deserves mention is a study of democratic awareness among young people. The reason for inclusion here in this debate is that lessons from popular education studies may help outdoor environmental education research determine the methods and content of future phenomenographic research into critical outdoor environmental education practice. This study on young people's understanding of core principles of democratic life focussed on the concept of dissent. In their analysis young people were found to construe dissent as deference, dialog and defiance. Age seemed to be a factor in the development of meanings and awareness with the older adolescents having a stronger sense of purposeful and strategic dialog but with the possibility of defiance within dispute resolution situations. The responses that were categorised into the more complex meanings indicated that students had experienced conflict in deciding what forms of action to take. One of the hallmarks of the complex category was that the actions or inactions of students were undertaken with personally conflicting moral judgements. This study on democratic action highlights that more complex meanings are not simply an addition of more simple situations or that simply getting older will allow for more complex understandings. Teaching

approaches that highlight the prior lived experience of students was a conclusion of the study.

The potential contribution of phenomenography to outdoor environmental education research and practice lies in its ability to account for difference and change in meanings people have about phenomenon. These two studies outlined briefly above display the potential of the phenomenography. Even considering the critique of phenomenography the potential of the method for outdoor environmental education to contribute to the knowledge of the needs, interests and understandings of learners is great.

These potentials can be summarised by the following points.

- Unlike the existing accounts of learning phenomenography implies that forms of the knowledge that are not fixed and therefore are not resistant or difficult to change.
- Phenomenography holds that the units of awareness are a relational being in the world and this means that meanings are differentially distributed according to people's awareness of experience.
- Unlike other methodologies differences in the subjective meanings that individuals have about particular phenomenon can be described.
- That complexity of meanings can be described from the point of view of the individual experiencing phenomenon.
- That the paths for development and change of individual meanings can be mapped.
- That a phenomenographical account of leaning offers an explanation of agency within an experiential setting.

These points mentioned above allow for outdoor environmental educators to understand “where learners are at” the same time as helping develop more complex meanings of how to experience the world in “environmentally appropriate ways”. Attempts at developing critical perspectives of learners need to address the position of learners and their learning process. Phenomenography is one way that can help the learner and the teacher in this process.

Appendix 1. Comparison of Methodologies

| Subject of Comparison | Phenomenography | Grounded Theory | Phenomenology |
|------------------------------|--|--|---|
| Object of study | Understanding of phenomenon by categories of subjects meanings of a phenomenon | Understanding of phenomenon by constructing theory that is derived from an iterative description | Understanding of phenomenon experiencing and reflecting upon the life world of the subjects |

| | | | |
|---|--|--|--|
| | | and ordering of phenomenon | |
| Research Question Example | “What are the qualitative different meanings that participants give to the experience of caring for the environment?” | What do people understand by the notion of “caring for the environment” | “What are the inner and outer realities that describes what it means to care for the environment?” |
| Data collection method | Interviews, Texts. | Interviews, Texts, Journals | Interviews, participant observation, language analysis, texts, literature etc. |
| Analytical Tools | Interpretation of sections of text and whole accounts. <i>Cut and paste.</i> | Theory derived from data through interplay between the researcher and the data whereby the relational comparison of responses yields theory of phenomenon. <i>Coding of actual sections text.</i> | Empirical analysis of pre-reflective experiential material and/or reflective interpretation of the aspects of meaning or meaningfulness that are associated with this phenomenon. <i>Determining essences of experience</i> |
| When does the analysis occur | Post data collection (may have follow up collection to verify expand meanings) | During data collection and post data collection | During data collection and post data collection |
| Relationship between data collection analysis and theory formulation | All three stages are separate but intuitive interpretation can help each stage and some iteration possible | All three stages are “fused” occur simultaneously and iteratively | Variable methods |
| Rigor | Seeks reliability through systematic reduction of data and external checks – secondary researcher examines categories made by the primary researcher | Seeks reliability through the positivist approach of reducing subject responses using a systematic and reproducible method of interpretation | Seeks reliability by arguing that the interpretation of essences are reliable through immersing the reader within the life world of the subject. |
| Generalisability | limited to similar populations | extensive across populations | limited to the time, situation and the researcher |

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