CHAPTER 1: INTRODUCTION

1.1 Background to the study
One of the greatest problems facing Earth is the impact of humans on natural environments (Arcury & Christianson, 1990; Stern, Dietz, & Kalof, 1993). The impact of human development on environments has reached a scale and complexity that is unprecedented in world history (Dunlap, Van Leire, Mertig, Catton & Howell, 1992; UNESCO, 1997). Environmental problems are now of such significance that environmental issues have become the focus of international conferences for three decades. In 1992, the World Conference on Environment and Development was held in Rio de Janeiro, Brazil to facilitate international agreement about tackling global environmental problems (Cooper, 1994; UNESCO, 1997). This United Nations’ conference was followed by the Cairo conference in 1994 where the emphasis was on population, then in 1995 by Copenhagen (social development) and Beijing (women), in 1996 by Istanbul (human settlements) and in 1997 by Thessaloniki where the focus was on environment and society (UNESCO, 1997). These international events, along with national and local initiatives, have heightened public awareness of environmental problems and the need to work towards their solution.

Heightened public awareness of and concern for environments have not been restricted to governments, ‘green’ organisations and other high profile groups. Across the world, the general public has actively demonstrated awareness of and involvement in environmental issues (Steger, Pierce, Steel & Lovrich, 1989; Arcury & Christianson, 1990; Shetzer, Stackman & Moore, 1991; Dunlap, Gallup & Gallup, 1992; Hausbeck, Milbrath & Enright, 1992; Vining & Ebreo, 1992; Arcury & Christianson, 1993; Stern, et al., 1993; Cooper, 1994). Recognition of the vast range of environment related problems is significant in itself and has encompassed locally relevant issues – such as landfill, re-routing waterways, urban developments, industrial pollution and recycling – to more global issues. Some of the global environmental problems facing humankind include atmospheric warming as
a component of climatic change, the destruction of rainforests and threats to biodiversity, accelerated rates of land degradation and desertification, population resource imbalances, urban decay, nuclear accidents, and the disposal of toxic wastes. These, and many more recognised environmental issues, threaten the quality of human life, the longevity of humanity and the sustainability of the Earth’s global ecosystems, and are exacerbated by the strictures of third world debt, poverty, threats to human rights and peace, indiscriminate development and first world profiteering (UNESCO, 1997).

It was against this backdrop that the agenda and goals for the Rio Earth Summit (1992) were set. The Rio Conference, subsequent UNESCO conferences, government and non-government organisation conferences at regional and sub-regional levels, are important because they have acknowledged environmentalism at a global level and recognised the need for global solutions. In addition, the participants at the Rio Earth Summit and subsequent conferences brought with them a range of experiences and perspectives on environments (Janse van Rensburg, 1994). The environmental perspectives and attitudes different people and cultures have are important in an age of global environmental awareness and action. Exploration of the causes, development and influence of environmental attitudes on environmental decision-making has the potential to inform policy and provide a firmer basis for global cooperation on decisions taken.

Until recently, psychological research was strongly influenced by the tripartite theory of attitude which stated that attitudes comprise affective, cognitive, and behavioural components (Fishbein, 1967). Later research saw a reconceptualising of behaviour as a consequence rather than as a component of attitude (Chaiken & Stangor, 1987; Tesser & Shaffer, 1990). The implication is that an individual’s actions towards environmental problems are likely to be determined by attitudes towards environments. Therefore, an individual’s environmental attitudes may be useful predictors of their environmental behaviours. In addition, Milbrath (1989) suggested that an individual’s environmental attitudes are aligned with social systems and institutions so that it may be possible to generalise about groups of people or communities from data collected about individuals. Thus, environmental attitudes held by
communities may be predicted according to social and cultural orientations held by individuals.

Environmental problems are global problems even when requiring local solutions and as such need to be viewed and solved cooperatively by many people who originate from a variety of cultural backgrounds (UNESCO, 1997; Yencken, Fien & Sykes, 2000). If environmental action is to occur and be effective at a global level, environmental attitudes will need to be in harmony with a more global view of environmental priorities. Therefore, a significant change in social direction and values will need to take place if the world is to reorient and change environmental attitudes. This change in social direction and values will also strategically position different communities so that they are more able to cooperatively solve environmental problems (Arcury & Christianson, 1990).

1.2 Rationale for the study
It is hypothesised that the culture of a community, as reflected in the shared values, views and belief system held by its members may provide explanations for and an understanding of the attitudes held towards environments. Similarly, the environmental knowledge held by a community may also be an important factor in understanding similarities and differences in environmental attitude (Kellert, 1991; Plunkett & Skamp, 1994; Clarke, 1996). The organisation and nature of environmental education in the school curriculum may account for similarities and differences in primary sources of knowledge between cultures and communities (Jickling, 1991; Fien, 1992; Greenall-Gough, 1992; Robottom, 1992; Spork, 1992).

Until the 1970s, natural scientists held that natural environments were separate from and controlled by humankind and that humans were not subject to the laws of nature (Dunlap & Van Liere, 1978; Arcury & Christianson, 1990). During subsequent decades, there has been an increasing recognition that humankind is a component of environments (Arcury & Christianson, 1990; Dunlap et al., 1992; Stern et al., 1993). Change in the conceptualisation of environments has been accompanied by a realisation that environmental issues and the human impact on environments cannot be
understood and managed in isolation from human social and cultural values. The result has been a recognition that environmental crises have to be managed through a changing human sociocultural education program in synergy with changing environmental values and lifestyle choices (UNESCO, 1997).

The cultural heritage that characterises societies and is passed from one generation to the next tends to be fairly stable (Kolland, 1994). Hence, the incorporation of any new direction or view into a culture, while often valued, is a significant change with the potential to cause intra-cultural tensions. Moreover, different cultures incorporate and adapt similar views and beliefs differently (Madsen, 1993). Consequently, even when there is agreement at an international level to cooperate and overcome environmental problems, the translation of ideas into action by different communities can be modified by their cultural context, identity and the process of enculturation. By implication, effective intercultural cooperation requires an awareness of the influences of culture on one's own views and on views held by others (Giroux & McLaren, 1994). Consequently, environmental education may need to actively accommodate knowledge of inter and intra-cultural influences.

Research (Arcury, Johnson, & Scollay, 1986; Milbrath, 1989; Arcury & Christianson, 1990) indicates a strong positive relationship exists between environmental knowledge, favourable attitudes to the environment and the ability and willingness to solve complex environmental issues. However, some researchers (see for example Gough, 1997) question the strength of this relationship. When considering environmental knowledge as a means of explaining and understanding similarities and differences in environmental attitudes, Fien (1994) and Clarke (1996) suggested that knowledge transferred systematically by the school curriculum is valued differently by different people because individuals place different priorities on the importance of knowledge. The greater the value placed on environmental knowledge, the more individuals will strive to acquire environmental knowledge with the consequence that individuals will be able to more effectively deal with environmental issues and interrelate and interpret competing values, attitudes and ideologies to resolve conflict and solve complex environmental
problems (Maloney & Ward, 1973; Maloney, Ward & Braucht, 1975; Gifford, Hay & Boros, 1982; Borden, 1985; Sia, Hungerford & Tomera, 1985; Hines, Hungerford & Tomera, 1986; Monroe & Kaplan, 1988; Plunkett & Skamp, 1994). This study seeks to address this issue by examining the relationship between the value a community places on knowledge, the acquisition of environmental knowledge and the subsequent impact on environmental attitudes. This is a more coherent approach than previous studies (Hausbeck et al., 1992; Clarke, 1996) which were unable to fully explain unexpected relationships.

The Tbilisi Declaration launched in 1977 has been a major influence on environmental education worldwide since it established the central role of education in environmentalism (Cooper, 1994). Even so, environmental education is a relatively new curriculum area, with a history of less than forty years. At the Earth Summit in Rio (1992) it was agreed to develop a plan for environmental education across participating countries by the end of 1995 (Fien, 1997). In 1997, the international conference, Environment and Society: Education and Public Awareness for Sustainability, was organised by UNESCO to highlight the role of education and public awareness for sustainability. Its purpose was to consider the contribution of environmental education in the context of sustainability and the nature of future action with regard to environmental education (UNESCO, 1997). As well as the more general United Nations conferences mentioned earlier, the 1993 Istanbul conference followed up on the education initiatives of the Rio conference. However, it was the Thessaloniki conference that identified environmental education as a key means of incorporating the concept of sustainability as part of environmental attitudes.

In future, science, ecology, development, and human respect and understandings will be as essential to comprehending the world as reading and writing have been for the past century (UNESCO, 1997). A fundamental reason for this is that these ideas are now being assimilated and integrated into a broadening view and understanding of environments, and delivering a relatively new concept known as ‘environmentalism’ (see Yencken et al., 2000). Consequently, the task of environmental education is to communicate
and integrate these complex understandings into the fabric of society and empower people to actively seek their individual and collective place in the socio-ecological web of life here on Earth (Greenall-Gough, 1992; Coolsaet, 1994; Clarke, 1996; UNESCO, 1997). Educational researchers have reported exemplary environmental education practice occurring in schools, theorised about improvements and worked with teachers to implement environmental education in schools (Walker, 1997). However, there is evidence that this research had little influence on directing and improving the learning and teaching of environmental education in some schools (Walker, 1997). There is also research evidence that environmental education is not being implemented in some Australian schools (Phipps, 1991; Spork, 1992; Walker, 1995; New South Wales Department of School Education, 1996; Walker, 1997). Therefore, the influence of environmental education on environmental attitudes may vary from community to community depending on how it is being received and implemented by that community.

Consequently, there are three areas that may provide insights to account for and help to understand similarities and differences in environmental attitudes between different communities. The first is the influence of a community’s culture, the second is its environmental knowledge and the third is its environmental education program within the context of the community’s curriculum.

1.3 Statement of the research aim and hypotheses
The aim of the study is to identify environmental attitudes held by parallel groups of people in a sample of different countries, and to explain similarities and differences in attitudes between the different communities, especially in terms of the belief structures and systems of the different communities.

Three hypotheses will be explored:

- that culture and cultural identity are important influences on environmental attitudes held by a community and that understanding aspects of the culture will explain the environmental attitudes held by a community;
• that knowledge is important in the development of environmental attitudes and that the nature of a community's environmental knowledge will explain the environmental attitudes within a community; and

• that the formal education programs implemented by a community may influence the knowledge and attitudes developed. Therefore, the formal environmental education programs taught in schools will impact on the environmental knowledge and influence the environmental attitudes of a community.

1.4 Selection of communities
Teachers have an important role in educating the community about environmental issues (UNESCO, 1997). Student teachers may influence the knowledge and attitudes of future generations in making environmental decisions. Therefore, student teachers were selected as the target group because they exhibit a range in knowledge about environmental issues and attitudes towards environments (Leeming, Dwyer, Porter & Cobern, 1993).

The selection of communities was guided by the desirability to have at least one teacher education institution with over two hundred students as a minimum sample size based on the number of item questions in the largest part of the survey questionnaire (Sudman, 1976). It was also hypothesised that a larger sample would increase the potential to identify different environmental views across participating communities and that diversity between communities would heighten the probability of identifying relationships between cultural background and environmental attitudes. However, because the sample was purposively selected, the number interviewed small and the method of data analysis contextualised by the sample, the findings will only be representative of the community studied. Consequently, the results cannot be transferred any further than the community in which the data were collected.

Three communities to which the researcher had access, one in each of Australia, the Republic of Maldives and Indonesia met the requirements
outlined above. The ethnic composition and cultural background across each of the three communities is diverse. The Maldives has a relatively homogeneous ethnicity composed almost exclusively of Maldivians. Indonesia has a mix of many ethnic groups, although the vast majority of Indonesia’s people are of Malay background with the main island Java being dominated by Javanese sharing the common language, Bahasa Indonesia (Embassy of Indonesia, Ottawa, Canada, 1996). Australia is a multi-ethnic country (Milne-Home, Power & Dennis, 1996; Hugo, 2001). Hence, the three communities selected represent a range in ethnic diversity. The three communities are also economically diverse (United Nations Statistics Division, 1999). Australia is a developed country with an economy based on advanced technology and a per capita GDP of US$21,319. Indonesia is a developing country with a large economy making rapid technological advances with a per capita GDP of US$674. The Maldives is also a developing country with a per capita GDP of US$1,382 and a growth rate of 6.6% compared to a growth rate of 5.7% for Indonesia. The Republic of Maldives is geographically dispersed comprising more than 1,200 atolls with under-developed transport and communication systems (UNDP & MPND, 1998) posing problems for development, with the capital, Malé, the most developed. It was anticipated that these factors, along with a diversity of land development practices and activities (Seven Seas, 1996; Government of Maldives, 1998; United Nation Environment Programme, 1999) might combine to produce a variety of attitudes towards environments and/or reasons for these attitudes.

Another important consideration in the selection of the three communities was the promotion of deeper understandings among institutions that share similar academic programs and professional links. Shared interests and common research projects are of scholarly value to academics, to academic institutions and to international academic relationships promoting research collaboration and personal and institutional connections. Moreover, the established links between each teacher education institution would facilitate data collection for the study.

All three countries are relatively close geographically and the promotion of regional connections and collaboration was viewed positively by each
institution. The relatively local focus for the study also served to highlight similar regional environmental concerns and so provide a sense of common purpose within the region.

1.5 Outline of the thesis
The thesis comprises five chapters. Chapter One provides a rationale and overview and outlines the scope of the study. Drawing on the literature, it argues that humans have had a large and complex impact on environments and that these impacts have created global environmental problems. It also argues that human environmental actions are influenced by environmental attitudes and that cultural structures and belief systems may influence these attitudes. Consequently, environmental problems need global solutions requiring intercultural understanding and cooperation. It is further argued that intercultural understanding could be promoted through education. The research problem is to identify environmental attitudes held by different communities and to ascertain what influence, if any, cultural belief structures and systems, environmental knowledge and education programs may have on these attitudes. Chapter One also justifies the selection of the research sample.

Chapter Two reviews the relevant literature and argues the hypotheses posed by the research problem. It explores the different interpretations of the term environment as well as analysing what is meant by an attitude. It explores the theory underpinning the Human Exemptionalist Paradigm (HEP) and outlines the emerging concept of the New Environmental Paradigm (NEP). Chapter Two derives a theoretical model for the NEP, which locates the dimensions of environmental attitude within it. The concept of culture is explored and described as a complex interaction of a number of subjective and objective dimensions, each reflecting different levels of insight into the term. Chapter Two argues for the selection of some cultural dimensions, known as worldviews, to provide insights into culture. Environmental education is examined in terms of its ability to promote ecological sustainability through lifestyle changes and its ability to influence values and attitudes. Chapter Two concludes with an outline of the conceptual
framework. Operational definitions of the main terms used in the study are provided as they arise.

Chapter Three outlines the research design and the qualitative and quantitative methods employed. The research instruments are described, along with the process of collecting the data. Methods of data analysis and a detailed description of the sample sociodemographics are also provided.

Chapter Four presents and discusses the study findings, suggests reasons for the findings and outlines the relationships between the different findings. First, data collected for each community about attitudes towards and views on environments are analysed, followed by data collected and analysed about intercultural understanding. The interview findings lead each discussion and are followed by the questionnaire findings. Discussion of findings occurs as issues arise, along with suggested reasons for findings. A comparison of the similarities and differences follows the individual community discussions, which occur in context. The chapter concludes with the findings for intercultural understanding used to suggest explanations for the environmental attitudes identified.

Chapter Five states the conclusions and implications of the study, and makes recommendations and suggestions for practical applications of these findings and further areas for investigation.
CHAPTER 2: LITERATURE REVIEW

2.1 Environments
This research is fundamentally concerned with attitudes towards environments held by student teachers in three communities in three different countries. However, a review of the literature shows that there is no common, central concept of the term environment. Di Chiro (1987) suggested that the concept of environment is lacking a theoretical background and that environmental education literature and syllabus documents reflect this. Whitehouse (1993), after analysing a number of syllabus documents, concluded that there were significant inconsistencies in the conceptualisation of the term. Environment was used in both the singular and plural sense even within the same syllabus document. For example, Victorian syllabus documents state that one ‘Aim’ is for students to “develop an understanding of the structure and function of a range of environments” while another is for students to “develop proposals for the protection of the environment” (Victorian Curriculum Assessment Board, 1992).

When both general environmentalists and curriculum writers discuss environments and environmental issues, the ‘environment’ is commonly equated with the ‘natural environment’ which is conceptualised as a singular, all encompassing entity which exists outside human society (Whitehouse & Taylor, 1996). Taylor (1993) asserted that it is the loss of this ‘naturalness’ that is the concern of environmentalists and that environmental education promotes action on behalf of the environment. She went on to argue that the natural environment is often treated as the victim of environmental problems (Taylor, 1993). Subsequently, when people use the singular form of the environment, they are referring to the natural environment whereas the plural form signifies a more complex view of the term extending beyond the natural environment.

The notion of the environment as being a separate entity from human society is also inconsistently conceptualised in curriculum documents. At times it is
regarded as part of natural systems while at others it is treated as distinctly separate from natural systems. This is well illustrated by the South Australian Environmental Studies Stage 1: Extended Subject Framework. This framework states “human beings are a part of natural systems”, and then goes on to say that “for the purposes of study a distinction would be made between human and natural systems” (Senior Secondary Assessment Board of South Australia, 1991).

Taylor (1990) argues that from an ecological perspective there is no natural environment or component of the ecosphere isolated from human influence. The logical extrapolation of this argument is that humans are both physically and conceptually integrated elements of environments dominated by natural systems. Therefore, a more accurate conceptualisation of environments is that they are dynamic interacting systems, defined by settings or contexts which are subject to human influence (Taylor, 1990). As a consequence, the term environment has both material and experiential dimensions (Whitehouse & Taylor, 1996). Different societies, individuals and cultures continually exert influence on and reshape the environments they inhabit. Since societies, individuals and cultures change over time, the places they inhabit also change over time. The implications for the meaning of the term environment is that it is plural rather than singular and dynamic rather than static, and varies over time in response to the complex interaction between its social, cultural, economic, political, geophysical and biological components (Whitehouse & Taylor, 1996; UNESCO, 1997).

The growing awareness of the scope and complexity of environmental problems on Earth has highlighted the role of humankind as a vital part of environments. Environments are no longer viewed solely as nature and natural systems but as a complex web of social, cultural, economic and political systems integrated together and interacting with geophysical and biophysical components that constitute the totality of our surroundings (Whitehouse & Taylor, 1996; UNESCO, 1997). This broader conceptualisation of environments has been accompanied by recognition that environmental issues cannot be effectively understood and managed outside the context of human social, cultural and political values. As a consequence, it has been
argued that environmental crises need to be managed by educational change in synergy with changing environmental values and lifestyle choices (UNESCO, 1997). This view of humans as an ecological component of environments does not advocate that humans should manage environments. Rather, it acknowledges the role of humans as managers of their ecological influence and impact.

Without a concerted effort on the part of humanity, to actively recognise and deal with the significance of different environments for the well being of all within the biosphere, the biosphere may be in danger of moving outside what is ecologically sustainable for life as we know it on Earth. This means that humans will need to acquire information about natural ecosystems and complex human sociocultural environments and use it to ensure their harmonious and sustainable interaction. Therefore, the environmental attitudes of different communities influence their views of natural environments as well as their interactions with environments generally.

2.2 Attitude

It has been argued that attitudes are composed of both affective and cognitive components, each having a conative dimension which acts to shape them in a predetermined direction (Gray, 1985; Chaiken & Stangor, 1987; Tesser & Shaffer, 1990; Clarke, 1996). According to Edwards (1990), the affective component includes emotions, feelings, or drives associated with the target object. Cognition, on the other hand, includes beliefs, judgements, or thoughts associated with the target object or event. The cognitive and affective components of attitude are not dichotomous. Rather, they are interconnected and have a reflexive relationship. Nevertheless, attitudes can be disproportionately affective and cognitive. In the former case, an attitude is formed with little cognitive appraisal, as evidenced with reactions such as phobias or prejudices. In contrast, affect plays a minor role in cognitively based attitudes, and domain-relevant information is used as the basis for attitude formation (Edwards, 1990).

Empirical investigations appear to support the cognitive/affective model of attitude formation. Breckler and Wiggins (1989), for example, examined
attitude composition and found that affect and cognition did interact to shape attitudes and the degree to which one or the other is present will often depend on the issue. Chaiken and Stangor (1987) foreshadowed this finding and suggested that sociopolitical issues will be primarily cognitive whereas responses to objects such as spiders will be based primarily on affective dimensions. Therefore, it could be predicted that some behaviours are differentially influenced by the attitude components underlying them. Stangor, Sullivan and Ford (1992), for example, found that the affective component better predicts prejudice than the cognitive component of attitude. Similar results have been reported (Olson & Zanna, 1993) suggesting that reactions towards groups and communities are more affectively than cognitively based.

Attitude, therefore, can influence how people think and subsequently behave. Williams (1979) reported that actual selections of behaviour result from concrete motivations in specific situations that are partly determined by prior beliefs and values. Indeed, Homer and Kahle (1988) demonstrated this relationship using structural equation modelling. They found that values tended to influence attitudes and that attitudes significantly predicted subsequent behaviour.

In examining attitude and its components, it is important to identify the developmental process associated with each component. Piaget (1960) and Kohlberg (1969) suggested a stage-like pattern to cognitive development that is qualitatively different, sequential, and hierarchical. To date, there has been very little research that has examined the possibility that the affective dimensions of attitude are stage-like. However, Ormerod (1983) formalised such a stage-like model. He stressed the inter-relationship between cognition and affect with each having a resultant effect on the other:

The achievement of positive affective objectives will assist the achievement of appropriate cognitive objectives. Likewise, the satisfaction of coping with appropriate cognitive objectives will pay off in the affective domain (Ormerod, 1983, p. 120).
Whilst Ormerod describes a performance-based model using cognitive tasks, it could be hypothesised that a greater cognitive understanding of another culture or culture-related issue could result in corresponding affective shifts. Alternately, a positive affective response to a culture or culture-related issue may lead to higher levels of cognitive understanding. Similarly, a negative affective response to another culture or culture-related issue may have a commensurate negative impact on cognitive understandings related to that culture or cultural issue. These affective responses to culture and culture-related issues and corresponding impacts on cognitive understandings have been demonstrated with sojourner theory (Armes & Ward, 1989; Ward, Okura, Kennedy & Kojima, 1998; Halse, 1999).

2.3 Environmental attitude

To date, environmental research has been largely issue-driven rather than theoretically based (Arcury & Christianson, 1990). The research has measured opinions and attitudes about issues such as nuclear power, acid rain and energy conservation. Using an issue basis, researchers have attempted to explain variations in attitude according to the sociodemographics of age, gender, political ideology and place of residence (Steger, et al., 1989; Arcury & Christianson, 1990; Hausbeck et al., 1992; Arcury & Christianson, 1993; Stern, et al., 1993; Clarke, 1996). As a result of this approach to environmental research, Arcury and Christianson (1990) stated that environmental research was contradictory and limited in its ability to be generalised. They concluded that the social science of environmentalism was in need of a comprehensive theoretical framework. However, more recent research has begun to build theoretical frameworks for specific areas, such as human value systems (Schultz & Zelezny, 1998; Schultz, 2001), the inclusion of other in self (Aron, Aron & Smollan, 1992), ethics (Nash, 1990), ecosystem health (Costanza, Norton & Haskell, 1992; Rapport, 1995) and sustainability (Gale & Cordray, 1994; Clark, 1995; Schoenfeld & Berkowitz, 1996) within the broad framework of environmentalism but, as yet, empirical studies within and connecting these frameworks are limited.

Catton and Dunlap (1978, 1980) and Dunlap (1980) attempted to provide such a framework. They worked from the idea that every society has a dominant
social paradigm that is based on experience, embedded in values and that relates to the behaviour of those who comprise society. Over the last several centuries, western society has emerged as operating in a Human Exemptionalist Paradigm (Arcury & Christianson, 1990). The central thesis of this paradigm is that humans have exempted themselves from the laws of nature and installed themselves as rulers over the natural world. As time went on, this rule evolved towards a juxtaposition of natural barriers with human technology. That is, natural barriers only remained barriers until technology was developed to overcome them (Olsen, Lodwick & Dunlap, 1992). Now, using the tools of technology and human initiatives, society has accepted unlimited human and economic growth as the generator of expansionist ideologies. Humans have incorporated that which was once regarded as nature or natural structures and systems into their sociocultural realm.

Catton and Dunlap (1978, 1980) argued that, until very recently, human and economic growth formed the core of social theory and that the influence of the world’s natural environments on human values, attitudes, behaviours and organisation has largely been ignored. More recently, the dominant social paradigm of western society has been challenged and is changing from a Human Exemptionalist Paradigm (HEP) to a New Environmental Paradigm (NEP) that sees people as players in a much wider natural world governed by the laws of nature and subject to its rule (Catton & Dunlap 1978, 1980). This new paradigm sees limits to human population and economic growth, and views technology as an instrument of people that is able to create as well as solve problems. Dunlap and Van Liere (1978, 1984) assessed the extent to which people concerned with the environment and environmental issues viewed the world and found their views fundamentally different from those less concerned with environments. Thus, they described environmentalism as a "new social movement". Like other social movements, the emphasis was on a different and more fundamental way of structuring society rather than simply redistributing its resources (Habermas, 1981; Offe, 1985; Buttel, 1987). Milbrath (1984) used the Dunlap and Van Liere (1978) NEP perspective and contrasted it with the dominant social paradigm (DSP) to show that differences existed between public perceptions and those of corporate
leaders. Effectively, Milbrath (1984) measured the worldview held by corporate leaders and the general public in terms of the NEP.

While research on environmental attitudes has provided an orientation towards a theoretical framework (Arcury & Christianson, 1990), it has not yet been linked to a recognised theoretical framework, particularly in the sociopsychological domain to which it seems attached (Heberlein, 1981; Stern & Oskamp, 1987). However, there have been attempts to use the Schwartz Norm-activation Model of Altruism to explain the actions of environmentalists (Van Liere & Dunlap, 1978; Heberlein & Black, 1976, 1981; Black, Stern & Elworth, 1985; Stern, et al., 1986; Hooper & Nielsen, 1991). Basically, the Schwartz model (Schwartz, 1977) predicts pro-environmental behaviour when individuals are aware of the consequences of a particular threat to an environment and when they then accept responsibility for intervention or modification of that threat. Here, individuals experience a sense of moral obligation that motivates them to 'do something'. The assumption underpinning this theory is that environmentalists value the welfare of others and will act to prevent harm to them (Heberlein & Black, 1976; Van Liere & Dunlap, 1978; Black, Stern & Elworth, 1985; Stern, et al., 1986; Hooper & Nielsen, 1991). For example, people may take pro-environmental action if they perceive a threat to future generations.

Stern et al. (1993) argued that the welfare of others used in the Schwartz model was only one dimension underlying pro-environmental attitudes and subsequent behaviour. They expanded the Schwartz model using three value orientations. As well as the altruistic value orientation towards humans, Stern et al. included egoistic and biospheric value orientations to construct an integrative theoretical Model of Environmental Concern (Stern et al., 1993). The egoistic value orientation assumes the motivation for pro-environmental action is predominantly economic and sociobiological (Olson, 1965; Hardin, 1968). Therefore, the ultimate motivation for pro-environmental action is the benefit to be gained by the individual. The individual will act positively towards an environment only when it is believed to be of direct personal benefit. In contrast, the biospheric value orientation explains the motivation of the 'deep ecologists' where pro-environmental action is motivated by
concern for the welfare of ecological systems (Devall & Session, 1985; Brenan, 1988; Devall, 1988; Naess, 1989; Eckersley, 1992). In this form of altruism, the environment is the beneficiary rather than people and their immediate needs. From this perspective, it is possible that some pro-environmental actions may be to the detriment of people but it is possible that both environments and people may benefit, particularly in the long term.

More recent research has built on similar insights by showing that the New Environmental Paradigm is multi-dimensional rather than a single scale as originally proposed (Albrecht, Bultena, Holberg & Nowak, 1982; Noe & Snow, 1990; Shetzer, et al., 1991). Albrecht et al. argued that the scale was comprised of three-dimensions: limits of growth, balance of nature, and humanity over nature. The humanity over nature dimension of the NEP instrument equates with the Stern et al. egoistic perspective. The limits of growth and balance of nature dimensions of the NEP are both altruistic in their attitude perspectives. However, altruism in the limits of growth dimension is directed towards environments (specifically the natural environment) and equates with the biospheric dimension of the Stern et al. model. In fact, Dunlap deliberately incorporated a number of items to measure adherence to a biospheric perspective or ‘land ethic’ in the NEP instrument (Stern et al., 1993). With the balance of nature dimension, altruism is in terms of the desire to benefit people and, consequently, environments, and equates to the socioaltruistic dimension of the Stern et al. model.

This discussion argues for a synthesis between the original Dunlap and Van Liere (1978) NEP instrument acknowledging three dimensions and the Stern et al. (1993) model, which is also composed of three dimensions. More importantly, it argues that the NEP can be linked to a theoretical framework based on the Schwartz (1977) Norm-activation Model of Altruism. In this synthesised model, the first dimension is humanity over nature (equating to Stern’s egoistic dimension) which measures the least pro-environmental attitude. The second is the balance of nature dimension (equating to Stern’s socioaltruistic dimension) which is pro-environmental but balances this view with the needs of or benefits to people. The third dimension is limits of growth.
(equating to Stern’s biospheric dimension) which is the most pro-environmental in terms of an ecological approach to environmentalism.

Underpinning the work of Schwartz (1977) and Stern et al. (1993) has been the use of ‘values’ as a guiding principle in environmental decision making and action and therefore of central importance in influencing environmental attitudes (Zelezney & Schultz, 2000). Recently researchers have examined more closely the influence of values on attitudes towards environments. Schultz and Zelezny (1999) carried out a multi-national study on the relationship between values and environmental attitudes. They found support for a distinction between different types of environmental attitudes, which could be predicted by the different sets of values, held by respondents. In another study Schultz and Zelezney (1998) examined the relationship between values, awareness of the consequences for environmental damage, ascribed responsibility and pro-environmental behaviours. They found support for a modified version of Schwartz’s model of norm-activation in some countries but not in others. This additional, and more recent research about values influencing environmental attitudes, supports a synthesis of the original Dunlap and Van Liere (1978) NEP instrument and the Stern et al. (1993) model.

Through the work of Albrecht et al. (1982), Noe and Snow (1990), Shetzer et al. (1991) and Stern et al. (1993), the development of the New Environmental Paradigm (Dunlap & Van Liere, 1978, 1984) has developed from an orientation towards a theoretical framework to being linked to a recognised theoretical framework, namely, Schwartz’s (1977) Norm-activation Model of Altruism. As research builds in the area of environmental attitude, this theoretical framework will be further tested and refined. Consequently, for the purposes of this study, the dimensions of environmental attitude based on the discussion above are described in Figure 2.1.
In Figure 2.1, people scoring highly on the egoistic scale would act to safeguard environments if the perceived benefit to them was greater than the expected cost. For example, people would act to save a burning bushland habitat if they feared the fire might damage their property. People scoring highly on the altruistic scale would safeguard and protect environments to conserve them and/or to protect other people. For example, by acting to preserve environments for future generations or to prevent people from drinking polluted water. Thus, both people and environments benefit, but neither at the total expense of the other. People scoring highly on the biospheric scale would act to safeguard environments to protect, for example, other species and natural systems from human excesses, thereby limiting human exploitation of environments and development even if this increased, for example, unemployment or threats to their own wellbeing. Although the term altruism refers to concern for others and is used in this sense throughout this study, the altruistic perspective as shown in Figure 2.1 limits concern for others to that of other humans. If concern for others extends to include other species or environments this reflects a biospheric perspective according to the model described in Figure 2.1.

In the model described in Figure 2.1, environmental attitude is viewed as three dimensions each measured by a scale. However, it is important to note that any one individual may have an environmental attitude that is a composite of more than one dimension even if one dimension dominates. It
is also important to note that the model indicates an overlap between the biospheric and altruistic dimensions and an overlap between the altruistic and egoistic dimensions, but there is no commonality between the biospheric and the egoistic dimensions. This means that a fundamentally egoistic environmental attitude is inconsistent with a biospheric component and vice versa. The NEP instrument developed by Dunlap and Van Liere (1978) reflects each of these scales. However, it is argued (Dunlap & Van Liere, 1978) that an individual with an environmental attitude consistent with the New Environmental Paradigm would not agree with the egoistic scale of the NEP instrument, while they would be expected to score highly on one or both the other scales. Conversely, an individual with an environmental attitude consistent with the Human Exemptionalist Paradigm would not score highly on the biospheric scale of the NEP instrument but would score highly on the Egoistic scale.

2.4 Culture

Culture is one of the most complicated words in the English language (Williams, 1976) and has almost as many definitions as it has applications. For this reason, the word culture has been criticised for its inability to sustain consistent designation (Jenks, 1993). Although social theorists and researchers may agree on the words used to define culture, their different theoretical perspectives give different meanings to those words and these have changed over time. Prior to the 1950s, culture was examined and described in terms of customs, patterns of behaviour (Bennett, 1990) and habits such as dress, food, music, and so on. These descriptions are in reality tangible reflections of more deeply rooted systems and structures (Myers, 1987). Without a more deep rooted conception of culture, cultural differences are vulnerable to being judged from the cultural perspective of the observer and thereby promoting barriers to meaningful understandings of the cultural identity of others (Jackson & Meadows, 1991).

During the 1960s, much of the research on cultures focused on nationality, ethnicity and minority groups and used ethnographic research (Jackson & Meadows, 1991). This meant that people who belonged to dominant social groups were often excluded from cultural, anthropological and sociological
studies and so the study of cultures focused on minority groups and minority group issues. Within this domain, cultural variables excluded the more universal cultural dimensions such as economics, politics and religion, and a less than holistic perspective of culture was developed (Jackson & Meadows, 1991) resulting in a simplistic view of people and identity being generated (Pedersen, 1988).

The consequence of the research during the 1950s and 1960s was a narrow view of culture. Some researchers (Pedersen, 1988; Pedersen & Pedersen, 1985) responded to the inadequacy of this approach by using a 'systems approach' which used economic, political, educational and other sociocultural systems to understand culture. This approach valued the complexity of individuals and intercultural interactions and so moved away from a simplistic view of culture to a more global view. A systems approach to examining culture included demographic variables (age, sex, place of residence, etc.), status variables (economic, political, social, educational, etc.), affiliation variables (formal, informal, etc.) and ethnographic variables (nationality, ethnicity, shared history, etc.) (Hines & Pedersen, 1980; Jackson & Meadows, 1991). Although culture was viewed more holistically it was still researched superficially. From the 1970s, a greater number of researchers began to look at more deeply reflective variables and dimensions when examining cultures. White (1975) suggested that values provided the only basis for the complete comprehension of culture. Ibrahim (1991), drawing on the work of Kluckhohn (1951, 1956) who developed a framework that considered the philosophical and psychological dimensions of culture, namely, beliefs, values, assumptions, attitudes and behaviours, moved the debate from a surface view of culture to a conceptualisation of the core elements of culture. Some researchers (Radcliffe-Brown, 1940; Murdock, 1972; Bourdieu, 1977) rejected the notion of such 'invisible' cultural dimensions, while others (Spradley & McCurdy, 1975) argued that culture was acquired knowledge that was used to interpret, experience and generate behaviour. This view suggested that observable behaviours and artefacts were dependent on cultural knowledge (Leong & Kim, 1991) and, by implication, that cultural knowledge was a dimension of culture. Triandis (1975), in an attempt to develop a more integrated explanation of culture identified two
inter-related 'layers' of culture – that is 'material or concrete culture', which comprised cultural objects and artefacts, and 'subjective culture', which described the worldview or ways a cultural community saw its total environment. Worldview included stereotypes, roles, norms, attitudes, ideals and relationships between events and behaviours (Triandis, 1975).

In summary, the dimensions of culture can be seen as both objective and subjective (Hines & Pedersen, 1980; Triandis, 1980; Pedersen, 1988). Objective cultural dimensions are 'point-at-able', culturally learned or derived and easily identified by those within or outside a given cultural community. Subjective cultural dimensions refer to internalised feelings, attitudes, opinions and assumptions shared by the majority of members of a group and are not easily identified or verified yet are profoundly important to cultural identity. The integration of both objective and subjective views of culture was recognised by Leighton (1982) who saw culture as values, norms, beliefs, attitudes, folkways, behaviour styles and traditions that link to form an integrated whole. In contrast, Pedersen (1988) argued that the intrinsic nature of a culture could be more powerfully observed from its subjective dimensions such as worldview.

The importance of culture to human society and identity has been widely acknowledged. For example, Geertz (1965), Jenks (1993) and Baudrillard (1993) argued that culture is central to human society and identity. Geertz (1965) asserted that there is no such thing as human nature that is independent of culture. Jenks (1993) maintained that culture had the ability to rob humans of their nature and locate their actions within socially produced symbolic forms. Baudrillard (1993) argued that culture was central to social life and that everything was cultural. Thus, culture is not an external conception but integral to human society and identity even though it may be superficially and outwardly seen in terms of external symbols and may account for the different perceptions that different people have of the same situation (Pedersen, 1988).

The implication for the present study of theories about the construction of cultural identity may be that people from different cultural backgrounds view
the same environmental situation very differently and place alternative interpretations on the same environmental stimulus. This is not to say that difference can be easily interpreted in terms of culture since globalisation has made it increasingly difficult to read culture and to attribute fixed meaning to cultural signals. However, cultural signs, such as worldviews, may indicate similarities and differences in social attributes, images and views held about the world (Featherstone, 1995). Therefore, the cultural identity manifested by different communities may be a possible factor in contributing to differences in environmental attitudes.

It has been argued that early structuralists viewed culture as the uniqueness of human thought (Haferkamp, 1989; Jenks, 1993; Giroux & McLaren, 1994). However, if a view of culture acknowledges and accounts for the learned distinctiveness of varied human existences, then there is a need to recognise the role of agglomerations of symbolic forms. This leads to a tighter relationship between individuals and the formation of groups or communities. Groups of people share common customs, conventions, language, habits and artefacts (Jenks, 1993). This ‘rational choice’ view of culture sees culture as an aggregation of individual choices, reflecting the differences in the perceived power of choices made (Hirshfeld, Atran & Yengoan, 1982) and allows related symbolic forms of a community’s existence to separate their culture from those of others.

From a pluralist, more holistic perspective, culture can be viewed as the total way of life of a defined society (Jenks, 1993; Myers, 1987; Giroux & McLaren, 1994). Here the beliefs, rituals, customs, conventions, language, habits and artefacts reflect the way of life of a society (Jenks, 1993) and, as Lash (1990) argued, culture is integrated into the natural and the material environments so that it is articulated with the whole and not viewed as discrete parts disconnected from each other. Similarly, Giroux and McLaren (1994) argued that culture must, by its very nature, take on a holistic perspective and not be divorced from history, knowledge, power, politics and social practices.

Despite its ability to be outlined, culture is not a distinct and finite entity (Cashmore, 1996). Culture tends to be a system of meanings that are blurred
and unstable at the edges. Some researchers (Bhabha, 1994; Featherstone, 1995; Kahn, 1995) argue that culture is constantly realigning itself, not with its centre or core belief structures and systems but with its edges or its boundaries of interaction with other entities which were once regarded as separate (Featherstone, 1995). Featherstone argues that previous images of culture may have presented an over-simplified view of a culture as something integrated, unified, settled and static; something relatively well-behaved which performed the task of oiling the wheels of social life in an orderly society (Featherstone, 1995, p. 13).

Consequently, the image of culture has become more complex as it interacts with increasingly diverse and unstable boundaries as a result of successive phases of globalisation (Featherstone, 1995) which are manifested internally as, for example, multiculturalism and immigration. Featherstone argues that previous views of individual cultures suppressed inherent and latent complexity and difference that were, in reality, always present in society.

One of the reasons for the complexity of cultural identity can be attributed directly to the role of education. In some instances national education systems developed by governments are created or designed to generate a ‘civic’ identity and national consciousness to reconcile individuals and communities to the state and bind them each to the other (Green, 1997). An example of a country that followed this pattern is France after the French Revolution. In such instances, nationalism tended to take on a ‘synthesised civic’ rather than ‘cultural’ or ‘ethnic’ form. The basis for national identity was forged from inclusive political principles of common purpose and values rather than the more traditional principles associated with nation formation such as cultural and linguistic affinity and shared history, ethnicity and religion. The moral education curriculum of Malaysia is a contemporary example that strives to instil common values rather than an explicitly political view (Abraham, 2000).

National identity can also be viewed as a spectrum. At one extreme exists a sense of nationalism, with further nation building resulting from individual
and community allegiance to a central authority or state. This is achieved through education programs, which advocate a common sense of values, purpose and civic responsibility. Such countries are described as already having a sense of nationhood and so, in their quest for greater unity to become stronger, more viable nation-states they are “nation(s) in search of a state” (Brubaker, 1992, p. 1). At the other extreme are geographic regions where there are dominating cultural, racial and religious groups emanating from a shared history but which also include minority groups. Here, nation building can tend to be based on the interests of the majority and exclusivist in both rhetoric and symbolism with resulting nation-states developed at the expense of minority groups and diverse communities.

More commonly, most modern countries or nation-states have been shaped by both these influences and, as is the case with most complex situations, nation-state formation is a dynamic process with the balance shifting with time and with changes in influences. Australia, for example had an identifiable sense of nationhood, built around its dominating English origins (Partington, 1994; Archer, 1997). However, other researchers cite alternative mythologies of Australian nationhood (Ward, 1966; Mandle, 1980; Hirst, 1992) with others favouring more complex stories (Burgmann & Lee, 1988; Magarey, Rowley & Sheridan, 1993). Nevertheless, the introduction of state and national education systems by Australian governments was accompanied by a desire to build a greater sense of nationhood. Civics programs promoting common purpose, values and responsibilities were introduced and Australia continued its development of a sense of nationhood characterised by increased tolerance, multiculturalism and shared responsibility.

This is not an attempt to eliminate or even underestimate the problematic path followed by Australia to this point – a history which entailed the exploitation of indigenous peoples and the natural environment, racism and even more recent moves towards nationalist racial and cultural exclusivism as exemplified by the phenomena of Pauline Hanson and her political party, One Nation. However, despite adolescent agonies, Australians show considerable allegiance as citizens (Archer, 1997) to their nation-state. According to Archer (1997) Australian national and cultural identity has been
influenced by both inclusive political principles of common purpose and values as well as the more traditional influences of cultural and linguistic affinity and shared history, ethnicity and religion. Australians irrespective of their origins see themselves as Australians. Australia is a country where there seems to be “unity with diversity”, where there is “tolerant and diverse polity, united by a ... citizenry who share the same associational values” (Archer, 1997, p. 35). In contrast some researchers contest this view (Hill & Thomas, 1997; Perera, 1999; McLeod & Yates, 2000) and argue that ‘fissures’ underlie and characterise the seemingly unified view of Australian society as a consequence of the ‘Hanson Phenomenon’.

In contrast to Australia, Indonesia is a developing country attempting to strengthen national unity and improve the welfare of its population as its primary goal (Budhisantoso, 1996). Overlaying Indonesia’s developing country status is its emergence from a colonial regime with the consequence that Indonesia is attempting to unit a nation which consists of a number of different and dispersed communities which were formally independent with diverse social, cultural and economic backgrounds (Budhisantoso, 1996). The result is that Indonesia is striving to develop its cultural identity, not just to differentiate itself from others but to generate an identity, which is tangible to its citizens and to which they can relate. Indonesia has effectively undergone a development process which has seen it break up its diverse primordial ties based on the family, tribe, local beliefs and language and widened and diffused them into a reconstituted larger integrated entity (Budhisantoso, 1996). This reconstituting process has been based on Pancasila or the ‘Five Principles’, which is a set of core values adopted in 1988 as a national cultural identity (Gomez, 1997). As development continues the national cultural identity of core values is used as a frame of reference to facilitate ever increasingly intensive inter-ethnic and regional social interactions (Budhisantoso, 1996). In this way the selection and maintenance of national cultural identity is in the hands of the people.

Indonesia is consciously developing its identity on three fronts. The maintenance of its ethnic cultures, the continuation of its regional or local (pasar) culture and the development of national cultural identity. Indonesians
interact and make choices within these three cultural reference points. Paralleling these choices the government also interprets and sets its agenda. The emergent cultural identity is an interaction of the two (Budhisantoso, 1996). Consequently, Indonesian cultural identity is a heterogeneous interpretation and action of a plural society reflecting a complex hierarchy of social, cultural, economic, political and personal interactions often referred to as ‘unity within diversity’ (Gomez, 1997). However, most Indonesians react against the ever-increasing influence of ‘foreign’ cultures by referring to Pancasila.

Maldivian cultural identity, although complex, is more clearly discernible than either that of Australia or Indonesia. Maldivians have a distinct ethnic identity with medieval Sinhalas as the dominant cultural stream and characterised by a unique language (Maloney, 1995). They have a homogeneous cultural tradition, which embraces Islam as the official national religion with social control being exercised through religion (Maloney, 1995). The practice of other religions being prohibited by law (US Department of State, 2001). Both Maldivian citizens and the Maldivian Government believe that religion promotes harmony and national identity, distinguishing it from other nation states (US Department of State, 2001). More recently, the Maldives has undertaken a massive national education program in order to facilitate its emergence as a developing country with a strong sense of national identity.

Bauman (1995), drawing on the work of Berger (1970) and Gehlen (1980) argues that people feel the 'need to belong' and that this is part of the innate human condition and a result of human biological evolution. Bauman (1995) argues that humans not only have a need to belong but that they expect the world to which they belong and in which they operate to be orderly and structured and free of mysteries and surprises. They need to feel that they belong to a culture and have a cultural identity. Thus, humans need to draw on a cultural environment to establish their individual identity. For individuals, it is not so much their culture that is important but the cultural identity derived from their interaction with it. Bauman (1995) argues that society is a contraption designed to service vested interests such as an ordered and structured world, while culture is the service it renders to
provide a sense of belonging resulting in a cultural identity. Consequently, a tension is promoted between the desires of the individual and the needs of the community. Cultural identity is therefore an expression of the balance of this tension and varies with individual difference and with different cultures.

If Bauman’s (1995) view is married with the argument put forward by Bhabha (1994), Featherstone (1995) and Kahn (1995) that core or common belief structures and systems act to hold communities together as a nation-state while allowing them the freedom to develop their own identity, it can be argued that still further tensions exist. Individuals develop a cultural identity from their personal interactions with the culture of their community, its history and civic experience, as well as the common belief structures and systems that act to hold different communities together as a nation-state or country. It is the similarities and differences between these tensions that define the communities being explored by this study and, it is hypothesised, may show them as being distinctly different to one another and expressing different views and attitudes.

Such a perspective on culture makes us aware of new levels of diversity within a common culture where syncretisms and hybridisations are more the rule than the exception (Featherstone, 1995). It is an image of cultural identity that does not see a country or nation-state as having a homogeneous national consensus of uniform belief structures and traditions but rather a common, agreed core of belief structures and traditions which are constantly redefining themselves by interaction with the multitude of cultural identities that exist within and are held together by the nation state.

However, national identity does exist (Hall, 1992) and is strongly identified with by those individuals and cultures to whom it belongs. Without some shared beliefs and elements of a shared identity, there is little hope that humanity can adequately respond to global forces, the problems of poverty, oppression and environmental destruction (Archer, 1997). However, the strength of the shared national and cultural identity will vary from country to country and even from community to community within each country. Consequently, if a community within a country, or a subculture that straddles
a number of communities, is selected to describe its views, it may be difficult to ascertain the transferability of views held to other communities within that country or nation-state.

Identification and understanding of cultural identity is heavily dependent on not only what constitutes society, but also the relationship between society and culture. McLaren (1994) argued that cultural difference can be understood in terms of social contradictions. He distinguished the concept of difference as the comparative differences in relationships between cultures, as opposed to seeing differences as absolute and in isolation from the cultures being compared. The structure of difference he saw as multiple, unstable and changing. Therefore, there needs to be some common ground retained between these multiple differences in order to negotiate among them and so serve multiple interests (Giroux & McLaren, 1994). Giroux and McLaren (1994) suggest that society is composed of cultures but that cultures cannot be viewed as individual, isolated entities. They only exist in conjunction with one another and are defined by each other. This idea is well developed by Dirks, Eley, and Ortner (1994) who saw culture as multiple discourses able to come together as a large systematic configuration, but that more commonly coexist within dynamic fields of interaction and conflict.

The relevance of such views for the current study are that for a given country or nation-state there may be a number of cultural identities coexisting in various states of harmony and with varying degrees of overt and covert similarities and differences. A country therefore, may not be characterised by a single culture but by the dynamic integration and interaction of a variety of cultural identities. Since cultural identities are identified through cultural difference yet are multiple, unstable and changing, it is difficult to identify and describe nation-states in terms of cultural identities, despite the existence of an overarching national identity. Rather, national identity is attained when the cultural differences between countries are greater than the cultural variations within a country (Brightman, 1995; Baumgart & Halse, 1999; Halse & Baumgart, 2000). Consequently, some countries will feature few and relatively homogeneous cultural identities and therefore, because of the limited number of differences within these countries, provide a basis for
many differences to exist between them and other countries. Alternatively, there will be countries in which there are a large number of very diverse cultural identities. Consequently, this increased diversity may result in great variation in views within these countries, providing a potential for few real differences to surface when compared to other countries.

2.5 Cultural identity and worldview
A worldview constitutes a conglomeration of assumptions, beliefs, values and attitudes that an individual or a community holds about themselves and about the world in which they operate (Sire, 1976). Worldviews go some way to explaining why people behave the way they do and why they respond to environmental stimuli in a predictable way. A worldview conception of cultural identity gives a frame of reference from which people encounter the world, themselves, and life (Pedersen, 1985; Ibrahim, 1991). English (1984) suggested that a worldview is our psychological orientation in life and determines how we think, which in turn determines how we behave, and make decisions and define our environment. Since individuals and communities are different, there is no single worldview and each worldview is underpinned by its own set of assumptions. A long history of research has argued that an understanding of worldview promotes deeper understandings of identity, personal philosophies and modes of interaction with the world including problem solving, decision making and conflict resolution (Sue, 1978, 1981; Ibrahim, 1984, 1985, 1988; Ibrahim & Schroeder 1987, 1990). Saral (1976) made the point that there is no absolute reality and that each individual, as well as each community, has its own way of perceiving, processing and thinking. Sarason (1984) suggested that each individual possesses and is possessed by a worldview as a result of socialisation. Elaborating on this point, Saral (1976) suggested that individuals and communities will see a reality that is consistent with and which supports their worldview and that this worldview will be culturally bound as it is transmitted from one generation to the next. From an environmental perspective Olsen, et al. (1992) saw worldviews as social paradigms and were able to show how these views were empirically different.
Nobles (1980) defined the structure of cultural identity in terms of the philosophical assumptions of ontology, cosmology, epistemology and axiology. These philosophical assumptions underpin and reflect a view of cultural identity that is, in turn, reflected in observable behaviours and artefacts. This worldview manifestation of identity is described as a dynamic, interconnected, complex, living whole with each of its elements clearly defined yet acting inter-dependently to fulfil specific functions (Nobles, 1980). Jackson and Meadows (1991) added two other underlying philosophical assumptions, namely logic and process.

The nature of reality is referred to as ontology and provides a framework for the other philosophical assumptions. Fundamental questions such as what are right and wrong and what is the reality of the spiritual world are ontological considerations. If people hold different ontological assumptions about the world, they may draw different conclusions from the same set of experiences. An example would be a spiritual dimension to a community’s reality as opposed to a reality that does not recognise any form of spirituality since spirituality cannot be seen or touched and therefore, for some, it is not a reality. The order or arrangement of reality refers to its cosmology (Jackson & Meadows, 1991). This includes the basic nature of people and what constitutes their society, for example, the relationship between people and the supernatural and evil spirits. Epistemology or the nature of knowledge or ways of knowing (Jackson & Meadows, 1991) involves understanding both the source and the sense of knowledge. Different communities will have different ways of knowing and different ways of acquiring knowledge. For example, some individuals restrict knowledge to observable, concrete elements while others accept that knowledge can be gained intuitively by feelings. The philosophical assumption, axiology, is the study of the nature of the values people have. The literature deals with values in terms of their acquisition, transmission and maintenance (Williams, 1981). A fundamental philosophical question would be: what is valued in a community and why it is valued? Some communities are characterised by human relationships being valued above all other things while other communities are characterised by material objects being valued more. Consequently, some communities are people oriented while others are more task oriented.
Logic comprises the nature of reasoning and systematic thought in argument and inference (O'Hear, 1985; Jackson & Meadows, 1991). An individual's way of using logic influences the way they respond to and interpret experiences (Myers, 1987). The logic of some individuals is in terms of a dichotomy (either/or alternatives) whereas other individuals are open to less precise alternative and intermediate conclusions. Process is a method of operation or functioning. It refers to the methods by which action or change is brought about (Jackson & Meadows, 1991). For some individuals action and change are brought about by technology while for others, if action or change is desired, it is best achieved by the actions of people through interpersonal relationships.

It has been proposed that similarities and differences in environmental attitudes may be influenced by cultural identity. If cultural identity is used to search for patterns of commonality across the diversity of individual and community identity, then a number of different perspectives need to be considered. Apart from objective views, reflected by artefacts and behaviours, more insightful views of cultural identity can be obtained by examining the philosophical assumptions of ontology, cosmology, epistemology, axiology, logic and processes that reflect the individual's belief systems or worldviews and provide a powerfully descriptive and potentially explanatory picture of an individual's cultural identity. While it is recognised that worldviews held by individuals will vary, it is also recognised that the pattern of worldview commonality across a community may distinguish it from other communities. Nevertheless, the pattern of worldviews held by a community will reflect its cultural identities and this pattern is likely to be more similar for communities with similar cultural backgrounds. Consequently, cultural identity influences or shapes worldviews that, in turn may reflect attitudes held by individuals and therefore the pattern of attitude diversity across communities towards environments.

One aspect of an individual's worldview is the perspective held about the relative importance of people compared to that of environments, particularly the natural components. This aspect of an individual's worldview is of central importance in this study and therefore should be examined in detail.
In the literature, pro-natural environmental views have been labelled as biocentric while pro-human views have been labelled as anthropocentric (Fox, 1990; Bennett & Block, 1991; Dyer & Gunnell, 1993). More importantly, these contrasting views have been presented as a dichotomy. An individual is portrayed as holding views about environmental issues which are either biocentric or anthropocentric. Fox (1990), from a biocentric perspective describes anthropocentrism as

empirically bankrupt and theoretically disastrous, practically disastrous, logically inconsistent, morally objectionable and incongruent with a generally open approach to experience (Fox, 1990, p. 18).

This statement suggests that a biocentric view has no congruence with an anthropocentric view. Conversely, Bennett and Block (1991) outlined the advantages of an anthropocentric perspective on conservation with the example:

a complete property rights system over ecosystems, and even individual species making up an ecosystem, can ensure their conservation (Bennett & Block, 1991, p. 272).

The argument that the best way to ensure the survival of the Australian kangaroo is to commercialise it is an illustration of this view. If the kangaroo is seen as valuable in an economic sense then the species is more likely to be conserved. However, Dyer and Gunnell (1993) suggest that anthropocentrism and biocentrism lie on a continuum. Whatever view an individual has of the relative importance of people and of environments, the reality is that environmental values and attitudes are complex matrices comprising both anthropocentric or biocentric elements (Dyer & Gunnell, 1993). The degree to which an individual’s view is more or less anthropocentric or biocentric is dependent on what Dyer and Gunnell call their ‘life circumstances’ which they describe as an interaction of an individual’s genetic make-up, their physiology and their political and social setting. Dyer and Gunnell argue that an individual’s anthropocentric or
biocentric perspective is a function of the interaction of an individual’s genetic heritage and their cultural identity.

The needs of people often come into conflict with the needs of environments. The perspective people have on this relative importance is derived from a very complex interaction of factors (Yencken et al., 2000). Cultural identity, education, knowledge and worldview may be central in this interaction because the attitudes people develop towards environments may be influenced by their perspective on whether human needs are fundamentally more important than maintaining healthy environments. This is not to say that human needs and maintaining healthy environments may not be related entities or even that, at times, they may not compete, but when they conflict, the perspective held on their relative importance may be central to attitudes developed.

Thus, it is suggested that attitudes towards environments may be influenced by cultural identity and that this has an influence on how individuals perceive the importance of people’s needs compared to those of environments. The logical implication of this hypothesis is that individuals will exhibit a fundamental orientation towards either an anthropocentric or a biocentric environmental attitude before a specific attitude is developed and that an individual’s education, worldview and knowledge influence this orientation.

Another aspect of worldview that is important for this study, is the value people and communities place on knowledge (Clarke, 1996) and the information people have about issues and their related contexts so that they can make informed decisions. Potentially, if knowledge is highly valued in a community then individuals within that community may be more likely to strive to acquire knowledge compared with individuals from communities where knowledge is valued less. The more knowledge individuals have, the more they are able to deal effectively with issues requiring knowledge (Clarke, 1996). Thus, the more knowledge an individual has about environmental issues, the more likely they are to interrelate and interpret competing values, attitudes and ideologies to resolve conflict and solve complex environmental problems. A knowledgeable individual, or
community, is more likely to be committed to action on environmental issues than an uninformed individual and therefore more likely to solve environmental problems (Clarke, 1996). This argument is substantiated by a number of studies (see for example, Fishbein & Ajzen, 1975; Holahan, 1982; Ajzen, 1985; Curtis & De Lacy, 1996).

Studies in the United States and Australia, (Blum, 1987; Roth & Perez, 1989; Hausbeck et al., 1992; Clarke, 1996) have found that overall knowledge scores for high school students on environmental issues and concepts were low and that conceptual knowledge scores tended to be higher than factual knowledge scores (Clarke, 1996). Clarke (1996) also found that generally, low environmental knowledge scores predicted low commitment to solving environmental problems and concluded that environmental knowledge predicted environmental attitude, which predicted environmental action. Therefore, the importance of knowledge to a community has an influence on the acquisition of environmental knowledge, which, in turn, has an influence on environmental attitudes.

2.6 The dimensions of culture
Historically, the dimensions used to examine cultural identity have been set in terms of economics, politics, religion, language, education, law and so on (Jenks, 1993). However, the division of cultural identity into these categories fails to recognise their interrelationships. It suggests that politics are easily separated from say, religion or law. In some cultural contexts this may be the case while in others such a separation would be artificial and inaccurate. Since this study is concerned with three different countries and different cultural identities (Republic of Maldives, Australia and Indonesia), it is useful to identify dimensions of worldview that represent the diversity of cultural identity rather than being limited to a few. This approach allows the more tangible manifestations of cultural identity (i.e., behaviours and artefacts) to be used as tools to probe the more subjective dimensions. Following from the literature discussed above, and because of the potentially large number of dimensions or factors that contribute to a cultural identity, the dimensions of cultural identity examined in the present study will be comprised of shared history, ethnicity, language, religion, knowledge and beliefs as they are
manifest through behaviours, artefacts and worldviews. Figure 2.2 illustrates the relationship between these dimensions.

![Diagram showing the relationship between country, cultural identity, and worldviews, behaviours, and artefacts.]

*Figure 2.2 The dimensions of culture.*

Previous research (Hines & Pedersen, 1980; Jackson & Meadows, 1991) has measured behaviours and artefacts in terms of their relationship to a number of other variables including demographic variables (age, sex, place of residence, etc.), status variables (economic, political, social, educational, etc.), affiliation variables (formal, informal, etc.) and ethnographic variables (nationality, ethnicity, shared history, etc.). These variables are closely associated with artefacts and behaviours that can be observed in everyday life. Consequently, if individuals in a community were asked questions about food, dress and music they would not only be providing information about these variables but also providing insights into their personal beliefs and worldviews. For example, a woman in an Islamic country who wears traditional dress is not only providing information about the clothes she wears but is reflecting her religious and spiritual values or at least her community’s values.
2.7 Education and Environmental Studies

Education can be an effective means for society to address the challenges of the future and is the raw ingredient for effective participation in the modern world if new and meaningful relationships are to be developed between people and a greater respect for environments (UNESCO, 1997). Thus teachers and education are important in implementing global change through the dissemination of knowledge, the development of skills, changing lifestyles, behaviours and values and developing critical, ethical attitudes for solving environmental problems (UNESCO, 1997, p. 16). Berberet (1989) argued that although environmentalism has had only a small impact on educational thinking, education has had a significant effect on environmentalism. Education has perpetuated unsustainable environmental practices by training engineers and managers who have developed technologies which have had a devastating effect on environments (Berberet, 1989). Berberet suggested that a fundamental change needs to take place so that education embraces a new set of assumptions that treat the interactions of ecological processes, market forces, cultural identities, equitable decision-making, government actions, and impact of human activities on environments in a holistic, interdependent context (Berberet, 1989). Berberet highlighted the integrated, interdependent yet competing actions of education as both a preserver and modifier of society and community attitudes towards environments.

Yet environmental education has had a relatively short history. In Australia the term *environmental education* was first formally recognised at the Australian Academy of Science conference on Education and the Environment in 1970 (Greenall-Gough, 1992), and first appeared as part of an Environmental Science curriculum in Victoria in the mid 1970s drawing on a rural or agricultural science background (Fensham, 1990). However, during the 1980s, community support for environmentalism began to falter as environmental views fell behind the pace of technological advancement and its associated development (Fensham, 1990). It was at this time that an epistemological debate developed between the natural sciences and the social sciences in Victoria (Fensham, 1990). Environmental Science was seen to fit into the school curriculum as a cross-curricular subject as well as its content.
being considered to align more with geography than science (Fensham, 1990). Consequently, *Environmental Science* became known as *Environmental Studies* and was relocated from the sciences to the social sciences school curriculum (Fensham, 1990). Although this name change occurred in the Victorian curriculum within an Australian context, it was symptomatic of a worldwide trend (Disinger & Floyd, 1990; Hart, 1990) that saw environmentalism take on a more humanistic developmental direction and incorporate social values and attitudes into its conception.

By the late 1980s, environmental education policy statements and syllabuses were being developed and implemented in Australian State Government schools. At the same time, similar curriculum developments were being launched in other countries. Over the last two decades, a growing body of research, literature and professional organisations have supported teaching and learning in environmental education. Educational researchers have studied and reported cases of exemplary practice, theorised about how practice could be improved and worked with teachers to implement environmental education in their schools (Walker, 1997). Yet it would seem that this research has had little influence on directing and improving the learning and teaching of environmental education in some schools (Walker, 1997), and research suggests that environmental education is not being implemented in many schools (Phipps, 1991; Spork, 1992; Walker, 1995; New South Wales Department of School Education, 1996; Walker, 1997).

Not unlike environmental science, environmental education was seen as ‘issues driven’ rather than theoretically based with individual environmental issues, such as the greenhouse effect, pollution and acid rain, the focus of learning rather than studying the political, economic and equity contexts responsible for them. For example, many environmental education policy statements and syllabuses were developed and implemented with the meaning of the words *about*, *in* and *for* ‘the environment’ as their functional core. If teachers taught *about* the environment while student experiences occurred *in* the environment with the view of learning *for* the sake of the environment, then teachers would have felt comfortable with their interpretation and implementation of environmental education. This
movement through the process of learning about, in and for the environment was the only change from studying the issue itself. Although this scaffolding can be regarded as a theoretical framework for environmental education, it could not be regarded as comprehensive or powerful in its ability to engage students in critical, reflective analysis of human socioecology and global environmentalism. This is evidenced by the fact that environmental education in NSW classrooms continued to revolve around environmental issues and problems rather than substantially addressing their root cause (Walker, 1995). In addition, the use of the term the environment implied and sustained the notion that environments were viewed as the natural environment rather than being viewed more broadly.

An international research study commissioned by the Organisation for Economic Co-operation and Development (OECD), called the Environment and School Initiatives (ENSI) Project (Robottom, 1993), was launched within the Centre for Educational Research and Innovation (CERI), the educational arm of the OECD. Part of the Australian contribution to this project was the development of nine case studies that related environmental education outcomes to 'more socially critical' criteria (Robottom, 1993, p. 64) by using social critical theory to evaluate environmental education. The study had two significant implications for environmental education. Firstly, it found that only two cases demonstrated a commitment to socially critical values and attitudes and therefore a low rate of alignment with a theoretical framework. Secondly, it illustrated the emergence of social critical theory (or critical social theory) as a useful theoretical framework for environmental education.

Theorists and researchers (see Greenall-Gough, 1990; Huckle, 1991; Robottom, 1994) argued for the use of socially critical theory employing a holistic perspective for environmental education. At the time however, there was debate about the meaning of 'critical' in 'critical theory' and of 'education' in 'sustainable education'. At the heart of the debate was the notion that education for the environment should entail more than teaching students appropriate values and attitudes towards the environment and how they should act. Rather, it was argued that students should be taught to actively consider opposing perspectives and decide on their own course of action (see
for example Jickling, 1991; Fien, 1992; Greenall-Gough, 1992; Robottom, 1992; Spork, 1992) after forming their own values and attitudes. The ENSI project reflected the evolutionary path followed by environmental education, thereby giving some insight into its likely future direction. It indicated that the aim of environmental education was changing from transmitting knowledge towards personal and social transformation and development. Essentially, this entailed a movement from an objective scientific study to a more subjective political and economic analysis, along with an evolution towards understanding the complexity, controversy and importance of global sustainability within an ethical and moral code (Coolsaet, 1994) although not at the exclusion of employing scientific processes which are complementary.

At the 1997 UNESCO Thessaloniki International Conference on Environment and Society: Education and Public Awareness for Sustainability, the preliminary discussion paper, Educating for a Sustainable Future: A Transdisciplinary Vision for Concerted Action, contextualised the outcomes of previous conferences in terms of socially critical issues. The paper focused on social issues such as population, poverty, environmental degradation, democracy, human rights and peace, development, and interdependence (UNESCO, 1997) in an attempt to orient environmental issues within a socially critical context. In so doing, the paper revisited the notion that social critical theory provided a suitable basis upon which to build a theoretical framework for environmental education, although the paper did not attempt to overtly do this.

Walker (1997) demonstrated that the implementation of environmental education in schools has been problematic and that while some of these problems, such as the reasons for the failure to teach environmental education in schools, have been identified, they have not been solved. Walker agreed that environmental education is influenced by social critical theory but argued that social critical theory is not practical as a theoretical framework for environmental education. Walker is not alone in her criticism of social critical theory as a theoretical basis for environmental education. Robinson (1994) also argued that social critical theory is unable to contribute to a practical
solution of the problems (faced by environmental education in schools). It falls short of viable strategies for social action. Moreover, schools are structured in such a way that they cannot accommodate the radical social change required by the theory (Robinson, 1994, p. 60).

Social critical theorists such as Huckle (1991) argued that the competing ideologies of economics and ecology required a compromise solution and that education was part of that solution, although Huckle claimed that historically, school environmental education has failed to provide a solution and has itself become part of the problem. He argued that environmental education practices have failed to reveal the true causes of environmental problems and have failed to educate students in a manner that has allowed them to think through problems and realise sustainable solutions. The essence of Huckle's argument is twofold. Firstly, although social critical theory may be a useful theoretical basis for environmental education, the school context does not provide a broad curriculum base for adequately addressing extremely complex issues like poverty and human rights and their even more indirect connections to environmental degradation. Such abstract ideas and the convoluted connections between them are difficult for adults, let alone children, to understand. Secondly, schools are essentially socially conservative organisations that do not promote radical, interventionist strategies to overcome perceived social problems. Rather than being sites for counter social movements, schools preserve the status quo.

Robinson (1994) saw teachers and students as passive victims of wider economic forces and took this argument further. For environmental education to be effective as it is currently conceived, Robinson advocated that teachers and students should resist such conservative, apolitical forces and work towards societal reform through their active participation. If a more progressive socially critical curriculum theory is unable to be adopted, then it would seem that social critical theory as a framework for environmental education is not feasible, since there is a lack of practical connection between theory and practice (Fien, 1993).
Another criticism of socially critical theory is that it advocates the adoption of 'socially critical curriculum theory' (Walker, 1997). This theory requires teachers to question prevailing practices and adopt a pedagogy which encourages students to question authority and to be politically active in this process. The issue is that socially critical environmental education is inconsistent with many teachers’ views of teaching and learning and an apolitical curriculum. It is the 'for the environment' or the action component that differentiates environmental education from other curriculum areas and requires teachers to revise their views of teaching and learning. Learning outcomes are only successfully achieved when students are able to take action for the environment.

Socially critical theorists advocate a methodology for learning based on a version of action research called 'emancipatory action research' (Huckle, 1983; Greenall-Gough, 1990; Fien, 1993; Robottom, 1993). This methodology requires students to identify environmental problems, conduct investigations, collate data, suggest solutions, develop action plans, implement these plans and identify other problems which move the action spiral towards new solutions that produce further problems to be solved (Walker, 1997). At each stage students reflect on their findings and modify their plans accordingly. It has similarities to the action research spiral as discussed by Kemmis and McTaggart (1988) and is based on a modification of Lewin's Action Research Cycle (Lewin, 1946, 1947, 1952). However, Walker (1997) criticises emancipatory action research because it is about inquiring into practice and not necessarily about solving environmental problems. Walker (1997) argued that a problem-based theoretical framework for environmental education accommodates the different views held by teachers, including socially critical theory. A problem-based framework accommodates the theory of education and the practice of education and is able to address a multiplicity of factors impacting on the learning and teaching of environmental education in schools. The aim of a problem-based methodology is to provide the framework and strategies for both teachers and researchers to work together in developing a more practical theoretical framework of which socially critical theory may be part.
Walker’s criticism of socially critical theory as a possible theoretical framework for environmental education is well founded. However, the citation of the ‘action’ feature of environmental education as the component that does not ‘cohere’ with practitioners’ views of teaching and learning and the suggestion that ‘action’ could be redefined as ‘change’ – change in values and attitudes (Walker, 1997) – is not fundamentally different from what already exists. Change in attitudes or values is an action and could be an outcome of the way environmental education is currently taught, depending on context. Therefore, such a move is a recontextualisation of the existing situation rather than a conceptual difference. There is very little to be gained in changing attitudes if there is no resulting change in action.

Nevertheless, although the quest for a suitable theoretical framework is the reason for Walker’s reorientation of environmental education, the problem remains that socially critical theory “violate(s) important constraints, ... structures of school education” (Walker, 1997, p160). Although Walker acknowledges that this might not be a bad thing, she states that it is such a significant problem that a more practical theory needs to be found. In other words, Walker suggests that the action-based pedagogy that distinguishes environmental education from other curriculum areas – the very feature that gives environmental education one of its identifying strengths – is its greatest weakness. Walker’s solution is to give way to the difficulty of finding solutions to what are arguably significant implementation problems and move to a problem-based methodological theoretical framework. It may be that such a methodological framework is also too different and therefore too difficult for teachers to implement (see Gough, 1997 for further discussion).

To move the debate about the theoretical framework for environmental education forward, what has to be explored and understood is the very nature or the essence of environmental education. As argued above, environmental education has evolved from a study of natural science. Its social dimensions have been selected by progressive modifications since one of the difficulties in understanding environmental issues has been the part played by people in the overall system. Many environmental problems in fact, are people problems. Flowing from this, is the implication that the
nature of people, their identity and how they relate to and interact with environments needs to be understood in order for a theoretical framework for environmental education to be developed.

The Thessaloniki Conference discussion paper (UNESCO, 1997) went further than questioning the conceptual framework for environmental education by advocating a reconceptualisation of environmental education as part of a universal process of educating for a sustainable future. The term *sustainability* is extremely difficult to define, simply because it is so contextualised in terms of culture and society and in terms of time, the present and the future. Any attempt to narrow such a complex concept to a simple definition can be counter productive because it can lose effective meaning. Rather, sustainability is the result of discussions between parties (developers and conservationists) who come from distinctly different worldviews (Fien, 1997). Many environmental conservationists argue that ecological sustainability should be a goal in its own right and not shackled to development in any way (Yencken, 1994). In contrast, business, industry and commerce argue that economic sustainability is more important than ecological sustainability because development needs to be profitable in order to fund the implementation of environmental regulations and conservation (Fien, 1997). Nevertheless, the World Commission on Environment and Development has defined sustainable development in terms of the present and the future:

> Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs (UNESCO, 1997, p. 13).

This definition is problematic because it contextualises sustainability in terms of human development. This is its intention but it does not move the debate about sustainability towards the overt inclusion of ecological sustainability. Other definitions have extended the notion of equity between the present and the future to include equity between countries and continents, races and classes, and genders and ages. However, the most widely used definitions focus on the relationship between social development and economic opportunity on the one hand, and the requirements of environments on the
other. That is, they focus on the improved quality of life for all, especially the poor and deprived, within the carrying capacity of supporting ecosystems. This view does not set fixed limits on development but recognises that definitions of development will evolve in relation to changing requirements and technological advances. Effectively,

sustainability is a dynamic balance among many factors, including the social, cultural and economic requirements of humans and the imperative need to safeguard the natural environment of which humanity is part (UNESCO, 1997, p. 13).

Although outlined in terms of economics and the natural sciences, sustainable development is also concerned with culture, especially the values people hold, their cultural identity and how they perceive their relations with others. Sustainable development lends itself to generating a new basis for relationships between communities and the habitats that will sustain human life into the future. This view acquires its strength through its recognition of the interdependence of human needs and environmental requirements and through rejection of the single-minded pursuit of one objective in isolation from others (UNESCO, 1997). The pursuit of development cannot be at the cost of inflicting irreparable damage on environments while at the same time preservation of environments cannot be achieved at the cost of maintaining half of humanity in poverty.

Interdependence is fundamental to sustainability. All the factors outlined earlier (population, poverty, environmental degradation, democracy, human rights and peace, development, and interdependence) are in constant and dynamic interaction and therefore cannot be considered in isolation from any other. They are related both physically and psychologically (UNESCO, 1997). Thus, how people think about an issue, their knowledge, beliefs, attitudes and values – their worldview – is as important as the ‘objective realities’ of the issue.

When environments are viewed as social constructs or as ‘conceptual interactions’ (Di Chiro, 1987) it becomes apparent that environmental
problems are in reality social problems. They are not problems of nature but of society and are the consequence of human thinking, values and practices in social, economic and political affairs. It is therefore, not only necessary to deal with environmental problems but to move human thinking in a sustainable direction. Consequently, fixing nature cannot solve environmental problems but changing the perceptions and behaviours of people to alter how societies interact with environments may solve environmental problems (Whitehouse & Taylor, 1996). To ensure that humans see and understand the interrelationships between environmental problems and recognise the need to develop a new perspective, environmental education needs to embed the values of sustainability as an important step in a journey towards more ecologically driven outcomes. It is for this reason that education about sustainable development is important for the future of both the Earth and humanity.

At its 1990 international conference Our Common Future: Pathways for Environmental Education, the Australian Association for Environmental Education first used the language of sustainable development and initiated a reorientation of environmental education towards sustainability (Greenall-Gough, 1992). The Earth Summit in Rio de Janeiro in 1992 was pivotal in facilitating an international trend towards an expanded view of environmental education and its alignment with sustainability. Agenda 21 called for environmental education to abandon its preoccupation with natural systems and to incorporate the concept of sustainable development, including the issues of peace, human rights, gender, race and social equity as well as nature conservation (Fien, 1997).

In outlining a post-Rio view of environmental education, Fien (1997) drew on the Earth Summit's Non-Government Organisation Forum Treaty on Environmental Education for Sustainable Societies and Global Responsibility to suggest that sustainability is value-laden and serves particular social and economic interests which need to be critically analysed and assessed. In addition, Fien outlined the process the International Union for Conservation of Nature and Natural Resources (IUCN), United Nations Environment Programme (UNEP) and the World Wide Fund for Nature (WWFN) used
when planning the second World Conservation Strategy (Caring for the Earth) to avoid the debate between conservationists and developers over the meaning of the term sustainable development. In place of sustainable development, the term sustainable living was used and it was proposed that people learn to live by a new world ‘ethic of sustainability’ (Fien, 1997). This ethic outlined eight values, four of which relate human responsibility to care for nature (ecological sustainability), and four that relate to human responsibility to care for each other (social justice). Fien (1997) considered that these eight values provided a curriculum focus for environmental education.

In discussing sustainable living the World Conservation Union described it as “education for sustainable living” and defined it as a process which

develops human capacity and creativity to participate in determining the future, and encourages technical progress as well as fostering the cultural conditions favouring social and economic change to improve the quality of life and produce more equitable economic growth while living within the carrying capacity of supporting ecosystems to maintain life indefinitely (IUCN Commission on Education and Communication, 1993, p. 22).

Although some aspects of this definition are problematic (Fien, 1997), it avoids the ambiguity of some definitions of sustainable development as well as the perception that sustainable development is more responsive to development interests compared to those of conservationists.

Fien (1997) developed the argument that education for sustainable living was a reconceptualisation of the mission of environmental education. In doing so, he made a case for broadening the agenda of environmental education by exploring the emerging concept of education for sustainable living and its integration with development, citizenship, peace and human rights education. Fien examined the traditional environmental education content areas of nature study, nature-based learning experiences and the generation of responsible environmental behaviour in individuals and concluded that these areas were still relevant and useful. He made the point that they were not
sufficient by themselves or conceptually sophisticated enough to remain centrally thematic in their contribution to education for sustainable living. Fien argued that the greatest change to these content areas should be pedagogical. Education for sustainable living should extend the practice of effective environmental behaviour to education for political literacy that would lead to more active and informed citizenship (Fien, 1997). Fien's argument effectively scaffolds a theoretical framework for environmental education in terms of political, economic and social contexts while reaffirming its action pedagogy.

The UNESCO paper prepared for the Thessaloniki Conference (1997) also advocated a realignment of environmental education. It argued that up until recently the world was neatly compartmentalised within nations and so human activities and their effects were also confined within these bounds. Additionally, human activities were confined within broad areas of concern such as the social, the economic and the environmental. These divisions also distinguished between various crises such as an environmental crisis, an economic crisis, an energy crisis and so on. However, with the recognition that these crises are not separate but all aspects of the same crisis came the realisation that what were once boundaries are now no longer and that such compartmentalisations are artificial (UNESCO, 1997). Reorienting education to sustainability recognises the dissolution of such artificial borders and that a new perspective on environmental education must be developed if it is to cope with the complexities of human effects at the local, regional and global environmental levels as well as those of the present and future. This is summarised by the assertion that

sustainable development will require an education that not only continues throughout life, but is also as broad as life itself, an education that serves all people, draws upon all domains of knowledge and seeks to integrate learning into all of life’s major activities (UNESCO, 1997, p. 21).

Education for sustainability acknowledges that curricula in the past have tended to reproduce an unsustainable culture that intensified environmental
and development problems rather that empowering people to act and work towards their solution. Education for sustainability may help students to determine what is best to conserve in their culture and what requires modification as well as to nurture values and strategies for attaining sustainability. The UNESCO (1997, p. 32) paper calls for fundamental changes in perceptions and values, a ‘renewal of culture’ that may assist communities to adopt sustainable lifestyles. Environmentalism based on sustainable living will involve rethinking fundamental values such as human rights and responsibility, intergenerational equity, solidarity, justice, democracy, freedom of expression and tolerance (UNESCO, 1997). The notion of sustainable living sees as its ultimate goal a

move towards a new global ethic which transcends all other systems of allegiance and belief, which is rooted in a consciousness of the interrelatedness and sanctity of life (UNESCO, 1997, p. 36).

Both Fien and the UNESCO paper clearly advocated an alignment of environmental education with the concept of sustainability. The UNESCO paper argued that through the pursuit of sustainable development reforms humanity may learn to educate for and shift towards sustainable lifestyles. Thus, environmental education is part of a larger process that preserves its identity but is modified by the principles of sustainability and educates people to make informed choices about living sustainably.

Fien argued for a more direct alignment. He suggested that sustainable living is a reconceptualisation of the mission of environmental education and that the agenda of environmental education should be broadened by exploring the emerging concept of education for sustainable living. In advocating that the eight values outlined by the new ‘ethic of sustainability’ provide a curriculum focus for environmental education, Fien not only proposed a conceptual change for the identity of environmental education but a mechanism by which this might occur so that environmental education can move on, assimilate new content, reaffirm an action-based pedagogy and be identified as education for sustainable living.
Fien's view that environmental education be reconceptualised as education for sustainable living overtly recognises the impact humans have on ecosystems because it advocates a fundamental understanding of humans and their interactions with environments. More specifically, this view recognises the significance of an action-based pedagogy and the incorporation of political literacy to promote a more informed citizenship. Therefore, education for sustainable living requires that people understand who they are and their relationships with other living things, including humans. Education for sustainable living advocates an active and informed view of the similarities and differences that constitute humanity, an understanding of different cultures and their identity and a close relationship between these human understandings and environments. One of the outcomes of this study may be that it provides an indication of the influence education has on attitudes towards environments, particularly natural environments. In so doing, it may indicate a direction for research to inform policy development for environmental education.

2.8 Conceptual framework and hypothesis
The preceding discussion has argued that cultural identity pervades all aspects of human thinking and activity. In identifying the environmental attitudes held by different communities in different countries, this study explores the relationship between cultural identity and environmental attitudes, the importance of environmental knowledge in influencing environmental attitudes and the influence of formal education programs on environmental knowledge and attitudes. The conceptual framework underpinning the three hypotheses explored by the study is presented diagrammatically in Figure 2.3, which illustrates their interrelationships as discussed above. Any impression of compartmentalisation is an artefact of the diagram and is unintended.
Figure 2.3 The relationships linking cultural identity, environmental knowledge and education programs with environmental attitudes.

In this framework cultural identities and national identities are nested within countries or nation states, although it is acknowledged that cultural and national identities can extend over more than one country. The dimensions of national and cultural identity are manifested as worldviews, behaviours and artefacts. The framework indicates that there is a relationship between national and cultural identity, as expressed by worldviews, artefacts and behaviours and environmental attitudes, as represented by biospheric, altruistic and egoistic dimensions. These three dimensions are identifiable yet form a continuum with no overlap between the biospheric and the egoistic dimensions.
CHAPTER 3: RESEARCH DESIGN AND METHOD

3.1 Introduction
This chapter details the research design for the study, the methods employed and why these methods were the most appropriate. Two research methods were used: a survey questionnaire and phenomenographically analysed semi-structured interviews. The chapter outlines the sample and describes the data gathering instruments and how they were developed. The outcomes of the pilot study and subsequent modifications to the data gathering instruments are discussed. The data collection process for each method is outlined, including the nature and reason for deviations from the intended process. Each method description is followed by an outline of the data analysis to illuminate the method of analysis used. The chapter concludes with a description of how the data are reported. Assumptions and limitations of the study are addressed, where relevant, as they arise.

3.2 Research design
This research seeks to map and account for reasons for similarities and differences in attitudes towards environments within and between different communities. It is hypothesised that worldviews and beliefs may be important in establishing and shaping attitudes towards environments and that environmental knowledge and environmental education curricula may influence environmental attitudes. Therefore, this study seeks information from individuals about their environmental attitudes, environmental knowledge, worldviews and beliefs and information about the environmental education policies and curricula in each of the three communities studied.

Mixed methods were used to ensure a comprehensive analysis from a range of perspectives. Data were sought from communities of pre-service teachers in one teacher education institution in each of three (different) countries, namely the Republic of Maldives, Australia and Indonesia. Since data were sought from individuals to develop a knowledge and understanding of their
community, relatively large numbers of responses were required to establish a representative picture of each community’s views and generalised patterns. The most appropriate strategy for achieving this was a survey questionnaire, together with interview data to complement, elaborate on and account for patterns in the survey results (Cohen & Manion 1994; Burns, 1997). Information about environmental education curricula was obtained from primary sources including environmental education syllabuses and environmental education curricula and policy statements.

The questionnaire data were statistically analysed to describe the views of a sample from each community. These descriptions, in conjunction with sociodemographic data, were mapped to describe each community generally. More complex statistical analyses (ANOVA and MANOVA) were undertaken to identify similarities and differences within each community and between one community and another. The pattern of these similarities and differences suggested possible relationships between one community and another. The interviews were used to examine qualitatively the same domains as the questionnaire but provided greater flexibility to explore and understand the reasons underpinning the quantitative findings.

Ethics approval was obtained from the University’s Human Ethics Committee. Approval for the study and input into the final form of the instruments was gained from each of the collaborating institutions. A pilot study was conducted in Australia to trial the survey questionnaire and the interview schedule as well as develop expertise in interviewing techniques.

3.3 Sample
Because of logistical and practical constraints, the population for the study was a purposive sample of teacher education students in one institution in each of the three communities studied. In purposive sampling, cases are included in the sample on the basis of informed judgement to reflect the ‘typicality’ of the cases (Cohen & Manion, 1994, p. 89). For this study, participants were purposively selected as being typical of the students in the institution. This process is described in detail on pages 55 and 56. Because the study sought to examine possible relationships between worldviews and
beliefs and environmental attitudes, cultural and ethnic contexts were criteria for selecting the countries to be included in the study. In order to increase the exposure of the survey questions to the scrutiny of a diverse range of worldviews and beliefs, countries with a diverse range of cultural and ethnic contexts were selected. The Republic of Maldives with a relatively homogeneous cultural and ethnic group, Indonesia with a range of cultural and ethnic groupings and Australia with diverse cultural and ethnic groupings were selected.

Although Indonesia as a whole has a diverse range of cultural and ethnic groupings, many are confined to specific regions. Java is a large central island of Indonesia and is divided into regions. The middle region of Java is known as Central Java. Surabaya is the main city of Central Java and is located centrally on the northern coast and is the city in which the data for this study was collected. Central Java is identified as a rural region and is dominated by an ethnic group known as Central Javanese who speak a dialect called Central Javanese. Therefore, the Indonesian data were collected from a community of Central Javanese people.

The island of Malé is the capital of the Republic of Maldives. Malé is located towards the northern end of the Maldivian archipelago and is where the Maldivian data were collected. Since Malé is the economic centre of the country, it is a magnet for individuals from most island groups who settle and live there. Consequently, the Maldivian data were collected from a community living in Malé who are representative of Maldivians generally.

Australia is a multicultural country with a variety of ethnic and cultural groups. New South Wales (NSW) is a central eastern state of Australia with its capital, Sydney, located about midway along its coast. Western Sydney is an identified region of Sydney and has a diverse multicultural population (Milne-Home et al., 1996). Therefore, the Australian data were collected from a community of people living in the Western Sydney region of NSW.

The selection of teacher education institution was also purposive and based on access to the institutions and their representativeness or typicality of
teacher education institutions within the ethnic and cultural contexts being studied (Burns, 1997, p. 76). In the Republic of Maldives, the only teacher education institution is the Institute for Teacher Education (ITE). In Australia, the University of Western Sydney (UWS) is located in the western suburbs of Sydney with a diverse local multicultural population (Milne-Home, 1996) and therefore seen as typical of the multicultural nature of the Australian population. In Indonesia, the Institute of Teacher Training and Educational Sciences (Institut Keguruan Dan Ilmu Pendidikan) (IKIP) located in Surabaya on the island of Java, is the government-run science, physical education and language teacher education centre for central Java and draws on the whole region for its students. According to the institution prospectus, the students who attend this institution are typical of students attending any other tertiary institution in central Java. Consequently, all teacher education institutions selected were typical of the community they represented. However, it is recognised that teacher education students, although they may be typical of ethnic and cultural diversity, may not reflect the full diversity of views within a population since they may reflect a narrower, more educated socioeconomic group. Consequently, the findings from this research cannot be generalised as being representative of either their region or country. Rather, the research findings represent only the views of the community studied.

When conducting research across different cultures, it is important to acknowledge that there are likely to be difficulties with the response set. This problem has been recognised by a number of researchers (Hui & Triandis, 1989; Watkins & Cheung, 1995; Watkins, 1996; Halse & Baumgart, 2000) and raises questions about interpreting similarities and differences between different communities. Bias due to response set is an issue if there is a tendency for individuals from one culture to respond in a systematically different way to questions, regardless of their content. The issue of adjusting for response set bias is explained in the context of data analysis.

The minimum sample size for the questionnaire survey for each community was to be about 200, based on proposed statistical analysis requirements. The largest questionnaire consisted of 37 questions and it was recommended
(Sudman, 1976) that there should be a minimum sample size of 5 respondents per question – that is, a sample size of about $5 \times 37 = 185$. Therefore, a minimum of about 200 responses was required. The population of the Maldivian teacher education institution (ITE) was about 200. Therefore, the Maldivian sample comprised the whole student population and consequently representativeness of this sample was not an issue. The Australian sample comprised the whole of the 1997 undergraduate first year cohort (200 students) in the Bachelor of Education course. The size and profile of this group was similar to other first year cohorts and therefore representative of the student teacher education population.

At IKIP Surabaya, the selection of the sample was constrained by an administrative requirement for the conduct of the survey. As there were no mass lectures, because subjects were delivered as tutorial groups, the university administration decided that the most representative sample would be obtained by surveying a whole program – that is, a science, maths, language or any other program. The science program was selected over the physical education and language programs because it had an enrolment of just over the target number of 200 students. In addition, the student profiles for the programs were similar to each other and therefore representative of the community as a whole (IKIP Prospectus, undated). The Prospectus describes the intake from various regions in terms of the number from villages, from rural areas, from cities as well as the number of males and females and the number from disadvantaged backgrounds and so on. To maintain consistency with the sampling technique used in Australia and to maximise the representativeness of the sample, a single year group was surveyed, as the profile of one year group was similar to the others (IKIP Prospectus, undated). The researcher was not able to make decisions regarding the administration of the survey. One constraint on the participation of IKIP Surabaya was that such decisions would be made by a group of senior academics. However, the requirement that the sample be representative directed their administrative decisions in determining the sample as the administrators were experienced researchers and were very conscious of the requirement to have the sample as representative of the community as possible.
3.4 Survey questionnaire

A standardised questionnaire survey was well suited to determining the
atitudes held by groups (Burns, 1997). A response to a single statement or
question is not important in itself but attains its significance as part of a total
scale or scale for a set of related questions (Burns, 1997). For example,
responses to questions about the limited availability of resources on Earth
and the need to consider the environmental effects of economic decisions can
be aggregated (data reduction) to produce a single scale that reflects an
individual’s view on pro-environmental issues. As a result, different views are
represented by scales, which are quantified using numbers so that they can
be statistically analysed. In this way, it is possible to gain an indication of what
a person knows and values, as well as gain some perspective and insight into
their beliefs and attitudes. These beliefs and attitudes can then be compared
to one another both within and across communities and countries to identify
relationships.

One of the problems associated with using a questionnaire survey across a
number of different communities is that there may be different
interpretations of the meaning of questions as a consequence of the limited
opportunities for respondents to clarify the questions even when the
researcher is present (Burns, 1997). To redress this problem, expert opinion
was sought from within each community participating in the study to identify
possible alternative interpretations of questions, to ensure the
appropriateness and accuracy of questions, to remove potential cultural
confusion and to clarify the final form of the questionnaire. The purpose was
to take into account any specific requirements of the Indonesian and
Maldivian communities in this study. The use of context specific experts
served to increase the construct validity and the internal consistency of the
instrument. Part of the questionnaire used an established instrument
developed and reported by Halse and Baumgart (1998, 2000) and Baumgart
and Halse (1999) and the verification process used in the current study
replicated the extensive review process undertaken by Halse and Baumgart
when constructing the original questionnaire (Halse & Baumgart, 2000) for
use with different language and cultural groups.
A copy of the questionnaire was sent to the head of each institution participating in the study – namely, the Institute for Teacher Education (ITE), Maldives and IKIP Surabaya, Indonesia and in the case of Australia, the Dean of the Faculty of Education at the University of Western Sydney. Members of each community reviewed the questionnaire and suggested modifications. This process facilitated translation of the questionnaire into another language (Bahasa Indonesian) and enabled accommodation of different cultural backgrounds. In the case of the Maldivian review process, no difficulties were encountered, with only one minor change requested to the sociodemographic questions. However, the academic administrators of IKIP Surabaya, Indonesian initially suggested a few minor changes during the review process, again to the sociodemographic questions, but then made subsequent requests for change to the sociodemographic questions. These further changes and their implications are discussed on page 68. Apart from the late changes requested by the IKIP Surabaya academic administrators, all the requested minor changes were made to the questionnaire in a way that enabled the questionnaire to remain the same across all three communities.

3.4.1 Questionnaire components
3.4.1.1 Demographics (Part A) and ICUE (Part B)

The questionnaire was designed to collect sociodemographic data about individual respondents, as well as data about environmental attitudes, worldviews and beliefs and their environmental knowledge. The instrument is shown as Appendix 1 (the Indonesian translation is shown as Appendix 2) and consists of five separate components labelled Parts A to E. Part A gathered sociodemographic information such as age, gender, socioeconomic and background data because many of the studies by other researchers had identified relationships between environmental attitudes and sociodemographic variables. One purpose of this study was to see if these relationships were still current, as well as to suggest possible reasons for any relationships found. Part B collected data about cultural beliefs and worldviews using a modified version of the Inter-Cultural Understanding in Education (ICUE) instrument developed by Halse and Baumgart (1995). The questionnaire sought respondents’ agreement with statements on a five point uni-polar scale (1 = rarely, 2 = sometimes, 3 = fairly often, 4 = often and 5 =
very often). This questionnaire is part of a method of analysis known as ICUE to identify intersecting views of intercultural understanding from different cultural perspectives. It is the questionnaire only that is used by this study and not the overall ICUE process. This is because the ICUE process asks respondents to indicate not only their response to statements about their country but for other countries as well. In doing so, the process attempts to place respondents’ views in the context of their views of others. This was not the purpose of this study.

The ICUE questionnaire was selected because it was a contemporary instrument developed for use in a range of cultural contexts. The instrument has an established track record (Halse & Baumgart, 1995, 1996, 1998, 2000; Baumgart & Halse, 1999) which reliably identified a number of worldview and belief orientations based on an established body of literature (Sue, 1978, 1981; Ibrahim, 1984, 1985, 1988; Ibrahim & Schroeder 1987, 1990) about culturally embedded and shared ways of knowing, valuing and understanding which shape the worldviews of individuals and communities, their perceptions of their identity and that of the world around them. The questionnaire contains a series of statements that comprise 37 items that are conceptually linked to the ontological, epistemological, axiological and process domains (Halse & Baumgart, 2000) discussed in Chapter 2. The instrument consists of a number of scales that traverse the domains stated above and were specifically related to the environmental concerns of this study. One scale, independent thought and action, draws on six statements or items in the questionnaire. The second scale, change through intervention, consists of five items while the symbolic and inner self scale consists of seven items. The remaining items that comprise the original ICUE questionnaire were retained to maintain consistency in the delivery of the questionnaire and so, serve to check the scales that emerged in earlier studies (see for example Halse & Baumgart, 2000). Another reason for retaining the intact ICUE instrument was that other scales might surface, which could be both relevant and useful in the study. Specifically, it was thought that a scale, importance of knowledge, might be identified from three items present in the instrument.
It is recognised that three or four scales do not ‘map’ the intricate complexities of culture. The intention of this research is to test the hypothesis that culture may influence environmental attitudes. Therefore, the use of three or four scales serves as an indicator of this. The three scales in the ICUE questionnaire as well as the three statements that may constitute an importance of knowledge scale are shown in Table 3.1.

Although the questions for the ICUE questionnaire remained intact, one change to the ICUE questionnaire format was the inclusion of a sixth point, don't know, on the response scale based on feedback and advice from Asian collaborators in the Halse and Baumgart (2000) project. This inclusion was to promote more accurate data collection by reducing the incidence of guessing and to meet ethical considerations, as some respondents might have felt uncomfortable about answering questions for which they did not think they knew the answer. Rather than have respondents guess an answer to a statement, it is statistically more valid to assign a neutral value for the purposes of analysis. In addition, statements about which respondents do not have a view are valuable data in themselves. The inclusion of this don't know point on the response scale is unusual but it is in recognition of and an attempt to deal with the complex nature of human identity and its underlying foundations.

3.4.1.2 New Environmental Paradigm (Part C)
Part C was an existing instrument, the New Environmental Paradigm (NEP), developed by Dunlap and Van Liere (1978), who collected data about environmental attitudes on a five point bi-polar Likert scale (1 = strongly disagree, 2 = agree, 3 = neutral, 4 = disagree and 5 = strongly agree). Dunlap et al. (1992) revised this instrument to remove sexist idioms and to update some items and include an additional three items. However, at the time the data for this study were collected the Dunlap and Van Liere (1978) questionnaire was the most widely used instrument since the revised 1992 questionnaire was part of a paper presented at the Annual Meeting of the Royal Sociological Society and not as widely accessible to researchers in the field. It was not until 2000 that the revised instrument was published (Dunlap, Van Liere, Mertig & Jones, 2000). Recent research (Furman, 1998; Corral-
<table>
<thead>
<tr>
<th>Scale</th>
<th>Statements Comprising Each Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Thought and Action</td>
<td>• Students are encouraged to develop their own ideas on how things work.</td>
</tr>
<tr>
<td></td>
<td>• People are valued if they are prepared to be critical or to express ideas opposing what has been done in the past.</td>
</tr>
<tr>
<td></td>
<td>• People believe any problem has several possible solutions.</td>
</tr>
<tr>
<td></td>
<td>• Students are encouraged to question what is taught and to understand the world for themselves.</td>
</tr>
<tr>
<td></td>
<td>• People speak directly and say what they think and feel.</td>
</tr>
<tr>
<td></td>
<td>• People emphasise knowledge built from experience.</td>
</tr>
<tr>
<td>Change Through Intervention</td>
<td>• People look to the future rather than to the past.</td>
</tr>
<tr>
<td></td>
<td>• People look to technology to bring about a significant change in society.</td>
</tr>
<tr>
<td></td>
<td>• People believe modern technology can achieve a better future.</td>
</tr>
<tr>
<td></td>
<td>• People believe human action is necessary to bring change.</td>
</tr>
<tr>
<td></td>
<td>• People believe the society and environment must be controlled and used to serve human needs.</td>
</tr>
<tr>
<td>Symbolic and Inner Self</td>
<td>• People believe it is important to live according to their spiritual or religious values.</td>
</tr>
<tr>
<td></td>
<td>• Inner peace and harmony brings feelings of high self worth more than recognition by others.</td>
</tr>
<tr>
<td></td>
<td>• What people do is more important than what they possess.</td>
</tr>
<tr>
<td></td>
<td>• It is usual to look beyond people's words and actions for their hidden meaning.</td>
</tr>
<tr>
<td></td>
<td>• People believe technology brings material change but not inner harmony and peace of mind for people.</td>
</tr>
<tr>
<td></td>
<td>• Knowledge develops through a unit of body, mind and spirit.</td>
</tr>
<tr>
<td></td>
<td>• People observe the world around them and look for symbolic and inner meaning.</td>
</tr>
<tr>
<td>Importance of Knowledge</td>
<td>• A major purpose for students to gain knowledge is so they can find their place in society.</td>
</tr>
<tr>
<td></td>
<td>• There is an essential core of knowledge, which all students should learn.</td>
</tr>
<tr>
<td></td>
<td>• People value the learning of facts.</td>
</tr>
</tbody>
</table>
Verdugo & Armendariz, 2000; Schultz, Unipan & Gamba, 2000) also used the 1978 version of the instrument even though the authors of the last two papers knew of the revised instrument. Consequently, the 1978 instrument provided a stronger basis for comparison with other studies and potential contribution to the field.

Initially, the researcher developed an instrument to measure attitudes towards environments because of concern that the Dunlap and Van Liere (1978) instrument lacked a contemporary context (Clarke, 1996). The researcher-developed instrument consisted of 24 questions that asked respondents to indicate the degree of their agreement or disagreement with the statements provided. The statements were developed from content areas found in the environmental education literature of the three countries studied. Each statement was written so it represented an egoistic, an altruistic or a biospheric perspective. For example, one of the questions asked was “Humans should learn about natural ecosystems so they can live in harmony with them”. The question content focus is on ecosystems while it is written to exemplify a biospheric perspective. The pilot study used both the Dunlap and Van Liere (1978) instrument and the researcher-developed instrument but found no difference in findings between the two instruments. Essentially, both instruments produced the same set of scales with similar reliability values. This suggested that the conceptual nature of the original Dunlap and Van Liere (1978) instrument was sound. Since the Dunlap and Van Liere (1978) instrument had an established research record and the nature of the questions were relevant, it was decided to use the original Dunlap and Van Liere (1978) twelve-item instrument. The NEP questionnaire has mainly been used in developed, western countries and at the time data for this study were collected, it had not been used in developing, non-western countries. The only non-western country in which the NEP questionnaire had been used was Japan, which is highly developed. Consequently, the use of the NEP questionnaire in developing, non-western countries presents new challenges for its validity in this context. The three scales in the NEP questionnaire, as established in developed countries, are shown in Table 3.2.
3.4.1.3 Global question on attitudes to environments (Part D)

Part D of the study’s instrument comprised a single global question, devised by the researcher to investigate respondent’s environmental attitude on a continuum with the ‘importance of human needs and welfare’ at one end and the ‘importance of the needs and welfare of environments’ at the other. The question used a five point bi-polar scale (1 = the welfare of people should be the single highest priority; 2 = when people’s needs and the needs of environments are to be met, people are more important; 3 = people’s needs and the needs of environments are both to be met; 4 = when people’s needs and the needs of environments are to be met, environments are more important; and 5 = the welfare of environments should be the single highest priority). This question collapsed the researcher-developed environmental attitudes questionnaire into a single question allowing triangulation of the data obtained from the Dunlap and Van Liere (1978) instrument.

Table 3.2
Scales in the NEP Questionnaire

<table>
<thead>
<tr>
<th>Scale</th>
<th>Statements Comprising Each Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biospheric</td>
<td>• We are approaching the limits of people the Earth can support.</td>
</tr>
<tr>
<td></td>
<td>• The Earth is like a spaceship with only limited room and resources.</td>
</tr>
<tr>
<td></td>
<td>• There are limits to growth beyond which our industrialised society cannot expand.</td>
</tr>
<tr>
<td></td>
<td>• Humans are severely abusing the environment.</td>
</tr>
<tr>
<td>Altruistic</td>
<td>• The balance of nature is very delicate and easily upset.</td>
</tr>
<tr>
<td></td>
<td>• When humans interfere with nature it often produces disastrous consequences.</td>
</tr>
<tr>
<td></td>
<td>• To maintain a healthy economy industrial growth should be controlled.</td>
</tr>
<tr>
<td></td>
<td>• Humans must live in harmony with nature in order to survive.</td>
</tr>
<tr>
<td>Egoistic</td>
<td>• Humans have the right to modify the environment to suit their needs.</td>
</tr>
<tr>
<td></td>
<td>• Humans were created to rule over the rest of nature.</td>
</tr>
<tr>
<td></td>
<td>• Plants and animals exist primarily to be used by humans.</td>
</tr>
<tr>
<td></td>
<td>• Humans need not adapt to the natural environment because they can remake it to suit their needs</td>
</tr>
</tbody>
</table>
3.4.1.4 Self-reported environmental knowledge (Part E)

Part E of the questionnaire was designed to ascertain respondents’ self-reported environmental knowledge using a five point uni-polar scale (1 = no knowledge, 2 = little knowledge, 3 = fair knowledge, 4 = good knowledge and 5 = very good knowledge). Questions were developed after reviewing the Australian NSW Environmental Education Curriculum Statement K-12 (NSW DSE, 1989), the Indonesian Muatan Lokal – Pendidikan Lingkungan Kehidupan Jakarta (PLKJ), (Ministry of Education, 1994) (National Curriculum Subject – A Study of Local Life and Environmental Education) and the Maldivian Environmental Education Primary Syllabus (Educational Development Centre, undated) and aggregating their knowledge components. For example, if a document referred to students knowing how the greenhouse effect influenced climate change then the greenhouse effect was listed as a knowledge component of the document. Knowledge areas included in the documents of all three communities were identified and mapped with the final instrument excluding knowledge that was not covered by all the communities being surveyed. Effectively, this instrument reflected a selection of the knowledge component of the curriculum materials available from each of the three targeted communities. This instrument was used in preference to the plethora of existing instruments (see Kellert, 1981, 1985, 1991) that assigned a numerical value to respondents’ environmental knowledge. The reason for the new instrument was that the existing instruments were very long (some were hundreds of questions) and they had the appearance of tests. This posed an ethical dilemma as the survey should have been non-threatening to respondents, particularly from different countries and cultural backgrounds and should be able to be completed in a relatively short time, within the constraints for access imposed by participating institutions. There was also the need to have a ‘user-friendly’ instrument to attract the involvement of voluntary participants for the interview component of the data collection.

3.4.2 Pilot study of questionnaire

A pilot study of the final instrument was conducted to ensure that the resulting instrument, which was a combination of questionnaires, was performing as expected. Seventy-nine of the 81 third year primary teacher
education students at a lecture given at UWS responded to the questionnaire, which was similar to the one eventually used for the study. Students were addressed by the researcher and asked to complete the questionnaire. Anonymity of response was assured and after the purpose of the survey was explained, students were invited to complete the questionnaire and hand it in at the end of the lecture. The researcher remained during the completion time to answer questions about any uncertainties. A few questions were asked mainly about Part A, the sociodemographic information. For example, some students did not know what the subjects social science, physical education and the arts meant. As a result, these subject areas were clarified in the final form of the instrument by providing examples in parentheses.

When the survey was completed, the researcher asked if there were any comments on the questionnaire. A number of students responded, saying that some of the ideas embedded in the questions for Part B (worldviews and beliefs) were difficult to answer. Some students said they struggled to answer some questions but preferred to answer as best they could rather than indicate that they 'didn't know'. As a result of this discussion it was decided that when students were addressed for the actual survey the reason for the don't know response category would be explained although respondents would be encouraged to answer if they could. One student said the term village was no longer relevant in Australia. It was then explained that this survey was being used overseas, where this term may be used. Another student said that the term was often used in Australia and so it was decided to leave the question as it appeared.

A few students said the questionnaire was too long. However, most students said they enjoyed answering the questions and indicated that it made them think about issues they had not previously considered. Consequently, it was decided not to reduce the length of the questionnaire other than in Part D, which was reduced to a single question. When the data were analysed, the results for the pilot study confirmed the reliability of the scales discussed earlier. That is, each of the scales in the NEP and ICUE questionnaires were identified with acceptable reliability scores (Cronbach alpha values were all above 0.65).
3.4.3 Questionnaire data collection

Data collection in each of the three countries of Australia, Indonesia and the Republic of Maldives followed the plan outlined earlier although deviations occurred as a result of local contexts and traditions as discussed below. The distribution and return of questionnaires is detailed in Table 3.3.

3.4.3.1 Australia

The Australian survey was administered in first semester, 1997 at a lecture attended by 230 first year primary teacher education students. The students were addressed by the researcher who introduced himself, explained the purpose of the study, assured the anonymity of responses and explained that completion of the questionnaire was not compulsory. Students were invited to volunteer to complete the questionnaire and it was explained that students could withdraw from the study at any stage.

Table 3.3
Questionnaire Distribution and Response Rate

<table>
<thead>
<tr>
<th>Community</th>
<th>Preservice Student Teachers Surveyed</th>
<th>Questionnaires Distributed</th>
<th>Questionnaires Returned</th>
<th>Overall Response Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian</td>
<td>1st yr primary</td>
<td>230</td>
<td>225</td>
<td>98</td>
</tr>
<tr>
<td>Indonesian</td>
<td>2nd yr secondary</td>
<td>161</td>
<td>159</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td>3rd yr secondary</td>
<td>54</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>Maldivian</td>
<td>1st, 2nd &amp; 3rd yr primary</td>
<td>189</td>
<td>185</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td>1st yr secondary</td>
<td>14</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

The use of the don’t know column for Part B was explained and the researcher indicated that students could ask for explanations or clarifications if they wished. The only matter raised by students was whether every question had to be answered. It was explained that this was each individual’s choice but that in some cases a ‘no response’ to questions decreased statistical reliability. The Australian sample returned 226 questionnaires but whole parts of one individual’s response were left unanswered and this particular questionnaire was discarded because it did not furnish a minimally required amount of
data. However, overall there was no indication that either parts of the instrument or individual questions within parts were misinterpreted or misunderstood. Rather, the vast majority of students answered all questions without seeking assistance. The final Australian sample consisted of 225 completed questionnaires of the 230 distributed.

3.4.3.2 Indonesia
The complexity of the language and ideas present in the questionnaire required a high level of English. Thus to ensure valid responses, a linguistic specialist translated the questionnaire into Bahasa Indonesian. The accuracy of the translation into Bahasa Indonesian was verified by having it translated back into English by an independent Bahasa Indonesian language expert.

The researcher administered the Indonesian questionnaire survey three weeks after the Maldivian survey was conducted. The day before the distribution of the Indonesian questionnaire, the researcher was informed by the Professor of Education, who was the Administrative Head of the Education Faculty, that two questions had to be deleted. These were questions 9 and 10 from Part A, the sociodemographic information. Question 9 asked about the strength of religious commitment. The reason given for the deletion of this question was that the vast majority of respondents would be Muslim and that all Muslims are expected to have a very strong religious commitment and that to query their commitment would be offensive to them. Question 10 asked about the level of family income. The reason given for the deletion of this question was that the Indonesian government proposed to introduce a tax system for the first time and that family income had become a very sensitive issue. The researcher explained that it was important that the questionnaire remain intact and that it would be a problem for the study if these questions were deleted. After much negotiation, it was agreed to allow the students to decide whether they would answer these questions. However, the sensitive nature of these two questions would be pointed out to students by tutors administering the questionnaire before the survey began.
Since there were no mass lectures and in order to minimise the disruption to classes and to the administration of the university, the university administration decided to have tutors conduct the survey in tutorial classes simultaneously. It is important to note that each tutor administering the survey was given a set of written instructions so that the procedure used met ethical requirements and was the same as the procedure followed in Australia and the Maldives, as far as practical. The researcher asked to observe the students as they completed the questionnaire. The reason given for this request was so that students could put a human face to the otherwise anonymous task they were completing, as well as to enable any questions students might have about the questions or the research to be answered. This was important because it served, as far as possible, to replicate more closely the data collection process carried out in Australia and the Maldives. As well, it gave the researcher an opportunity to monitor the data collection process and in particular to see how different tutors were dealing with questions 9 and 10 of Part A. It also served to monitor the understanding students had of words and phrases of Part B of the questionnaire. This was important because of the experience with this part of the questionnaire in the Maldives discussed below.

It was intended that a single year group should be surveyed to obtain the Indonesian sample. There were insufficient first year education students to meet the target sample of 200 students so the administrators decided to survey second year students (161) and to 'top up' their number with third year students (54). The researcher had no control over the selection of this sample but this process has implications for the generalisation of findings since there is no way of knowing whether the third year students who were used to top up the number of second year students (the bulk of those surveyed) produced a final sample that was representative of the overall student teacher education community. However, the administrators who supervised the survey assured the researcher that the sample was representative of the preservice teacher education student community, because students were randomly distributed across all classes, irrespective of their year, when they enrolled. Therefore, any single class was made up of randomly distributed students. The administrators also reiterated their earlier
comment that they were also researchers and knew that the representativeness of the sample was important and that the sample surveyed was representative of the overall student community. Consequently, although there was a deviation from the original sample selection process, it was concluded that the final sample was representative of the overall preservice teacher education student community. Although these students intended to teach secondary science, the core curriculum included many other subjects. In addition, there was a larger range of elective subjects including cultural studies, philosophy, art, music and many more. A total of 211 second and third year secondary science, teacher education students formed the Indonesian sample. Although the Indonesian sample was composed of secondary teacher education students, compared with primary teacher education students in Australia and the Maldives, there is no difference at entry point between primary and secondary teacher education students in Indonesia. In addition, there is no environmental education training during either the secondary of primary training programs. Therefore, for the purpose of this study, there is little difference between the environmental knowledge and sources of environmental knowledge for Indonesian secondary and primary trainee teachers.

3.4.3.3 Maldives
The Maldivian survey was conducted in the Maldives by the researcher 12 weeks after the Australian students were surveyed. Because students at ITE were taught in classes of 25 to 30 students, the questionnaire was administered to each class at a different time but each time the process replicated the Australian distribution of questionnaires. The researcher who repeated the same introduction that was given to the Australian participants addressed the students in each class. One student pointed out that it was not necessary to explain the don't know column because it was explained by the introduction on the first page of the survey. The language of instruction in schools and at ITE is English and so the questionnaire was written in English. However, it was found that some students were not as fluent in English as others. Consequently, as with the Australian sample, students were encouraged to ask for assistance if they did not understand a word or question. For most groups, the survey was completed without students
seeking clarifications. However, when clarifications were sought they were to clarify the meaning of individual words or phrases in Part B of the questionnaire. Some students required explanations for the words *harmony, materialism* and *foolhardy*. They also asked for the meaning of the phrases *look to the future* and *symbolic or inner meaning*. It was clear from the questions asked in the clarification process that the students knew what these words and phrases meant and that they were just making sure they knew exactly what was meant. For one student, explanations were required for the words *deforestation* and *industrial pollution* in Part E of the questionnaire. Nevertheless, students understood the questions and statements and asked many questions about environments after the questionnaires were collected by a volunteer student and handed to the researcher. However, requests for word and phrase clarifications does suggest that some of the language used in the questionnaires may have been more culturally specific than was intended. This would need to be taken into account by future research. Although the language of instruction may have been English, the culture and therefore the use of words and phrases may be different, especially when colloquial or specialist terms like *foolhardy* and *look to the future* are used.

Although clarifications were sought for a few words and phrases, these clarifications were very small in number, particularly when viewed in terms of the total number of respondents for the Maldivian sample. Overall, in the judgement of the researcher, the clarifications were not a significant problem and so would have had minimal implications for the reliability of the data collected. The primary teacher education students returned 185 completed questionnaires from the 189 that were distributed, while all of the 14 questionnaires distributed to the secondary science and mathematics teacher education students (science and mathematics being the only secondary subjects on offer) were returned. All the returned questionnaires were completed sufficiently to be used as a source of data. The total Maldivian sample achieved was 199, which was one short of the target sample of 200 responses for each community.

A total of 635 (Australia, 225; Indonesia, 211; Republic of Maldives, 199) questionnaires were completed ready for analysis. Although there were
some variations in the way data were collected in each community, the basic principles of consistency of process and sample representativeness were achieved. This was done within the limitations of the implementation process outlined above, while meeting the sample target number and maintaining high ethical standards. While this was sometimes logistically complex, it was achieved with minimal impact on reliability and the ability to generalise the data collected to each community of preservice teacher education students.

3.4.4 Analysis of questionnaire data

After numeric coding, the survey questionnaire data were analysed using SPSS. Descriptive analyses of the questionnaire data such as percentages, frequencies, means and standard deviations were carried out to ascertain respondents' views in each of the three community contexts. Similarities and differences in these views were then identified both from within and between each of the three communities using ANOVA, MANOVA and correlation analyses. Relationships between similarities and differences across all three communities were then examined to identify any trends or patterns present. Each of the statistical methods used assumes a population with a normal distribution and therefore if this assumption is not met resulting analyses will be less accurate. According to Snedecor and Cochran (1969) even if the original population is far from normal, the distribution of sample averages tends to become normal as the size of the sample increases. Since the size of the samples used in this study were large, relative to the size of the population, it is reasonable to assume that the samples selected were normal for statistical purposes. In addition, Snedecor and Cochran (1969) argue that most statistical analyses hold well enough when samples come from non-normal populations. In the case of ANOVA and MANOVA non-normality can effect results. However, this impact is minimised when means are small, which is the case in this study. Unequal sample size can also effect ANOVA and MANOVA analyses. However, in this study the sample sizes, although not the same, are similar and so any error due to differences in sample size should be minimal. In all cases the statistical analyses carried out in this study are the same as those used by researchers in related studies.
Sociodemographic data (Part A) were analysed in terms of percentages and frequency tables to describe the sample. The ICUE and NEP data (Parts B and C) were analysed using SPSS to show frequency distributions and means for the scales identified by and consistent with previous studies. Confirmatory factor analyses were employed to check the validity of the established scales within these questionnaires. Confirmatory factor analysis generates Cronbach alpha values, which indicate the internal consistency of the selected items or questions that compose a scale. Cronbach alpha values above 0.65 were considered satisfactory (Nunnaly, 1978; Santos, 1999) indicating a reasonable degree of internal consistency or reliability within each scale. Confirmatory factor analysis was used rather than employing ‘open’ factor analysis so that the scales for each community would be the same, allowing for statistical comparisons between the three communities studied. Since each community studied provided independent data, the Cronbach alpha value obtained for each scale from each community would be different.

The data for the single question on environmental attitude (Part D) were analysed in terms of means and standard deviations. The data for environmental knowledge, Part E, were also analysed in terms of means and standard deviations. Response set bias was investigated in terms of the use of the available scale, the consistency of higher or lower means irrespective of the question content, as well as in terms of the ‘modesty/humility hypothesis’ (Halse & Baumgart, 2000).

The comparative analysis was carried out using SPSS with one way ANOVA, MANOVA and Pearson correlation (2-tailed) being employed. The .05 level was adopted as the criterion of statistical significance and Bonferroni Post Hoc tests were used. A combination of the statistical data and data from the phenomenographic analysis of the interviews (discussed in detail in 3.4) was then used to identify and understand relationships between similarities and differences across the three communities.
3.5 Phenomenographically analysed interviews

3.5.1 Rationale for the use of phenomenographic analysis

Phenomenography is the empirical study of the limited number of qualitatively different ways in which various phenomena and aspects of the world are experienced, conceptualised, understood, perceived and apprehended (Marton, 1994). These different experiences, perceptions and understandings are characterised in terms of categories of description, logically related to each other, forming hierarchies in relation to given criteria. Such an ordered, hierarchical set of categories of description is called the outcome space of the phenomenon (Marton, 1994; Biggs, 1994). The categories of description and the outcome space are the main results of a phenomenographic study (Marton & Saljo, 1984; Marton, 1994; Walsh, Dall’Alba, Bowden, Martin, Marton, Masters, Ramsden & Stephanou, 1993; Biggs, 1994; Gerber, Boulton-Lewis & Bruce, 1995).

Phenomenography originated when researchers attempted to find out why some learning outcomes were better for some people than for others (Marton, 1988). A phenomenographic approach carefully examines the specific accounts different subjects give of the same learning experience – say, reading a text – then attempts to characterise the fundamental differences in that specific learning experience. A phenomenographic approach focuses on specific outcomes, what people have learnt (people do not just learn, they learn something) or a specific attitude held. So, rather than clarify what it means to be a good learner or to develop a given attitude, a phenomenographer attempts to clarify what it means to have learnt something specific or what it means if a person has a specific attitude (Marton, 1988). Developing an attitude cannot be divorced from the context or subject/object of the attitude. For a phenomenographer, it is the difference in views that arise from a common experience that is the focus of investigation. A phenomenographic approach overtly allows for variation in outcomes and attempts to understand why these variations or differences arise. Phenomenographers try to describe relationships between individuals and the world around them. They try to understand a subject’s immediate experiences in terms of their conceptual thoughts, their belief structures or worldviews. A phenomenographer acknowledges that immediate experience
cannot be examined and understood in isolation from conceptual thought and/or worldview.

A shift of focus away from the characteristics of a specific situation towards understanding ideas about a phenomenon in general facilitates insights into the way communities view and approach a phenomenon. Since a description of actual views and attitudes held by participants is a desired outcome of this research, rather than establishing where participant's views and attitudes fit into a predetermined set, a phenomenographic methodology was particularly suitable and enabled comparisons with the environmental attitudes found in the literature (Dunlap et al., 1992; Schultz & Zelezny, 1998; Schultz & Zelezny, 1999; Dunlap et al., 2000). Using a phenomenographic methodology also allows for the emergence of different or alternative attitudes towards environments, which do not appear in the literature, to surface and to be identified and explored. The phenomenographer seeks to probe the detail of these views and understand the reasons for their differences or similarities rather than relying solely on theoretical interpretations.

Another strength of the phenomenographic method is that it shifts the focus away from that which emerges in a specific situation, towards related and preconceived ideas that an individual or community may hold about a phenomenon generally. For example, Neuman (1987) and Marton and Neuman (1990) found that the way children understand numbers is of vital importance to the way they deal with arithmetic problems. The way in which students understand matter is of vital importance to their understanding of chemical reactions (Renstrom, Andersson & Marton, 1990). Detailed knowledge of the ways in which learners understand the concepts and principles associated with a phenomenon is crucial to their understanding of related phenomena, as well as concepts and principles throughout a whole domain (Bowden, Dall’Alba, Laurillard, Martin, Marton, Masters, Ramsden, Stephanou, & Walsh, 1992). The implication is that it is important to understand and acknowledge the influences on the ways in which people understand the concepts and principles associated with environments in
order to develop a conceptual foundation for solving environmental problems.

The relationship between participants and their attitudes towards environments exists in two dimensions. The first is the relationship between the respondent and environments and is grounded in the views of the phenomenon environments of the respondent/s. The second is the relationship between the different views of environments across groups of participants (Walsh et al., 1993). The phenomenographic method allows the range of environmental attitudes, as well as the relationships between them, to be critiqued, examined and understood and, at no stage is the phenomenon itself divorced from analysis (Marton, 1994; Walsh et al., 1993). Phenomenography does not divorce the why from the what. It probes the reasons for views as well as the views themselves.

Phenomenographic descriptions are based on ways of understanding a particular phenomenon and are therefore qualitative by nature. However, this does not imply that quantitative data cannot be explored phenomenographically (Walsh et al., 1993). Rather, phenomenography provides descriptions that are relational, content bound, experientially contextualised and qualitative. Yet, when views about phenomena within different communities are being considered, the relationships uncovered within a specific community remain contextualised and do not necessarily relate to other communities and at no stage should the outcome space for one context (community) be integrated with those of another. This study endeavours to move beyond this limitation by also explaining why emerging relationships within communities are similar or different from those of other communities.

3.5.2 Focus of the interview questions
Fundamental to a phenomenographic method is the recognition that it is not only the views of participants that are being sought but also an understanding of what these views actually mean. Put another way, a phenomenographic analysis provides an insight into what it means or signifies when individuals hold views or attitudes. The implication is that each
unfolding interview has to respond to the unique personality of each participant and that different questions may be necessary to achieve the desired outcomes for each interview. Consequently, a semi-structured interview method was selected to provide direction for the interview process while allowing for the uniqueness of individuals and the necessary dialogue to achieve desired outcomes. Semi-structured interviews also allow for the possibility of new or different views, ideas, concepts, perspectives and relationships to emerge while providing a medium for exploring the qualitatively different domains of the research. To take these requirements into consideration, the formal interview schedule was restricted to eight essential focus questions (Appendix 3) to provide a core set of questions as a structure and starting point for a dialogue and exploration of the research questions.

The purpose of the semi-structured interviews was to gather detailed information across the domains explored by the survey questionnaire to triangulate findings and to acquire more nuanced insights into the perspectives of participants while allowing for the emergence of new and unexpected findings. In addition, the interview data served to supply detailed data that could be analysed to provide explanations of the reasons for the findings. Consequently, the interview questions focused on the environmental attitudes held by participants, the beliefs and worldviews of people in their country, particularly but not exclusively, in the scales explored by the ICUE questionnaire – *change through intervention* (usually technological intervention), *symbolic and inner self* and *independent thought and action* – related to cultural background and cultural identity. In addition, the interviews focused on participants’ views of the relative importance of human needs and environmental needs and the reasons for these views. Participants’ knowledge about environmental issues was probed by asking them to talk about commonly encountered environmental issues such as the greenhouse effect, the hole in the ozone layer and acid rain. These issues were used as starting points and were common to the curricula of each of the three communities studied.
Much of the literature on environmental attitudes focuses on the ability of people to transfer their views into action (Ajzen & Fishbein, 1977; Van Liere & Dunlap, 1980; Cook & Berrenberg, 1981; Van Liere & Dunlap, 1981; Hines, et al., 1986; Arcury & Christianson, 1990; Newhouse, 1990; Vining & Ebreeo, 1992; Arcury & Christianson, 1993; Plunkett & Skamp, 1994). Consequently, a question was included in the interview schedule to probe participants' environmental actions and for triangulation with aspects of participants' environmental attitudes and environmental worldviews.

The pilot study included interviews with three volunteer students recruited through an open invitation at a third year lecture. The interviews and their subsequent analysis followed the phenomenographic method discussed below. Because of the nature of the interview questions, participants discussed environments, almost at the exclusion of all else, with insufficient information and reflection on cultural background and cultural identity being supplied, unless the term culture was purposefully introduced into the conversation. Consequently, the pilot study resulted in some modifications being made to the interview schedule, as well as to the way the interviews were conducted. A general question was added to the beginning of the interview asking participants to talk about themselves and their background. If participants did not talk about the culture of their country then this was introduced into the conversation. This first question also served to help relax participants and ease them into the interview process. This change sought to enrich the data and help participants reflect more on themselves, the cultural background of their country and to draw on personal experiences as examples. A consequence of this change was that the time allocated for interviews increased from thirty to forty five minutes.

3.5.3 Recruitment of participants for final interviews

When the survey questionnaires were distributed in each community, students were asked to volunteer to participate in an interview. If students were interested, they were asked to write their name and contact details on a separate sheet of paper and hand it in either at the same time as their questionnaire or at another convenient time to ensure anonymity of the questionnaire data. All volunteers were to be interviewed to gain as diverse a
sample as possible. It was expected that 10 to 15 interviews for each community would be achieved which would be sufficient to provide a rich corpus of data for analysis. Since findings from interviews are indicative of patterns of possible cultural and environmental views and perspectives but not representative of others, this number would be a balance between a self-selecting random sample and a manageable amount of data to be collected in the time available, particularly in the overseas countries. The time associated with interview transcription was also a practical consideration and meant that the total number of interviews could not be great. Therefore, 10 to 15 interviews will provide a rich data source while being manageable to collect, transcribe and analyse. The interview data was to be validated by triangulation with other data such as contextual information and questionnaire data.

The Australian interviews took place at mutually convenient times on a one to one basis in a comfortable office familiar to participants. The nature and purpose of the interview questions was explained and permission was received from all participants to audiotape the interview. It was emphasised that participants could withdraw from the process at any stage. Each audiotape was transcribed verbatim. One of the eleven taped interviews was discarded because the accent of the participant was too difficult to understand for transcription, leaving ten transcribed Australian interviews for analysis.

Maldivian students were invited to participate in an interview by the researcher and to write their name on a sheet of paper circulated around the class. This was a necessary deviation from the planned approach because many Maldivian students did not have telephones and their address system is complex as each house has its own name and people learn these house names over a period of time. To accommodate this cultural phenomenon, each list of volunteers was given to year coordinators at ITE who set up interviews since they knew how to contact each student. The year coordinators did not exert pressure on students to participate in the interview process, they simply knew them well and were in constant contact with them. A total of eleven students volunteered to be interviewed. The interviews took place at mutually convenient times on a one to one basis in a vacant classroom where
the surroundings were familiar and each participant felt comfortable. The purpose and process of the interview was explained and permission received from each participant to audiotape the interview. As with the Australian interviews, it was emphasised that participants could withdraw from the process at any stage. Part way through an interview one student asked for the interview to be terminated because she did not think she was answering the questions to her satisfaction. Although it was explained that opinions only were being sought and that opinions were neither right nor wrong, the student still felt that she was not answering the questions well and so the student was thanked and the interview terminated. Data from this interview were not used. After the interview each audiotape was transcribed verbatim. Thus, there were ten transcribed Maldivian interviews available for analysis.

The selection of the Indonesian interviewees varied from the planned process. In Indonesia, it is a cultural expectation that students will be paid for an interview. At the time the survey was conducted, students were asked to volunteer to participate in the interviews with the implicit expectation of a financial reward. The payment was a token amount in keeping with custom. In the Australian and Maldivian case the interview time was negotiated. In Indonesia designated interview times were specified and so only those students who could attend an interview at the stated time volunteered. The researcher was assured by the university administration (discussed earlier) that the fourteen students who were to be interviewed were genuine volunteers. At the completion of each interview the attendant handed each student an envelope containing payment. Some students attempted to refuse this payment but the attendant insisted. The money used as payment was part of a larger amount paid by the researcher to the university to cover incidental costs associated with the research. Again, this was a cultural expectation and the amount was very small by Australian standards.

Interviews took place the day after the survey was conducted. Forty-five minutes were allowed for each interview and a translator was employed who was a linguistics professor at IKIP Surabaya who had completed his PhD in Australia and whose area of expertise was translation of English into Bahasa Indonesian. Students were given appointments and arrived well before their
allocated time and were seated by an attendant in a comfortable chair in a waiting room next to the interview room.

The interview room was a vacant staff office, which was familiar to participants and where each participant was made to feel comfortable. The student, translator and researcher sat in a circle so that eye contact could be made between all three at any time. The purpose and process of the interviews were explained to participants and permission was obtained to audiotape the interview. As with the Australian and Maldivian interviews, it was emphasised that participants could withdraw from the process at any stage. Eleven interviews were completed before the time the building had to be closed. Part of one interview was accidentally recorded over and so was not included in the analysis. Ten Indonesian interviews were transcribed verbatim for analysis.

3.5.4 Process of analysis for interview data

The interviews were analysed at two levels. The first level of analysis sought to describe views and reasons held by individuals and consequently the views and reasons held by each community. The second was a comparative analysis to identify similarities and differences between the three communities and to identify reasons for these relationships. In addition, the interview data were used to try to understand the reasons for the similarities and differences identified between communities.

Using a phenomenographic method, a description of views, with their reasons, for each community was produced in the form of categories of description for each of the domains being investigated. This was done using the process outlined below.

- Data not relevant to the study were ignored. For example, if the person being interviewed talked about pets then a dialogue about pets would be useful in establishing rapport. However, the information collected may not be useful data for the study.
• Views and reasons for these views were coded for each community, using a common system across all three communities. The coding system used was to number the different views expressed with the reason for each view, when given, attached and designated by the symbol R. This was done for each of the domains being investigated but it should be emphasised that each community was reviewed and coded independently of the other two. The views coded and the reasons for them were grounded in the data collected for each community. Examples of domains explored are environmental attitude, view of the term environment and attitudes towards change and so on.

A different system was used to code the environmental knowledge section of the interview data. Environmental knowledge was determined from two sources. The first was ‘awareness of environmental issues’ and the second was the ‘accuracy of knowledge’ about issues discussed. Review of the curricula for each of the three communities identified a number of environmental issues that were commonly encountered. Three of these common environmental issues (greenhouse effect, ozone layer and acid rain) were selected as possible starting points for discussion in each interview. Each participant was asked to choose any one issue to talk about. The three issues stated above served as examples only (see question 4 of the interview schedule). Both awareness of environmental issues and accuracy of knowledge were coded to facilitate analysis and reporting.

Awareness of environmental issues was coded using a five-point scale from very poor to very good. This scale was necessary to establish clear criteria to differentiate between levels of awareness. The rationale for each code is described in Table 3.4 and is based on the reasonable expectation that preservice teachers had some formal education on these issues since they were common to the curricula in each community studied. A holistic judgement marking strategy (NSW Board of Studies, 2001) was used to establish each participant’s
awareness of environmental issues. In holistic judgement marking, a judgement is made based on the criteria given but informed by the experience of the marker and the interpretation of the marking scale – in this case a five point scale from very poor to very good. An important feature of holistic judgement marking is the consistency achieved when comparing different levels of performances across a diverse sample. This strategy is used widely by the NSW Board of Studies in marking the NSW Higher School Certificate (HSC). This researcher, who was both the interviewer and data analyst, is an expert in this form of comparative marking as a member of the NSW HSC Examination Committee, a contributor to the development of the holistic judgement marking system and a Senior HSC Marker responsible for teaching others how to implement this comparative method of assessment.

Table 3.4

<table>
<thead>
<tr>
<th>Code</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>very poor</td>
<td>Aware of very few, if any environmental issues even after common issues were introduced during the interview.</td>
</tr>
<tr>
<td>poor</td>
<td>Aware of some common environmental issues but could not elaborate on additional issues raised during the interview.</td>
</tr>
<tr>
<td>satisfactory</td>
<td>Aware of common environmental issues and knew about some additional issues raised during the interview.</td>
</tr>
<tr>
<td>good</td>
<td>Aware of many common environmental issues including some less well-known issues raised during the interview.</td>
</tr>
<tr>
<td>very good</td>
<td>Aware of all environmental issues raised throughout the interview including many, which were less well known.</td>
</tr>
</tbody>
</table>

The accuracy of knowledge was coded using a five-point scale from very inaccurate to very accurate and the previously established criteria were employed to differentiate between the different levels of knowledge about the environmental issues discussed in the interview. The rationale for each code is described in Table 3.5 and is based on the accuracy of knowledge of environmental issues being
determined by the researcher and a panel of experts, which verified decisions made. The researcher and at least one other expert checked all data. All data were double analysed – that is; each expert worked independently only collaborating and discussing data when the initial analysis was discrepant. This occurred in less than 10% of cases. An additional expert in qualitative analysis checked a large random sample of data after the double analysis was complete. All discrepancies were discussed and resolved in all cases. This is beyond the standard requirements of phenomenographic analysis (Marton, 1994). Again, the holistic judgement marking strategy was used to allocate a code for each participant’s accuracy of knowledge of the environmental issues discussed. The expert who double analysed the environmental knowledge data was also an expert in environmental education as well as qualitative analysis.

Table 3.5

<table>
<thead>
<tr>
<th>Code</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>very inaccurate</td>
<td>Most, if not all, the information supplied by the respondent about an issue was incorrect.</td>
</tr>
<tr>
<td>inaccurate</td>
<td>Some information was correct. However, the majority of information supplied was incorrect.</td>
</tr>
<tr>
<td>satisfactory</td>
<td>The majority of information supplied was correct but there were some inaccuracies.</td>
</tr>
<tr>
<td>accurate</td>
<td>Most information supplied was correct with inaccurate information not being central to the issue being discussed.</td>
</tr>
<tr>
<td>very accurate</td>
<td>All the information supplied was correct including details not central to the issue.</td>
</tr>
</tbody>
</table>

- The groups of views with the same coding for each community were checked by ‘experts’ (as described above) in qualitative research to confirm that they were structurally different (represented identifiably different views rather than different perspectives of the same view) and that the reduction of data was accurate with only one view
expressed by each group. Expert checking involved experts in qualitative research independently re-assessing the data and re-coding it. When differences in coding were identified discussions took place to resolve discrepancies. The process of expert checking was used to affirm validity of the coding process and data reduction and resulted in agreed different groups of views for each community.

- Evidence in the form of quotations, representing the different views, with reasons, were collected and grouped together.

- These groupings became the categories of description for each of the domains.

- The categories of description for each domain were placed in a hierarchical order according to the criteria selected. The selection of criteria was determined by the nature of the categories of description for each domain and grounded in the data for each community.

- The hierarchically ordered set of categories of description became the outcome space for each domain.

- Expert checking was used to verify the validity of the outcome space for each domain by having expert qualitative researchers independently re-analyse the categories of description to affirm their validity.

The results of the phenomenographic analysis were then combined with the results of the questionnaire analysis to identify and explain relationships and similarities and differences across the three communities.

3.6 Reporting data

Data were reported at three levels of organisation, the ‘descriptive’, ‘comparative’ and ‘relational’ levels. At these levels, findings from the questionnaire data were reported with findings from the individual interviews. Although separate at times, particularly at the descriptive level,
integration of the findings from both methods used are presented where possible.

Chapter 4 describes the sociodemographic analysis for the sample and describes the scales identified in the ICUE instrument and the NEP instrument. The results for the importance of needs of people relative to the importance of the needs of environments are described, along with the results for environmental knowledge. The descriptive findings for the interview data are also reported in Chapter 4. The hierarchically ordered categories of description, for each domain, are reported as the outcome space for each community separately. Evidence, in the form of quotations, is used to illustrate descriptions where possible. Comparisons between the three communities studied are also reported in Chapter 4. Differences and similarities, identified from the questionnaire data, are reported using one way ANOVA and Pearson correlation (2-tailed) for the ICUE and NEP scales. Differences and similarities in the relative importance of the needs of people compared to the importance of the needs of environments, as well as differences and similarities in environmental knowledge are also reported using one way ANOVA. However, comparisons with other scales or scores (importance of knowledge, total NEP score) were made to obtain further insights into these differences and similarities.

The statistical comparisons were combined with comparisons of the interview data to produce a more vivid picture of similarities and differences across the three communities. Again, evidence, in the form of quotations, is used to illustrate similarities and differences where possible.
CHAPTER 4: RESULTS, FINDINGS AND DISCUSSION

This chapter details the findings of the study. The sociodemographic description of each community is outlined, followed by the identification of environmental attitudes held. The way each community views the term environment, the influence of environmental knowledge, the source of each community's environmental knowledge, and the importance it attaches to knowledge are analysed and discussed. Similarities and differences in environmental attitudes in terms of the beliefs and worldviews within and across the three communities are identified, discussed and explained. Evidence from the phenomenographical analysis of interviews and from the survey questionnaire directs the discussion.

4.1 Demographic profile of the sample

The gender, nationality and country of birth profiles of the each of the three communities studied are summarised by Table 4.1.

The Australian sample comprised 225 teacher education students with the female to male ratio being consistent with the general teaching workforce (ABS Labour Force Surveys, 1999) and reflecting the feminisation of the Australian teaching profession (Lewis, Butcher & Donnan, 1999). The Indonesian sample comprised 211 teacher education students with 79.8% female. This compares with a published value of between 50% and 60% being female for Indonesia generally, with this percentage increasing as new graduates enter the teaching profession (World Health Organisation, 2000) and is evidence of the feminisation of the teaching profession. The Maldivian sample comprised 199 primary/secondary teacher education students with the ratio of females to males consistent with the overall teacher gender percentages of 70.6% female and 29.4% male for the capital, Malé and also reflecting the feminisation of the teaching profession (Ministry of Education, 1999).
Table 4.1

<table>
<thead>
<tr>
<th>Community</th>
<th>Gender</th>
<th>Nationality Stated by Student</th>
<th>Country of Birth of Student</th>
<th>Country of Birth of Mother</th>
<th>Country of Birth of Father</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia (n=225)</td>
<td>Male</td>
<td>12.9% Australian 81.8%</td>
<td>Australia 92.0%</td>
<td>Australia 61.8%</td>
<td>Australia 55.6%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>28 other countries</td>
<td>14 other countries</td>
<td>38 other countries</td>
<td>44 other countries</td>
</tr>
<tr>
<td>Indonesia (n=211)</td>
<td>Male</td>
<td>13.7% Indonesian 100%</td>
<td>Indonesia 100%</td>
<td>Indonesia 100%</td>
<td>Indonesia 100%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>86.3% No other countries</td>
<td>No other countries</td>
<td>No other countries</td>
<td>No other countries</td>
</tr>
<tr>
<td>Maldives (n=199)</td>
<td>Male</td>
<td>20.2% Maldivian 100%</td>
<td>Maldives 100%</td>
<td>Maldives 100%</td>
<td>Maldives 100%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>79.8% No other countries</td>
<td>No other countries</td>
<td>No other countries</td>
<td>No other countries</td>
</tr>
</tbody>
</table>

Comparing the three samples, Australia distinguishes itself from the Maldives and Indonesia by the large number of respondents born outside Australia or with parents born overseas, and the diversity of their ethnic and cultural background. Unlike the Maldives and Indonesia, the Australian sample was highly multicultural. However, all three samples were predominantly female. The Australian and Maldivian respondents were mainly training as primary school teachers while the Indonesian respondents were training to be secondary teachers.

The age and religious profiles of each of the communities studied are summarised in Table 4.2.

The Australian sample showed the greatest range in age. However, the average age of all three samples was similar at just over 20 years of age. The main difference between the samples was religion. The majority of the Australian sample was Christian, while the majority of the Indonesian and Maldivian samples identified as Islamic. The Indonesian community was the most religiously diverse, with 4.7% of the sample being Hindu.
Table 4.2
Age and Religious Profile of Each Community

<table>
<thead>
<tr>
<th>Community</th>
<th>Age (yrs)</th>
<th>Religion (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Range</td>
<td>Mean</td>
</tr>
<tr>
<td>Australia</td>
<td>17 to 49</td>
<td>51.1%</td>
</tr>
<tr>
<td>(n=225)</td>
<td>18 to 19</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>18 to 25</td>
<td>83.9%</td>
</tr>
<tr>
<td>(n=211)</td>
<td>19 to 22</td>
<td></td>
</tr>
<tr>
<td>Maldives</td>
<td>17 to 27</td>
<td>76.3%</td>
</tr>
<tr>
<td>(n=199)</td>
<td>19 to 22</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.3 shows the self-reported strength of respondents’ religious commitment.

Table 4.3
Strength of Religious Commitment

<table>
<thead>
<tr>
<th>Strength of Religious Commitment</th>
<th>Australia (%) n=225</th>
<th>Indonesia (%) n=177</th>
<th>Maldives (%) n=199</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>25.3</td>
<td>0</td>
<td>1.5</td>
</tr>
<tr>
<td>little</td>
<td>14.7</td>
<td>1.1</td>
<td>1.0</td>
</tr>
<tr>
<td>fair</td>
<td>29.3</td>
<td>24.3</td>
<td>11.1</td>
</tr>
<tr>
<td>strong</td>
<td>18.2</td>
<td>50.3</td>
<td>15.1</td>
</tr>
<tr>
<td>very strong</td>
<td>12.4</td>
<td>24.3</td>
<td>71.4</td>
</tr>
</tbody>
</table>

There was a 16.1% no response rate for the Indonesian sample for this question because of the optional status attached to it by IKIP Surabaya administration as discussed in Chapter 3 (p. 68). Consequently, it was necessary to determine if students who did not answer this question responded differently (as a group) to other questions, compared with students who did answer this question. This was to establish the validity, or otherwise, of using the data supplied by respondents who did not answer this question for all other questions. This was achieved by recoding all the data provided for this question, irrespective of the response, as one (group 1) and recoding all missing data as two (group 2). One way ANOVA was then used to determine if the two groups responded differently to each of the scales that were used in subsequent analyses (see Table 4.4 for a list of these scales). With all values above .05 there were no statistically significant differences
between the two groups for all scales (see Table 4.4). Thus, no response to the question concerning the strength of religious commitment did not indicate any significant difference between respondents who did and those who did not answer this question for the other questions in the questionnaire.

Table 4.4

*Significant Differences between Indonesian Respondents and Non-respondents for Question 9 Part A for Scales Used in Subsequent Analyses*

<table>
<thead>
<tr>
<th>Scale or Score</th>
<th>Significant Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biospheric</td>
<td>0.648</td>
</tr>
<tr>
<td>Altruistic</td>
<td>0.238</td>
</tr>
<tr>
<td>Egoistic</td>
<td>0.791</td>
</tr>
<tr>
<td>Total NEP Score</td>
<td>0.901</td>
</tr>
<tr>
<td>Needs of Environments and Needs of People</td>
<td>0.948</td>
</tr>
<tr>
<td>Independent Thought and Action</td>
<td>0.405</td>
</tr>
<tr>
<td>Symbolic and Inner Self</td>
<td>0.939</td>
</tr>
<tr>
<td>Change Through Intervention</td>
<td>0.206</td>
</tr>
<tr>
<td>Importance of Knowledge</td>
<td>0.722</td>
</tr>
<tr>
<td>Self-Assessed Knowledge</td>
<td>0.865</td>
</tr>
</tbody>
</table>

According to self-report, the Maldivian students were the most highly committed to their religion followed by the Indonesians with Australians least committed to religion. This is as expected because both Indonesia and the Maldives are Islamic countries where the practice of Islam is mandatory. In contrast, Australia is a diverse, secular western society where people can choose their religion and their commitment to it. The commitment to religion may have broader implications in terms of the degree to which individuals value their own ‘experientially grown’ views or whether they accept and adopt the views of others.

Table 4.5 shows the type of community in which respondents lived.
Table 4.5

Type of Community

<table>
<thead>
<tr>
<th>Type of Community</th>
<th>Australia (%) n=225</th>
<th>Indonesia (%) n=211</th>
<th>Maldives (%) n=199</th>
</tr>
</thead>
<tbody>
<tr>
<td>city</td>
<td>66.7</td>
<td>22.7</td>
<td>38.7</td>
</tr>
<tr>
<td>village</td>
<td>23.6</td>
<td>28.4</td>
<td>51.8</td>
</tr>
<tr>
<td>rural</td>
<td>9.8</td>
<td>48.8</td>
<td>9.5</td>
</tr>
</tbody>
</table>

The majority of Australians surveyed (66.7%) lived in a city community while the majority of Maldivians (51.8%) lived in a village community (an agglomeration of a small number of houses) and nearly half the Indonesians came from a rural community (widely dispersed houses associated with farming activities). In terms of the community from which each of the samples came, the only similarity is that the Australian and Maldivian samples came from urban rather than rural backgrounds. The difference in community background means that interpretations of other data will need to take this into consideration. This is an important issue since earlier research indicated that community background might influence attitudes towards environments (Lowe & Pinhey, 1982; Lovrich, Pierce, Tsurutani & Abe, 1986; Pierce, Tsurutani, Lovrich & Abe, 1986; Pierce, Lovrich, Tsurutani and Abe, 1987; Buttel, 1987; Steger, et al., 1989; Arcury & Christianson, 1990; Shetzer, et al., 1991; Arcury & Christianson, 1993).

Table 4.6 shows self-reported family income of respondents.

Table 4.6

Self-Reported Family Income

<table>
<thead>
<tr>
<th>Family Income</th>
<th>Australia (%) n=225</th>
<th>Indonesia (%) n=181</th>
<th>Maldives (%) n=199</th>
</tr>
</thead>
<tbody>
<tr>
<td>well above average</td>
<td>4.4</td>
<td>0.6</td>
<td>4.0</td>
</tr>
<tr>
<td>above average</td>
<td>22.7</td>
<td>3.3</td>
<td>20.1</td>
</tr>
<tr>
<td>average</td>
<td>57.3</td>
<td>76.2</td>
<td>70.9</td>
</tr>
<tr>
<td>below average</td>
<td>10.7</td>
<td>19.3</td>
<td>3.5</td>
</tr>
<tr>
<td>well below average</td>
<td>4.9</td>
<td>0.6</td>
<td>1.5</td>
</tr>
</tbody>
</table>
There was a 14.2% no response rate for the Indonesian sample for this question because of the optional status attached to it by IKIP Surabaya administration as discussed in Chapter 3 (p. 68). As with the data on religious commitment, it was necessary to determine if students who did not answer this question responded differently (as a group) to other questions, compared with students who did answer this question. This was to establish the validity, or otherwise, of using the data supplied by respondents who did not answer this question for all other questions. This was achieved in the same way as for the data on religious commitment. Again, there were no statistically significant differences between the two groups for all scales (see Table 4.7) and therefore no significant difference between respondents who did and those who did not answer this question for the other questions in the questionnaire.

Table 4.7

<table>
<thead>
<tr>
<th>Scale or Score</th>
<th>Significant Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biospheric</td>
<td>0.338</td>
</tr>
<tr>
<td>Altruistic</td>
<td>0.365</td>
</tr>
<tr>
<td>Egoistic</td>
<td>0.844</td>
</tr>
<tr>
<td>Total NEP Score</td>
<td>0.937</td>
</tr>
<tr>
<td>Needs of Environments and Needs of People</td>
<td>0.961</td>
</tr>
<tr>
<td>Independence of Thought and Action</td>
<td>0.336</td>
</tr>
<tr>
<td>Symbolic and Inner Self</td>
<td>0.633</td>
</tr>
<tr>
<td>Change Through Intervention</td>
<td>0.356</td>
</tr>
<tr>
<td>Importance of Knowledge</td>
<td>0.415</td>
</tr>
<tr>
<td>Self-Assessed Knowledge</td>
<td>0.649</td>
</tr>
</tbody>
</table>

All three samples said they had a predominantly average family income. However, the Australian and the Maldivian samples indicated a higher number of responses above average while the Indonesian sample indicated a higher number of responses below average.
The data about language background and language spoken at home is difficult to tabulate and so it is described as it is discussed. Of the Australian sample 93.8% said they spoke English at home while the remaining 6.2% said they spoke one of 12 other languages at home. In addition, 77.3% said they spoke no other language while the remaining 22.7% said they spoke one of 22 other languages. The percentage of respondents who had visited another country was 58.7% but none had visited the Republic of Maldives, while 7.1% had visited Indonesia and 16.0% had visited one of 14 other Asian countries. However, 6.7% knew people living in Indonesia while 15.6% knew people living in another Asian country, but no one knew anyone living in the Republic of Maldives.

The percentage of the Indonesian sample that spoke Javanese at home was 95.7% while the remaining 4.3% said they spoke one of 3 other Indonesian dialects. In addition to the language spoken at home, 89.6% of the sample spoke Bahasa Indonesian, 0.4% spoke one other language while 10.0% did not speak any other language. The vast majority of Indonesian respondents (93.4%) had not visited any other country. However, 1.9% had visited Australia, 0.9% had visited the Maldives and 3.8% had visited one of two other Asian countries. Of the Indonesian sample 3.8% knew people in Australia, no one knew people living in the Maldives and 6.2% knew people living in another Asian country.

All the Maldivians sampled spoke Dhivehi at home. However, all could speak English as well since English is the language of instruction in Maldivian schools. In addition, 7.5% spoke one other language while 2.5% spoke two other languages. The percentage of Maldivian respondents who had been to an overseas country was 31.2% but none had visited Australia or Indonesia, although 29.6% had visited one of five other Asian countries. The percentage of the Maldivian sample who knew people living in Australia was 28.6% while 15.1% knew people living in Indonesia and 47.7% knew people living in another Asian country.

The vast majority of respondents in each of the three countries spoke either the national language at home (English in Australia and Dhivehi in the
Maldives) or the regional language (Javanese in Indonesia). Although 77.3% of the Australian respondents did not speak a second language, those who did spoke a language from a diverse range of 23 other languages representing most of the geographical regions of the globe. In contrast, the vast majority of the Maldivian and Indonesian samples spoke at least two languages. Australians were the most travelled sample, Maldivians the next with Indonesians the least travelled. However, although 58.7% of the Australian sample had travelled overseas, only 16.0% had travelled to a country in Asia. In contrast, the Maldivian and Indonesian students had travelled predominantly to Asia. Very few respondents from any of the three countries had visited the other countries in the study. These data suggest that the Australian sample rarely studied other languages even though they were the most travelled.

Table 4.8

*Subject Liked Most*

<table>
<thead>
<tr>
<th>Teaching Subject Liked Most</th>
<th>Australia (%) n=225</th>
<th>Indonesia (%) n=211</th>
<th>Maldives (%) n=199</th>
</tr>
</thead>
<tbody>
<tr>
<td>native language</td>
<td>11.1</td>
<td>4.7</td>
<td>13.1</td>
</tr>
<tr>
<td>foreign language</td>
<td>4.0</td>
<td>3.8</td>
<td>9.0</td>
</tr>
<tr>
<td>mathematics</td>
<td>11.6</td>
<td>29.1</td>
<td>41.7</td>
</tr>
<tr>
<td>science</td>
<td>8.0</td>
<td>44.1</td>
<td>18.6</td>
</tr>
<tr>
<td>social science</td>
<td>16.4</td>
<td>2.8</td>
<td>2.0</td>
</tr>
<tr>
<td>the Arts</td>
<td>31.6</td>
<td>3.8</td>
<td>6.0</td>
</tr>
<tr>
<td>physical education</td>
<td>16.9</td>
<td>1.9</td>
<td>6.5</td>
</tr>
<tr>
<td>religion</td>
<td>0.4</td>
<td>9.9</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Table 4.8 shows the subject area studied, as part of their teacher training and most liked by respondents. Students from the three communities studied subjects in the groupings listed in Table 4.8. This included the secondary teacher education students from Indonesia who also studied subjects across the variety of discipline areas listed as well as their main teaching discipline. Those students not studying this range of subjects were the 14 secondary teacher education students from the Maldives. They only studied subjects related to the science and maths disciplines they were going to teach. Apart
from these 14 students, the only substantive difference between the three communities, in terms of exposure to range of subjects, was that the Indonesian sample was secondary while the other communities were primary.

For the Australian sample the arts, the social sciences and physical education were the subjects most liked, while the Indonesian and Maldivian samples did not like these subjects. The Indonesian and Maldivian samples liked mathematics and science far more than any other subject while the Australian sample least liked these subjects. However, this finding is not as striking as it would at first appear because the Indonesian sample was predominantly from a secondary maths and science background and so it would be expected that the Indonesian sample would favour these disciplines, skewing the data from the Indonesian sample in this direction. Nevertheless, this is not the case for the Maldivian sample and suggests that this finding needs further investigation. It is also evident that the Indonesian community liked to study religion.

4.1.1 Summary of the demographic data

Overall, females in their early twenties numerically dominated the three samples. The Australian and Maldivian samples comprised trainee primary teachers while the Indonesian sample comprised secondary trainee teachers. The ethnic profile of the Australian sample suggests a multicultural community while the Indonesian and Maldivian samples were both ethnically homogeneous. The Australian sample was basically Christian and the most urbanised while the Indonesian sample had a predominantly Islamic, rural background. The Maldivian sample was also Islamic but from predominantly village settlements. On self-report and therefore from the perspective of the sample itself, the Australian sample was the least religious, had an average income, was well travelled through countries other than Asia, largely spoke one language and preferred subjects other than the sciences. The Indonesian sample was religious with less than average income overall, was monolingual, had not travelled outside Indonesia and preferred science-based subjects including mathematics. The Maldivian sample was the most religious with average to above average income, relatively well travelled through
Asian countries, with most respondents speaking at least two languages. They also preferred science-based subjects including mathematics.

These findings demonstrate that the three communities are significantly different and justify their selection as indicative of diverse communities with different cultural backgrounds and contexts. In addition, the three communities are different across a range of domains that may influence attitudes towards environments particularly travel, religion and other world experiences. Religion is an influence on environmental attitudes and may also signify other influences that impact on environmental attitudes both directly and indirectly.

4.2 Australia

4.2.1 Environmental attitudes

All Australian students interviewed articulated the general statement that environments are important and that people should minimise their impact on them but qualified this in their rationale for minimising this impact. This generated a hierarchy of five categories of description for environmental attitudes (see Table 4.9) based on the reasons for modifying human impact on environments.

One of the ten participants expressed the view in category one that environments are important but should be used by humans. However, human environmental impact should be judged on merit rather than be automatically minimised whenever possible:

We were brought up to respect the environment and to respect nature, but we weren’t brought up to make a fuss about things. If people sat down and just said, hey the car is bad, it’s creating pollution – that wouldn’t do it for me. I’d still use my car even though it’s a pollution machine. I’d never give up my car, but I’d oppose sand mining at Bondi Beach because it would do too much damage. We have to live and this will cause damage – that’s life.
Table 4.9
*Environmental Attitudes of Australian Participants*

<table>
<thead>
<tr>
<th>Defining Elements of Each Attitude</th>
<th>Number of Participants (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  • human impact should not be automatically minimised but judged on merit</td>
<td>1</td>
</tr>
<tr>
<td>2  • human impact should be minimised but personal needs should be given priority</td>
<td>1</td>
</tr>
<tr>
<td>3  • human impact should be minimised for the sake of other humans</td>
<td>5</td>
</tr>
<tr>
<td>4  • human impact should be minimised for the sake of humans and other species</td>
<td>2</td>
</tr>
<tr>
<td>5  • human impact should be minimised for the sake of environments themselves</td>
<td>1</td>
</tr>
</tbody>
</table>

The view expressed in category two, although acknowledging the importance of environments, was that while people should minimise their impact on environments they often choose not to because their personal needs take priority:

I think the environment is very important but at the same time I have very little hesitation in hurting it, upsetting the natural environment. ... I know I cause air pollution, but my need for a car is greater than the need to keep that tiny bit of air pollution that I give up. It’s not just me; everyone has a selfish attitude. I know what I should do but I’m too selfish.

The difference between the views expressed in categories one and two is that one participant does not believe that environmental impact should be minimised while the other does – they simply choose not to in order to serve their personal needs.

Five people expressed the view in category three that people should minimise their impact on environments because such impact might eventually affect other humans:
I care about people’s future. The appreciation of everyone in the world trying to work together to sustain the environment and create a better future and appreciate each other and work in harmony with nature. ... Get people to appreciate the world and other people’s cultures so that we don’t have so much bias, racism and hatred and competition between different nations and to show how important the environment and the world is to future generations.

In this category, the reason for justifying the importance of environments shifted to the recognition of a social responsibility to make the world a better place for all humankind.

Two people expressed the view in category four. They said that environments should be protected for the sake of humans and for other species. This view identified the importance of other species in addition to human interests:

Without the environment we don’t exist, we’re unable to live. So, in order for us to live we have to preserve the environment and care for it. Humans are not the only things on Earth that need the environment. ... People are selfish and use the environment as they wish. Selfishness overrides what you think should happen. ... You just look what’s happening – how we’ve endangered so many species, they’ve become extinct and that’s due to humans and their impact on the environment. We have to look after other animals too.

The view expressed in category five states that people should protect environments and minimise human impact for the sake of environments in their own right. The well being of environments is the reason for minimising environmental impact:

I love nature. If we keep putting people first, eventually the Earth will probably just die. ... If we’re over-fishing we should leave that area alone ’til it gets replenished and then maybe go back and have limits and things. ... We just can’t be chopping down every tree in Australia.
The environment is more important than people. We need to look at everything living together – how everything works in with everything else.

For the Australian sample interviewed the views expressed in categories one and two indicate that environments are being viewed from an individual, self-centred perspective. The view expressed in category three is that environments are viewed in terms of their importance for other humans, especially future generations. The final two categories indicate that environments are viewed not just in terms of human needs but in broader terms such as the needs of other species and environments themselves. This range in views is consistent with the literature and represents the full range of the views it outlines. However, the literature reduces environmental attitudes to three views (biospheric, altruistic and egoistic) rather than those found by this study. It would be tempting to collapse the five environmental attitudes found to the three described in the literature. This could be done by grouping categories one and two together as an egoistic perspective and by collapsing categories four and five into a biospheric group (a biospheric perspective results when altruism extends to include concern for other than human species). This would leave category three representing the altruistic perspective (see Figure 2.1). However, there are structural differences between categories one and two and between categories four and five that warrant maintaining separate groupings.

These findings indicate that the Australian participants in this study vary in their attitudes towards environments from being individually self-centred to thinking that the well being of environments is more important than that of humans. This variation in views represents the full range found in the literature (Dunlap et al., 1992; Schultz & Zelezny, 1998; Schultz & Zelezny, 1999; Dunlap et al., 2000). In contrast to the view expressed in the first category that humans do not necessarily need to minimise their impact on environments, the view in category two recognises that human impact on environments should be minimised but that conscious, personal self-interest can often prevent this. The difference between these two views is in knowing what should be done even if the final resolve is not to do it. The view
expressed in category five presents a more integrated or more holistic attitude compared to that of category four which, although including other non-human species, represents an inclusive perspective rather than the ecological perspective evident in category five. Whilst category four does move beyond being human-centred, compared to category three, category five is more ecological in its perspective and conceptually different from category four. Category five represents a view similar to that of a deep ecologist.

The environmental attitudes questionnaire data for the Australian sample were analysed using the three scales (biospheric, altruistic and egoistic) within the New Environmental Paradigm framework. In addition to means and standard deviations being calculated for each scale, total NEP scores were calculated for each respondent. To achieve a total NEP score, reflecting a pro-environmental perspective, the means for the biospheric, altruistic and egoistic scales were added. Consequently, the means for the egoistic scores are reversed so they reflect a pro-NEP perspective rather than a HEP perspective. Subtracting the egoistic scores from the number 6 achieves this. For example, to represent a pro-environmental perspective a score of 2 on the egoistic scale is subtracted from 6 to become a score of 4 consistent with a pro-NEP perspective. The total NEP scores range from a possible minimum of 12 to a possible maximum of 60 but were divided by 12 so that the resulting value ranging from 1 to 5 could be more easily compared to the egoistic, altruistic and biospheric means. The results of the analysis are shown in Table 4.10. Cronbach alpha values indicate the internal consistency or reliability of each scale. A value of 0.65 and above was considered satisfactory (Nunnaly, 1978; Santos, 1999).

The biospheric scale describes an attitude towards environments from a deep ecological perspective with limited scope for human intervention and abuse. A mean of 3.64 on a five point scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree) and a standard deviation of 0.59 indicate that the majority of the Australian sample (see Figure 4.1) ranged from being neutral about to agreeing with this view. The altruistic scale describes attitudes towards environments as a balance between the needs of humans and the needs of environments. A mean of 4.38 and a standard
deviation of 0.51 indicate that the majority of the Australian sample (see Figure 4.2) ranged from agreeing with to tending towards strongly agreeing with this view. The egoistic scale describes attitudes toward environments as being dominated by human needs at the expense of environments. A mean of 2.03 and a standard deviation of 0.73 indicate that the majority of the Australian sample (see Figure 4.3) ranged from strongly disagreeing with to being neutral about this view. An average value of 4.00 for the total NEP score with a standard deviation of 0.46 indicate that the majority of the Australian sample (see Figure 4.4) agreed with the New Environmental Paradigm. It is important to note that a Cronbach alpha value of 0.85 for the egoistic perspective indicates a strongly consistent scale and shows that the Australian community surveyed held relatively consistent views for this scale compared with the other two scales.

Table 4.10

*Environmental Attitude Scales and Total NEP Scores for Australian Participants*

<table>
<thead>
<tr>
<th>NEP Scale</th>
<th>Mean (1 to 5)</th>
<th>Standard Deviation</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian (n=225)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biospheric</td>
<td>3.64</td>
<td>0.59</td>
<td>0.66</td>
</tr>
<tr>
<td>Altruistic</td>
<td>4.38</td>
<td>0.51</td>
<td>0.65</td>
</tr>
<tr>
<td>Egoistic</td>
<td>2.03 (6 - 2.03 = 3.97)</td>
<td>0.73</td>
<td>0.85</td>
</tr>
<tr>
<td>Total NEP score</td>
<td>4.00</td>
<td>0.46</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

Figures 4.1, 4.2, 4.3 and 4.4 are frequency graphs showing the distribution of respondents over the means for each scale or score indicated. These graphs show where the majority for each distribution is located.
Figure 4.1 Percentage of Australian respondents for biospheric means.

Figure 4.2 Percentage of Australian respondents for altruistic means.

Figure 4.3 Percentage of Australian respondents for egoistic means.

Figure 4.4 Percentage of Australian respondents for total NEP scores.

An attempt to capture a snapshot of the Australian sample’s views on the relative importance of human needs compared to those of environments was made with a single question (Part D) of the questionnaire that asked respondents to compare the importance of human needs to those of environments. The purpose of this snapshot was to triangulate the findings from the analysis of the NEP questionnaire. A mean of 3.37 on a five point scale (see p. 64 for scale) with a standard deviation of 0.68 for this question showed that the majority of the Australian sample (see Figure 4.5) ranged from thinking that when there was a conflict between the needs of people and the needs of environments, people’s needs and the needs of environments should both be met to thinking the needs of environments are more important. This
finding is consistent with the findings from the NEP scales and with the New Environmental Paradigm itself. The correlation (Pearson correlation 2-tailed) between Part D and total NEP scores is 0.860 which is significant at the 0.05 level.

Figure 4.5 is a frequency graph showing the distribution of respondents for means comparing the importance of the needs of people with the importance of the needs of environments. It shows the majority response.

![Percentage of Respondents](image)

**Figure 4.5** Percentage of Australian respondents for the comparison of the importance of human needs to those of environments.

In summary, the data indicate that the Australian community studied held the full range of environmental attitudes found in the literature and that the study community agreed with an environmental perspective consistent with the New Environmental Paradigm which recognises humans as part of ecosystems and the balance between human needs and those of environments. While the questionnaire findings are consistent with and reflect the findings of the interview data, the interview data provide a more nuanced picture of views within the Australian community by depicting both a wide range and a greater number of different views. The reason for the difference in the number of environmental attitude categories between the survey and the interviews is an artefact of the method of data collection. The statistical analysis of the questionnaire collapsed responses into predetermined categories (biospheric, altruistic and egoistic) while the data reduction process for the interviews allowed the different attitudes within the data to be maintained.
4.2.2 Views of the term environment

To gain a more comprehensive insight into the attitudes of the Australian interview sample towards environments, the meanings participants attached to the term environment were explored throughout the interviews. The interview data were analysed in terms of two criteria. Four different views or categories of description of the term environment were identified. The outcome space (see Table 4.11) was achieved by ordering these views using a criterion-based on the common elements of three perspectives. The first perspective was the breadth of how the term environment was viewed. A narrow view considered environments as composed of only one environmental component such as natural environments. A broader view included a number of environmental components such as the natural, built and sociocultural environments. The second perspective was whether the term environment was viewed as a single all-encompassing overarching concept or whether it was viewed as a number of identifiable yet interacting environments. The third perspective was the recognition of the degree of integration and interdependence of different environmental components.

Table 4.11
Views of the Term Environment for Australian Participants

<table>
<thead>
<tr>
<th>Defining Elements of Each View</th>
<th>Number of Participants (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 • narrow – restricted to natural environments with a single, all-encompassing view and no integration of components</td>
<td>2</td>
</tr>
<tr>
<td>2 • broad – consisting of a number of components with a plural perspective and some integration of components</td>
<td>2</td>
</tr>
<tr>
<td>3 • broad – consisting of a number of components with a plural perspective and integration of most components</td>
<td>1</td>
</tr>
<tr>
<td>4 • broad – consisting of a number of components with a plural perspective and total integration of all components</td>
<td>5</td>
</tr>
</tbody>
</table>
Two of the ten participants saw the term *environment* as being restricted to natural environments (category one). There was no sense of integration of different environmental components and the term was viewed as single and all encompassing rather than as a number of interacting environments. As one respondent said:

Large parks like the Botanic Gardens (are part of the environment), not always because they do have some buildings in them. But, its more seen to be the environment and your rivers and your creeks and stuff like that. Shopping centres, they’re not the environment, because they’re man-made, built, man-made buildings.

The two participants with a view in category two saw environments more broadly as consisting of a number of components but those components did not include human conceptions such as technology, business and economics. However, participants recognised the integration of a number of environmental components and the plural nature of the term:

The environment is all the surroundings, everything external to the human brain. It does not include those things that are internal, man-made. The dividing line is those human creations that have a link to the natural world as opposed to those that don’t. ... it’s ecology, surroundings, everything around, everything together but external.

The view expressed in the third category was similar to that of the second except that unseen elements of environments were restricted to emotions or feelings such as love:

... both made and natural surroundings. It’s not just your house, your suburb, or even your country. It’s also the people you live with in them. Trees, houses, people would be part of the environment, different environments, but love and feelings would not.

The fourth view is very close to what an expert would regard as a definition of environments comprising the sum total of all surroundings in an
unqualified sense. It recognised the integration of its components as well as the plurality of the term. Five participants expressed this view. Two of their views are stated below:

Everything is part of the environment. Name it and it’s part of the environment. Some places are more of the natural environment while others, like where we live are more of a built environment.

In everyday life there are all sorts of environments. The environment is everything. It has a human, social, physical ... the entire world, the universe ... then there are smaller sub-environments. I think the environment is a whole with interactions between every aspect. All different parts make up the environment.

The close relationship between the perspectives that rank the different views of the term *environment* is demonstrated by the examples used to illustrate each view. As the view of the component base of the term *environment* broadened, the tendency to integrate and see interrelationships increased. This trend was paralleled by the view that environments exist in different forms rather than as one all-encompassing environment. It was apparent that most participants still used the term the environment when what they really meant was *environments* as demonstrated by the dialogue below:

Participant: The environment is important and complex.
Interviewer: What do you mean by complex?
Participant: There are lots of interactions and that.
Interviewer: What do you mean exactly?
Participant: There are many parts of the environment. There are lots of environments interacting to make the environment.

It was only when they were pushed to really think about the term and respond thoughtfully that they actually used the plural term. It may also be that participants were subconsciously using the singular form of the term while thinking of it as a plural or collective concept. Nevertheless, despite the
fact that the majority (80%; n=8) of the Australian sample interviewed saw the term *environment* as relatively broad, all encompassing, integrated, interdependent and collective, it was predominantly interpreted in terms of natural environments. The everyday use of the term was as the natural environment. It was only when a respondent moved out of their *everyday* mode and into a more reflective *technical* view of the term did they overtly refer to built and sociocultural examples. The degree of recognition and inclusion of a sociocultural component paralleled increasing sophistication in the definition of the term. One respondent described this comprehensively:

> When I first think of the environment I think of it as a thing of nature. I also see it as everything that affects you. But, in my head it’s only the natural part of the world. The environment means your home, like the people you interact with, your culture, everything. And, that’s new for me because in my head nature was always the trees.

Overall, the Australian interview sample for this study showed considerable range in their understanding of the term *environment*. However, when illustrating definitions of environments, the Australian sample tended to use natural environmental examples with some students defining environment solely in terms of natural components. Therefore, the evidence suggests that the Australian sample’s environmental attitudes may be the product of a diversity of views of the term *environment* nested in a perspective dominated by natural components. However, the reasons for the diversity of Australian views raise the question: what is the relationship between environmental attitude and environmental knowledge?

### 4.2.3 Environmental knowledge

An insight into the Australian community’s environmental knowledge was sought using data collected from the phenomenographically-analysed interviews and from the questionnaire data. The findings revealed some conflicts in the information derived from the interview and questionnaire data collection methods. The interviews with the Australian sample generated four different categories that described respondents’ environmental knowledge. The categories were ordered hierarchically (see Table 4.12) in
terms of respondents' awareness of environmental issues as well as the accuracy of that knowledge. Awareness of environmental issues was rated on a scale from very poor to very good (see Table 3.4 for the rationale used to develop this scale) while accuracy of knowledge was measured on a scale from very inaccurate to very accurate (see Table 3.5 for the rationale used to develop this scale).

Table 4.12

Environmental Awareness and Knowledge of Australian Participants

<table>
<thead>
<tr>
<th>Defining Elements of Awareness and Knowledge</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=10)</td>
</tr>
<tr>
<td>1 • poor awareness</td>
<td></td>
</tr>
<tr>
<td>• very inaccurate knowledge</td>
<td>2</td>
</tr>
<tr>
<td>• some concern about local but not global issues</td>
<td></td>
</tr>
<tr>
<td>2 • good awareness</td>
<td></td>
</tr>
<tr>
<td>• inaccurate knowledge</td>
<td>2</td>
</tr>
<tr>
<td>• both local and global issues important</td>
<td></td>
</tr>
<tr>
<td>3 • good awareness</td>
<td></td>
</tr>
<tr>
<td>• satisfactory knowledge</td>
<td>4</td>
</tr>
<tr>
<td>• both local and global issues important</td>
<td></td>
</tr>
<tr>
<td>4 • very good awareness</td>
<td></td>
</tr>
<tr>
<td>• very accurate knowledge</td>
<td>2</td>
</tr>
<tr>
<td>• deal with local issues, global will follow</td>
<td></td>
</tr>
</tbody>
</table>

The view of the two participants in category one showed poor awareness of environmental issues with very inaccurate knowledge lacking in detail. The participants did not use words associated with any environmental issue other than the words local and global, which were mentioned when the interview questions were being asked. No specific issue was raised or mentioned by name:

I only know what I hear on the news and I don't really listen. I haven't personally gone out and studied it. ... You've got to look after your own local environment. If you don't look after your own
environment, how can you consider the environment of the world? ... If the local stuff is a problem I can move.

The second category represented the views of two participants. They demonstrated a good awareness of environmental issues at a local and global level but their knowledge was inaccurate, lacking depth of understanding:

Greenhouse, it’s pretty bad down here, but I won’t go to the beach any more. I’m the sort of person who burns, so I can imagine what I’m going to be like in six years time. ... The ozone layer, it’s also part of the greenhouse problem. ... Like in Londonderry where they’ve been dumping the rubbish – underground pollution – and now it’s starting to leak through the soil. There’s been a couple of defects, especially in newborn sheep. ... The local ones are the more important ’cause your in there, in the area, you can see the effects so you’re more concerned about that. But, on the global scale you have to look at its entirety. It’s not only the local; it’s everywhere.

The views of four participants constituted the third category. Their awareness of environmental issues was good and their information was largely correct with only some inaccuracies. They also considered both local and global issues to be of equal importance:

Ozone – it’s a gas layer that holds out U. V. rays. With the greenhouse, radiation is coming in and being trapped and heating up the world. ... Well, greenhouse gases are killing the ozone layer so the world will heat up and we’re going to lose a lot of land because the sea level will rise. ... With global you need all the countries in the world participating. Global issues are important. With local they are just as important but easier to organise – whereas global are a lot harder.

The two participants in the fourth category had both a very good awareness and a very accurate knowledge of environmental issues. Their knowledge of environmental issues would approach that of the well informed. They also considered local and global issues to be equally important:
The ozone layer is a layer of an oxygen allotrope that surrounds the Earth and it keeps out some of the harmful U. V. radiation. They harm our skin and over the South Pole this layer – it’s being depleted. ... CFCs from aerosol cans deplete the ozone layer. They make a chemical reaction with ozone and it separates back to oxygen so that it can’t protect any more. ... Basically, local and global issues are as important as each other but if everyone fixed their local problems then that would go a long way to fixing the global problems.

Overall, the Australian sample interviewed demonstrated a broad range in environmental knowledge from a poor awareness of environmental issues with very inaccurate knowledge to a high level of awareness and very accurate knowledge. Nevertheless, the vast majority (8 out of 10) of participants had good awareness of environmental issues with the majority (6 out of 10) having at least satisfactory knowledge of the issues discussed. The interview data also showed that participants with good awareness and accurate knowledge of environmental issues tended to rate the importance of local and global issues equally. As knowledge became more accurate, there was a view that if local environmental issues were attended to, then global environmental issues would tend to look after themselves. As participants moved from a view more consistent with that of an expert towards less accurate views, they tended to think local environmental issues were more important than global issues and tended to focus more on tangible, familiar and personally experienced issues. Although these trends are derived from a small sample and are therefore only indicative, they suggest that an appreciation of the interdependence of global and local environmental issues is associated with greater knowledge of environmental issues generally and that greater environmental knowledge appears to be associated with a more ecological view of environmentalism.

Throughout the interviews Australian participants stated that their knowledge about environmental issues was not good. However, it can be seen from the transcripts above that the study participants environmental knowledge was usually far better than they stated it was. There seemed to be a reluctance to admit to having knowledge. When describing environmental
issues, most participants used language like sort of or I don’t really know but or I think ... but I could be wrong. There was a lack of confidence in stating knowledge even though most participants had a good awareness of issues and an accurate knowledge of them. This is demonstrated by the examples below:

Acid rain, I probably don’t know a lot about that. I think it forms when pollutants in the air dissolve in rain as it’s falling to the Earth. The pollutants, like sulphur dioxide, combine with the water and form acids. This is acid rain. Sometimes carbon dioxide dissolves in rain and forms an acid. So, I suppose it doesn’t always have to be a pollutant that dissolves. Although, too much carbon dioxide is a pollutant. I don’t really know.

The greenhouse effect – I don’t know much about that. It’s the heating up of the Earth, isn’t it? The heat coming to the Earth from the Sun can’t escape – it gets trapped by pollution, which is mainly carbon dioxide from fossil fuels. I think that’s right.

The questionnaire data for environmental knowledge (Part E) consisted of 22 questions and asked participants to indicate how much they knew about a range of environmental issues such as strategies for recycling household wastes and the effects of acid rain on plants. For self-assessed knowledge a mean of 2.90 (1 = no knowledge, 2 = little knowledge, 3 = fair knowledge, 4 = good knowledge, 5 = very good knowledge) and a standard deviation of 0.70 indicate that the Australian sample placed their knowledge of environments in a range from little to fair (see Appendix 1 for a list of the questionnaire items). This finding seemingly conflicts with the interview finding that the majority of the Australians interviewed had good awareness and at least a satisfactory knowledge of environmental issues. Questionnaire respondents thought their environmental knowledge was limited but from the interview data it was found to be at least satisfactory. Therefore, the picture emerging from and reinforced by both sets of data is that the Australian sample thought its knowledge of environmental issues unsatisfactory despite the evidence from the interviews (but remembering there were only 10)
indicating that it was at least satisfactory. As the above extracts illustrate, the students were unsure and insecure in their knowledge but demonstrated at least satisfactory environmental knowledge and provided accurate, detailed accounts of acid rain formation and the causes of the greenhouse effect.

4.2.4 Nature of environmental knowledge from different sources

The interview data were explored further to establish how and why the Australian sample obtained its knowledge about environments, and whether they thought this knowledge was important. All participants said they obtained their knowledge of environments from everyday life experiences. Three categories for nature of environmental knowledge were identified by participants based on sources of knowledge other than everyday life experiences. These categories are shown in Table 4.13.

Table 4.13
Nature of Environmental Knowledge from Different Sources for Australian Participants

<table>
<thead>
<tr>
<th>Defining Elements of Nature of Environmental Knowledge from Different Sources</th>
<th>Number of Participants (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 • not school experience</td>
<td>7</td>
</tr>
<tr>
<td>2 • school experience</td>
<td>2</td>
</tr>
<tr>
<td>3 • school experience as a major factor in addition to religion</td>
<td>1</td>
</tr>
</tbody>
</table>

The seven participants in category one did not consider school experience to have contributed to their environmental knowledge. Rather, they believed they gained their knowledge of environments from life experiences such as overseas travel, outdoor recreation, the influence of other people (especially family), place of residence and the media. Their life experiences equipped them with a positive attitude towards the environment:

We didn’t learn much about the environment at school. ... I think travelling taught me a lot. You sort of see other countries and what they’ve done to their land and you think, well Australia is not all that
badly damaged. We are well off. We haven’t had the concentrated pollution within our cities and that, as much as some of the other countries.

The two participants in the second category also gained their environmental knowledge from life experiences but identified school experiences as a source of information and as a reaction to observing environmental damage and the need to minimise human impact on environments:

It’s what we got taught at school, and travelling. Yeah, I’ve been overseas. You wouldn’t want to live there. They don’t respect the environment. Kids have got to grow up to know how to look after their environment; otherwise you’re not going to have it.

Although one respondent in category three reported gaining knowledge from life experiences, school was the major source of knowledge for this category with views developed as a consequence of the competing experiences gained from school and life, specifically religion. Environmental knowledge was seen as valuable for informing decision-making:

Well, probably doing geography all throughout school. Geography and my parents have always taught me that you have to live in harmony with everything. However, Christian beliefs – I believe that we were given dominion over the Earth from God. But, I also have a strong view that we should preserve things.

All Australian participants said life experiences (overseas travel, outdoor recreation, the influence of other people – especially family, place of residence and media) were a major source of their environmental knowledge and the diversity of these life experiences may account for the diversity of views and attitudes within the Australian sample. Some cited life experiences as more than casual experiences because they can lead to a different view of life. Overseas travel, outdoor recreation and place of residence signify a way of life or experiences that suggest an outgoing view of the world. Travel is thought to be a broadening experience while outdoor recreation is associated with an
outgoing life style. Both overseas travel and outdoor recreation also signify wealth given they involve substantial costs for travel, specialised equipment and clothing. Similarly, there is cost associated with the use of advanced technologies and media. Access to telecommunications, newspapers and magazines signify wealth. Therefore, life experiences – as a source of the Australian community's environmental knowledge – may be associated with the relative wealth of Australia compared to other participating countries.

Although only three participants interviewed cited school experiences as a source of environmental knowledge it was still a contributing factor to overall knowledge of environments, even though limited, and may explain why some of the Australian sample said they had a satisfactory knowledge of environmental issues. This assertion is making the assumption that there is a relationship between knowledge and schooling, which is reasonable in an Australian context. Formal schooling is a costly undertaking, thereby suggesting additional evidence that the availability of money may be an important resource for accessing environmental knowledge. Schooling in Australia makes use of multiple technologies including books and videos, which may be a contributing factor in demonstrating the wide variety of definitions or views of the term environment by Australian participants.

Thus, the Australian questionnaire and interview data suggest that life experiences and formal schooling contribute to shaping environmental attitudes through awareness of issues and as a source of information or knowledge. However, views tended to be less final when there was conflicting information from different sources of knowledge as for example between schooling and religion. It also appears that financial resources are an important prerequisite for the acquisition of environmental knowledge.

Given that the Australian participants have at least satisfactory environmental knowledge, the question remains do they value knowledge? The survey questionnaire included an importance of knowledge scale to identify the importance attached to knowledge and the learning of facts and information. The mean for the Australian sample (n=225) on the importance of knowledge scale was 3.62 (1 = rarely, 2 = sometimes, 3= fairly often, 4 = often and 5 =
very often) with a standard deviation of 0.79. The majority of the Australian sample (see Figure 4.6) reported they valued knowledge from fairly often to often but did not seem to value knowledge highly. If this finding is combined with the interview finding that the Australian sample was reluctant to claim a high level of environmental knowledge, a conclusion could be drawn that the Australian community does not think it is overly important to have or display knowledge. The Australian sample actually knew more about environmental issues than they indicated. However, it may be that the Australian community avoids saying they value knowledge when they may. Even though somewhat speculative, it suggests that there is a more complex reason behind the finding that the Australian sample actually knew more than they thought they did.

Figure 4.6 is a frequency graph showing the distribution of respondents over the means for the importance of knowledge scale. It shows the majority response.

![Percentage of Australian respondents for the importance of knowledge scale means.](image)

4.2.5 Summary of Australian participants' perspectives
The Australian participants portrayed the full range of environmental attitudes found in the literature even though the numbers at either end of the range may have been small. They ranged from regarding environments as something to be exploited by people to considering environments as more important than people and from thinking that when there was a conflict between the needs of people and the needs of environments, people’s needs
and the needs of environments should both be met to thinking the needs of environments are more important. The views of the Australian respondents ranged from being neutral about to agreeing with the biospheric perspective of the NEP instrument and from agreeing with to strongly agreeing with the altruistic perspective. They ranged from strongly disagreeing with to being neutral about the egoistic perspective of the NEP instrument. The Australian participants expressed varied reasons for modifying human impact on environments. Essentially, the Australian community studied agreed with the New Environmental Paradigm.

The Australian participants showed considerable variation in their view of what was meant by the term environment. The wide range in environmental attitudes exhibited by the Australian participants may be partially explained by the wide variation in the view of the term environment. As the Australian participants' view of the term environment became more sophisticated the component base of the term broadened and the concepts of integration and interrelationships increased. More sophisticated views of the term also recognised the existence of different forms of environments rather than just one all-encompassing environment. The Australian participants predominantly interpreted environments in terms of natural environments.

The Australian participants demonstrated a broad range in environmental knowledge. The range was from a poor awareness of environmental issues with very inaccurate knowledge to being very aware of environmental issues and having a very accurate knowledge of them. The majority had a good awareness of environmental issues and at least a satisfactory knowledge of the issues discussed. An appreciation of the interdependence of global and local environmental issues was associated with greater knowledge of environmental issues. Greater environmental knowledge was associated with a more ecological view of environmentalism. The Australian participants demonstrated a lack of confidence in stating their environmental knowledge even though most had a good awareness of issues and an accurate knowledge of those issues of which they were aware.
The Australian community’s life experiences and schooling were perceived by participants as a source of their environmental knowledge and shaped their environmental attitudes and provided a basis for the diversity of views and attitudes expressed. Those interviewed exhibited an outgoing view of the world, which signifies a way of life consistent with a diversity of environmental views and attitudes. The Australian community’s environmental knowledge and environmental attitudes may be associated with wealth. Conflicting knowledge produced environmental views that were less finalised. The majority of the Australian participants placed some value on knowledge but were reluctant to say they valued knowledge though this seemed to be the case.

4.3 Indonesia

4.3.1 Environmental attitudes

When discussing the Indonesian findings, some contextual comparisons will be made to the findings for the Australian sample. However, most comparative discussion will be held until after all three community samples have been independently analysed and discussed.

All Indonesians interviewed thought environments should be considered from a balanced perspective - the term balanced meaning that the implications of human impacts on environments for both humans and environments should not be considered independently of one another. The Indonesian sample generated four different categories of environmental attitudes but all within this balanced perspective (see Table 4.14) based on the ordering of environmental attitudes in terms of the reasons for minimising environmental impact.

The two participants in category one said that human impact on environments should be reduced but not necessarily minimised because people will benefit from reducing environmental impact but it is inevitable that, at times, environments will be damaged and this is an accepted consequence of human activities. This view centres on people using environmental resources and acknowledging that it is a calculated and acceptable cost that environments may be damaged in the process. Both
participants considered their attitudes as a balance between advantages and disadvantages to environments although the weightings may not be equal which is exemplified by the words "he is priority – not river" from the following quote:

Human interests are part of the environment, but if according to what we calculate it is better to cut the forest or animals, maybe it is better to cut. ... Factories throw waste in the river. The factory needs to do this but it actually destroys the river. I suggest we need to go to the authorities to question the factory owner to see if he is priority – not river. If the waste has to be thrown into the river then people need to be reminded, if they use the river water, to be careful. ... If people ride a smoky motorbike they should get a reminder, just a reminder, because if you stop people riding the bike they cannot go anywhere.

Table 4.14

<table>
<thead>
<tr>
<th>Defining Elements of Environmental Attitude</th>
<th>Number of Participants (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 • human impact on environments should be reduced but not necessarily minimised since environmental damage is an accepted consequence of human activity</td>
<td>2</td>
</tr>
<tr>
<td>2 • human impact on environments should be minimised for the sake of present human populations</td>
<td>3</td>
</tr>
<tr>
<td>3 • human impact on environments should be minimised for the sake of future human populations</td>
<td>3</td>
</tr>
<tr>
<td>4 • human impact on environments should be minimised for the sake of environments but humans should not be disadvantaged</td>
<td>2</td>
</tr>
</tbody>
</table>

The three participants in category two said impact on environments needs to be minimised so that present human populations will benefit. The emphasis in this category is in looking after environments for immediate human needs:

If there is no balance between the environment and humans, the human beings will suffer. ... In farming, the water in the river is used
by fishermen. If the water is polluted, because people are throwing waste into the water, into the river, then it will influence the lives of the fishermen.

The three people in category three stated that human impact on environments should be minimised for the sake of future generations:

The environment is part of human life. ... If the environment is damaged, then human beings will suffer. ... The environment is created not for the present people but also for the next generation.

We need to learn how to best exploit the environment for our long-term goals, to make the best use of the environment. ... If the mining is done now, what happens with the future generation? It is better to get an alternative using solar energy.

The two people with a view in category four said it was important to minimise environmental impact to preserve and maintain environments in their own right by not allowing human activities that will cause them to deteriorate further. But this view also takes into account human disadvantage and the need to serve human interests ("so long as people are not disadvantaged"), thus reflecting a compromise perspective:

The environment needs to be preserved and maintained. ... The environment should not be sacrificed, so long as people are not disadvantaged. ... Having trees in the forest, although the farmer gets money out of cutting the trees, if the environment has to be sacrificed, it is better not to cut the trees.

Unlike the Australian participants, the Indonesian sample interviewed did not comment on the importance of environments. The variation in the Indonesian participants’ environmental attitudes was based on their reasons for minimising human environmental impact while not disadvantaging people while variation amongst the Australian participants was based on their reasons for modifying human impact on environments for the sake of
people and extending to include environments. Thus, some of the Australian sample acknowledged that attitudes towards environments needed to consider environments for their own sake while the Indonesian sample indicated that humans would impact on environments but that this impact should be reduced. However, similarly to the Australians, the Indonesian range in environmental attitudes was consistent with the literature, although not representing its full range. No biospheric or egoistic perspective was seen. Rather, the Indonesians interviewed held a variety of compromise views somewhat similar to the altruistic attitude described in the literature. The reasons for these compromise attitudes varied and are structurally different. Category one, although still from a balanced perspective, had some definite characteristics consistent with the egoistic attitudes described in the literature. It is tempting to simplify all the Indonesian views as the altruistic view described in the literature. However, they are all structurally different and do represent different attitudes towards environments. These data also show Indonesian environmental attitudes to be anthropocentric in their orientation. There are varying degrees of anthropocentricity ranging from reducing environmental impact because reduced environmental impact will benefit humans (category one) to minimising human impact so that environments can be preserved and maintained, so long as people are not disadvantaged (category four). Overall, it can be concluded that the Indonesian participants in this study expressed a range of environmental attitudes but all from an anthropocentric perspective.

The survey questionnaire also provided data about the Indonesian community’s environmental attitudes. Like the Australian data these data were analysed using the three scales (biospheric, altruistic and egoistic) within the New Environmental Paradigm instrument framework. Means and standard deviations for environmental attitudes and total NEP scores were calculated and are shown in Table 4.15 along with Cronbach alpha values to indicate the internal consistency of each scale.

A biospheric mean of 3.53 with a standard deviation of 0.76 show that the majority of the Indonesian sample (see Figure 4.7) ranged from being neutral about to agreeing with this view. An altruistic mean of 4.30 and a standard
deviation of 0.56 indicate that the majority of the Indonesian sample (see Figure 4.8) ranged from agreeing with to strongly agreeing with this perspective. An egoistic mean of 2.70 and a standard deviation of 0.63 show that the majority of the Indonesian sample (see Figure 4.9) ranged from disagreeing with to being neutral about this perspective. An average value of 3.71 for the total NEP score with a standard deviation of 4.83 indicate that the majority of the Indonesian sample (see Figure 4.10) ranged from being neutral about to agreeing with the New Environmental Paradigm.

Table 4.15

Environmental Attitude Scales and Total NEP Scores for Indonesian Participants

<table>
<thead>
<tr>
<th>NEP Scale Indonesian (n=211)</th>
<th>Mean (1 to 5)</th>
<th>Standard Deviation</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biospheric</td>
<td>3.53</td>
<td>0.76</td>
<td>0.82</td>
</tr>
<tr>
<td>Altruistic</td>
<td>4.30</td>
<td>0.56</td>
<td>0.77</td>
</tr>
<tr>
<td>Egoistic (6 - 2.70 = 3.30)</td>
<td>2.70</td>
<td>0.63</td>
<td>0.65</td>
</tr>
<tr>
<td>Total NEP score</td>
<td>3.71</td>
<td>0.40</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

The interview findings demonstrate a narrower range of environmental attitudes compared with the findings from the questionnaire, which represented the full range of attitudes found in the literature (Dunlap et al., 1992; Schultz & Zelezny, 1998; Schultz & Zelezny, 1999; Dunlap et al., 2000). This is the reverse of the Australian finding. However, it is not surprising, since the number of students interviewed was much lower than the number responding to the questionnaire, but it nevertheless indicates that the actual enunciated views of the Indonesian community may not represent the range implied by the questionnaire findings. The attitudes identified from the interviews tend to align with environmental attitudes, which take into account human impact on environments when human needs are ultimately being served and it was indicated that human needs and interests were always to be served. The mean (2.70) for the egoistic dimension is particularly demonstrative of this finding. This value compared with the mean (2.03) for the Australian community studied indicates that the Indonesian community
held views more consistent with a HEP perspective of environmentalism and less consistent with a NEP perspective.

Figures 4.7, 4.8, 4.9 and 4.10 are frequency graphs showing the distribution of respondents over the means for each scale or score indicated. These graphs show where the majority for each distribution is located.

**Figure 4.7** Percentage of Indonesian respondents for *biospheric* means.

**Figure 4.8** Percentage of Indonesian respondents for *altruistic* means.

**Figure 4.9** Percentage of Indonesian respondents for *egoistic* means.

**Figure 4.10** Percentage of Indonesian respondents for total NEP scores.

To check the difference in findings, triangulation with Part D of the questionnaire was used. This question asked respondents to compare the importance of human needs to those of environments. The views of the Indonesian sample on the relative importance of human needs compared with those of environments are represented by a mean of 3.09 with a standard deviation of 0.63 indicating a majority belief (see Figure 4.11) that
when there is a conflict between the needs of people and environments the needs of both should be met. This finding is consistent with the findings from the NEP scales with a correlation (Pearson correlation 2-tailed) between Part D and total NEP scores of 0.850 which is significant at the 0.05 level. This finding is also consistent with the findings from the interviews, which indicate that the Indonesian participants considered both human and environmental perspectives in decision making. The interview findings indicate that although both human and environmental needs should be met, they may not necessarily be met equally with humans being favoured, for example, “he is priority – not river” or with qualifications favouring humans for example, “so long as people are not disadvantaged”.

Figure 4.11 is a frequency graph showing the distribution of respondents for means comparing the importance of the needs of people with the importance of the needs of environments. It shows the majority response.

![Frequency Graph](image)

**Figure 4.11** Percentage of Indonesian respondents for the comparison of the importance of human needs to those of environments.

When the interview findings and those from Part D of the questionnaire are compared to the NEP questionnaire findings, inconsistencies appear which are more an artefact of analysis than fundamental differences. The findings from the NEP questionnaire are inconsistent with those from the interviews because the NEP questionnaire data are separated into predetermined categories by the analysis process. The main inconsistency between the two sets of data is in terms of these categories. The NEP questionnaire data are statistically analysed to show a broader perspective whereas the interview data are not.
Overall, the data indicate that the Indonesian participants held a narrower range of environmental attitudes than those found in the literature (Dunlap et al., 1992; Schultz & Zelezny, 1998; Schultz & Zelezny, 1999; Dunlap et al., 2000). Their views tended to be anthropocentric in perspective and although representative of dimensions within the NEP were not representative of the NEP as such since no biospheric perspective was seen in the interview findings. The data show that the sample was neutral to tending to agree with the environmental perspective embodied in the New Environmental Paradigm – balancing the needs of humans with those of environments. However, any weightings may not necessarily be equal and there may be conflicting views which embody elements of a pro-NEP while, at the same time, reflecting an alternative view.

4.3.2 Views of the term environment
The Indonesian participants reported three hierarchical views of the term environment (see Table 4.16) based on the number of environmental components recognised such as ‘natural’, ‘built’ and ‘sociocultural’. These components are artificial divisions and are used only as a guide. As with the Australian sample, a narrow view considered only one environmental component while a broad view included a number of different environmental components. Unlike the Australian sample, all the Indonesian participants recognised the collective, integrated and interrelated nature of environments.

Table 4.16
Views of the Term Environment by Indonesian Participants

<table>
<thead>
<tr>
<th>Defining Elements of Each View</th>
<th>Number of Participants (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 relatively broad (a number of components) but excluding natural environments</td>
<td>3</td>
</tr>
<tr>
<td>2 relatively broad and including some natural environmental components</td>
<td>1</td>
</tr>
<tr>
<td>3 broad and specifically included natural environmental components</td>
<td>6</td>
</tr>
</tbody>
</table>
The views of the three participants in category one demonstrate a relatively broad perspective but do not include the natural environment as an environmental component. This was verified with all participants in this category at several points during each interview by probing as illustrated in the following interview extract:

Interviewer: What do you mean by the term environment?
Participant: Environment is whatever is around, everything.
Interviewer: What do you mean by everything?
Participant: Environment means people around us, buildings, concrete objects. Including what’s on the desk and everything around me. The place where I live, where I grew up, my friends etc.

Interviewer: Anything else?
Participant: No.
Interviewer: What about the trees and rivers?
Participant: Not really.

The implication is that participants were not taking the inclusion of natural environments for granted. Natural environments were not included in how the term environment was viewed. Alternatively, participants’ perspectives may reflect their personal experiences where natural environments were not part of their environment, which was an urban location. This is unusual given that many of the participants were from rural and village communities. Despite further probing, there was no evidence that natural environments were considered a component of environments.

The view expressed by the sole respondent in category two was similar to that of participants in category one except that non-living environments were mentioned and equated with natural components:

There are two kinds of environments: living environments and non-living environments. Non-living environments include natural things like water, soil and area, and then living environments include mother, father and relatives and other people.
At no stage during this interview was a more inclusive view of natural environmental components included. Again, one interpretation for this response may be that the term *environment* was viewed from a strictly personal perspective and that the participant was talking exclusively about a personal environment since the “living” examples cited by the respondent were “mother, father, relatives and other people”.

The six participants in category three indicated that their view was broad and specifically included natural environmental components. Like the majority of Australian participants, they exhibited a view similar to those of environmental experts:

> Anything around us is the environment. Plants around us, animals around us, land, soil around us and houses. People are part of the environment. Very important, because people have major roles in the environment. Myself being clean also will influence the environment and man and the environment are interdependent.

Although this view of the term is inclusive, it nevertheless shows an anthropocentric perspective because all the examples given are related to people including the notion of being clean. It specifies that humans have a major role in environments, that they and environments are interdependent.

Overall, the Indonesian participants interviewed in this study viewed the term *environment* from an anthropocentric perspective and in terms of what humans have built. Although the definitions were broad and there was recognition that environments existed in different forms, rather than as one all-encompassing environment, the underlying perspective was anthropocentric. Views were in terms of how the term *environment* related to the interviewee personally: “... everything around me. The place where I live, where I grew up, my friends, mother, father and relatives; Myself being clean”. Overt examples that recognised natural components were minimal. This finding was in sharp contrast to the Australian findings, which tended to view environments from a natural perspective. The quotations below illustrate this further because when participants provided examples they were
human-centred. For example, when more generic components, such as ‘land’, ‘air’ and ‘sea’ were mentioned they were in terms of ‘where somebody lives’ or ‘stays’:

The environment is anything around us. Whatever is around us, our house, the shopping place, the streets, schools and everything. People must adjust to the environment because we cannot change it too much unless we rebuild it.

The environment is the place where somebody lives or stays, the nature of where they live, the land, air and sea. The environment is part of human life. If the environment is damaged, the human beings will suffer.

The phrasing of the question throughout all interviews across all communities used the term environment. This was to avoid giving a cue to the singular/plural construct of environments. In using this terminology, Indonesian participants may have distinguished between their view of the ‘term’ environment and that of the ‘phenomenon’ – the manifest form of an environment. The fact that the Indonesian interviews employed an interpreter means that the impact of such an interpretation cannot be determined. However, most of the students interviewed understood English well enough for the use of an interpreter to be significantly discounted as a cause of misinterpretation.

The Indonesian participants presented a less diverse conceptualisation of the term environment in a less diverse way compared to the Australian participants. This different conceptualisation of the term may impact on the development of attitudes towards environments. The evidence suggests that the Indonesian participants’ environmental attitudes may stem from a learnt and relatively narrow view of the term environment nested in a perspective dominated by human-built components. The questions that arise are how have these views and attitudes been informed? Where have the Indonesian participants obtained their environmental knowledge? How accurate is it and how important is knowledge in influencing environmental attitudes?
4.3.3 Environmental knowledge

Analysis of the interview data generated three different hierarchical categories for respondents’ environmental knowledge. The outcome space was achieved by ordering these categories in terms of the relative importance of global environmental issues compared to local environmental issues (see Table 4.17). As with the Australian analysis, awareness of environmental issues was compared on a scale from very poor to very good (defined in Table 3.4) while accuracy of knowledge was measured on a sliding scale from very inaccurate to very accurate (defined in Table 3.5).

Table 4.17
Environmental Awareness and Knowledge of Indonesian Participants

<table>
<thead>
<tr>
<th>Defining Elements of Awareness and Knowledge</th>
<th>Number of Participants (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 • very poor awareness</td>
<td>1</td>
</tr>
<tr>
<td>• very inaccurate knowledge</td>
<td></td>
</tr>
<tr>
<td>• no knowledge of either global or local issues</td>
<td></td>
</tr>
<tr>
<td>2 • poor awareness</td>
<td>7</td>
</tr>
<tr>
<td>• very inaccurate knowledge</td>
<td></td>
</tr>
<tr>
<td>• global issues more important than local issues</td>
<td></td>
</tr>
<tr>
<td>3 • satisfactory awareness</td>
<td>2</td>
</tr>
<tr>
<td>• inaccurate knowledge</td>
<td></td>
</tr>
<tr>
<td>• both local and global issues equally important</td>
<td></td>
</tr>
</tbody>
</table>

The participant with a view in category one had a very poor awareness of environmental issues and what was known was very inaccurate. This transferred to the participant having no knowledge of either global or local environmental issues. The participant was concerned with the effects environmental problems may have on humans (cancer and drinking water) rather than the effects humans may have on environments:

I am not sure of what is meant by global. I cannot answer that. I do not know.
Maybe the acid rain will affect the soil. Maybe it can cause cancer. We do not have any of this. Our rain comes from the sky and we can drink it.

The seven participants with views in category two said that global environmental issues are more important than local issues and that global issues tend to affect more people over more countries and are generally related to larger environmental issues. People in this category generally had a poor awareness of environmental issues and what knowledge they did have was very inaccurate:

Because of the houses made of glass, and also buildings in glass, they will influence the sunlight reaching the Earth – reflection – and because the ozone is not there now, the ozone will allow fire to destroy us.

Carbon dioxide cannot escape but the atmosphere will get thinner, the ozone gets thinner, the light from the Sun gets more and then makes a hole in the atmosphere.

The two participants in category three expressed the view that both local and global environmental issues are equally important because they are interconnected and interrelated. They also said that if people work together on common environmental goals it will help improve relationships between different people and different countries giving further evidence that they understood the extent of environmental interrelationships. Participants in this category generally had satisfactory awareness of environmental issues although their knowledge was inaccurate:

I think both local and global issues are the same. They are the same importance. The pollution of the river is the same as carbon dioxide causing the greenhouse effect. If we work together we can stop the pollution that destroys the river and the ozone layer. All people must do these things. Australians and Indonesians and others, we must all stop pollutions.
Generally, the Indonesian participants had poor awareness of environmental issues and their knowledge tended to be very inaccurate. Often concepts like the greenhouse effect and the ozone layer were confused and there was very little science underpinning their understanding. Many responses reflected an anthropocentric perspective and issues were viewed in terms of their effect on humans with the greater the impact on humans, the more important the issue:

Global environmental effects cause problems to more people and to more countries. They cause bigger damages that cost more money.

Perhaps the most important finding from the Indonesian participants is that they said they knew a lot about environmental issues but the evidence suggests this was not the case:

Participant: What one should I talk about? I know about the greenhouse effect, acid rain and the ozone layer.

Interviewer: Pick one that you know the most about. It's your choice.

Participant: The greenhouse makes us get hotter as if we are all under a glasshouse. The greenhouse effect is caused by the factories or industries, motor cars with the carbon dioxide and these will collect and cause the heat in the Earth. They react and the Earth gets hotter.

It would seem that the Indonesian participants in this study had encountered environmental issues in their lives but they did not have experiences that promoted accurate and detailed understanding of these issues. What they considered to be knowledge and understanding could be described more accurately as a general awareness of environmental issues. There did not seem to be an ecological perspective present in the views expressed, but participants with a greater awareness of environmental issues were more likely to refer to the interaction of global and local environmental issues.
Nevertheless, perspectives on issues were always anthropocentric and expressed in terms of the effect on or benefit for humans.

The analysis of the questionnaire responses from Indonesian respondents about environmental knowledge produced a mean of 3.29 and a standard deviation of 0.64 (1 = no knowledge, 2 = little knowledge, 3 = fair knowledge, 4 = good knowledge, 5 = very good knowledge). This finding conflicts with the finding from the interview data, which indicates that the majority of Indonesians interviewed had a poor awareness and a very inaccurate knowledge of environmental issues despite a high level of confidence in their knowledge. These findings suggest that the Indonesian respondents believed they knew about environmental issues when in fact they did not.

A possible explanation for the discrepancy between interview and survey findings is that the Indonesian sample thought that it was important to have knowledge and so conveyed this impression even when knowledge was limited. The discrepancy could also be a function of the two different methods used to collect data. Alternatively, the structured nature of the information conveyed and the confident way participants presented their knowledge suggest that it may have been formally taught in schools. These possible explanations are explored further in section 4.6.5.

### 4.3.4 Nature of environmental knowledge from different sources

Analysis of the interview data identified four categories of nature of environmental knowledge from different sources for the Indonesian sample based on two interrelated criteria: how environmental knowledge was gained, for example from school or reading and the participants' actual use or application of this knowledge, for example to inform actions which could be demonstrated with examples (see Table 4.18). It is important to note that the Indonesian students interviewed cited both formal and informal learning as sources of their environmental knowledge. This was their conscious recollection and yet most of the examples cited were from formal learning experiences rather than from informal learning. The importance of this finding is that it reinforces the idea that the Indonesian students interviewed perceived they were influenced greatly by schooling and formal learning.
The four participants in the first category expressed the view that their environmental knowledge came from school and from personal observations. However, unlike the personal experiences of the Australian sample which were overseas travel, outdoor recreation and other outgoing experiences, the Indonesian personal experiences revolved around domestic traditional activities like when the family shifted house or the elders cleaned the street. The participants said the purpose of their knowledge was to influence what they did. However, only memories of what was learnt in school were mentioned. No personal actions were given even after probing. Only the actions of other family members were cited as examples:

In school I was taught the meaning of environment. From my own opinion in some of the lessons in school I have forgotten. My knowledge of the environment influences the way we act when my family move house. I will adjust myself to the environment in the new (house). ... I base my opinion from the lessons in school. An example of a farmer cutting trees was also given when I was studying in school.

Table 4.18
*Nature of Environmental Knowledge from Different Sources for Indonesian Participants*

<table>
<thead>
<tr>
<th>Defining Elements of Nature of Environmental Knowledge from Different Sources</th>
<th>Number of Participants (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 • school and personal observations to influence personal actions but no personal actions cited</td>
<td>4</td>
</tr>
<tr>
<td>2 • school and personal experiences to influence and inform personal actions although actions followed traditional practices</td>
<td>3</td>
</tr>
<tr>
<td>3 • school and personal experiences to inform personal actions which were illustrated with specific examples to improve environments</td>
<td>1</td>
</tr>
<tr>
<td>4 • school and reading to inform personal actions to look after and maintain environments which were illustrated with specific examples to improve environments</td>
<td>2</td>
</tr>
</tbody>
</table>
The three participants with views in category two said the main sources of environmental knowledge were school and observations of surroundings. Environmental knowledge was used to influence or inform personal environmental actions. In these respects, the views of category two are similar to those of category one except that environmental actions followed traditional practice rather than being used to understand or implement actions based on new knowledge. Participants in this category gave examples to illustrate their personal actions:

Looking at the condition now, there is pollution and I am called for to do things to prevent the pollution. So, I burn waste, plastic waste, which cannot dissolve or cannot change. If I burn this it is no more pollution. This is the custom, the practice, the habit, what we do. This is what we are taught in school.

The person with a view in category three said the sources of environmental knowledge were school and personal experience. The purpose of environmental knowledge was to inform personal actions. This view cited specific actions as examples:

From my elementary school, from secondary school, I have got this knowledge, also from observations. Because of my knowledge I don’t throw away waste carelessly and also in getting water, I get water not excessively.

The two participants with views in the fourth category gained their knowledge about environments from school and from reading. They said the purpose of knowledge about environments was to better equip people to look after and maintain environments. These participants were also able to cite specific examples of how people could improve environments:

(I get my knowledge) from my school, from reading magazines or books and also from newspapers. If the environment is looked after, maintained, then it will be useful for man. But if the environment is not
preserved or maintained, destroyed, then it will be harmful to human beings.

If the mining is done now, what happens with the future generation? It is better to get an alternative using the solar energy. I have read about this.

The interaction of the criterion source of environmental knowledge with the actual application of this knowledge, produced a range of responses, which extended from information that did not enlighten or promote personal actions through to an enlightened and informed application of knowledge, in order to maintain environments. Lack of action seemed to stem from a lack of understanding that resulted in people continuing to follow traditional practices. Formal instruction in school, as a source of environmental knowledge, was identified as common to all Indonesian participants.

Another feature of the Indonesian responses was the relationship between more objective sources of environmental knowledge, such as schooling and reading, and a broader view of environmentalism. For example, students who relied primarily on gathering and interpreting information from their surroundings without additional input from more expert sources tended to follow traditional customs with little understanding of their implications for environments ("So, I burn waste, plastic waste, which cannot dissolve or cannot change. If I burn this it is no more pollution. This is the custom, the practice, the habit, what we do"). This is not to suggest that traditional practices are anti-environmental. In fact, many are pro-environmental.

These findings raise the question of whether the relatively poor awareness of environmental issues and environmental knowledge (discussed earlier) is at least partially related to the school curriculum and the value placed on knowledge, given that all students interviewed said they gained at least some of their information about environments from school. The data presented and discussed to answer this question is from the survey questionnaire. The importance of knowledge scale relates to the importance attached to knowledge and to the learning of facts and information. The mean for the Indonesian
sample (n=211) was 3.83 (1 = rarely, 2 = sometimes, 3 = fairly often, 4 = often and 5 = very often) with a standard deviation of 0.74.

As illustrated in Figure 4.12 the majority of the Indonesian sample valued knowledge from fairly often to towards very often. This is consistent with earlier interviews where the Indonesian students were confident and forthcoming when asked about environmental issues because they thought it was important to create the impression that they knew about environmental issues. Consequently, it is not necessarily surprising that the Indonesian sample actually knew less about environmental issues than they thought they did. It suggests there are yet uncovered reasons behind the finding that the Indonesian sample really knew less about environmentalism than they thought they did. This is discussed in section 4.6.5 in terms of Indonesian culture.

Figure 4.12 is a frequency graph showing the distribution of respondents over the means for the importance of knowledge scale. It shows the majority response.

![Percentage of Respondents](image)

**Figure 4.12** Percentage of Indonesian respondents for the importance of knowledge scale means.

### 4.3.5 Summary of Indonesian participants’ perspectives

The Indonesian participants interviewed in this community represented a narrower range of environmental attitudes compared to those described in the literature. There was no evidence of biospheric or egoistic views, although elements of these views were recognised within the range of altruistic views.
found. In contrast, the Indonesian questionnaire analysis shows that participants ranged from being neutral about to agreeing with the biospheric perspective of the NEP questionnaire. They ranged from agreeing with to strongly agreeing with the altruistic perspective while they ranged from disagreeing with to being neutral about the egoistic perspective. It was suggested that methodological issues were responsible for this difference in range of views. The Indonesian participants thought that when there was conflict between the needs of people and the needs of environments, both the needs of people and the needs of environments should both be considered but perhaps not equally with human needs always being served. The Indonesian participants’ environmental attitudes varied in terms of their reasons for minimising human environmental impact. The Indonesian sample ranged from being neutral about towards agreeing with the New Environmental Paradigm as measured by the NEP questionnaire. The Indonesian sample’s environmental attitudes were anthropocentric.

The Indonesian sample interviewed demonstrated a less diverse view of what they meant by the term environment compared with the Australian interview sample and generally viewed the term from an anthropocentric perspective. The Indonesian interview sample recognised the integrated and interrelated nature of the term environment as well as its collective or pluralistic dimension. They also predominantly interpreted environments in terms of human built environments, while natural environments were not overtly mentioned. The narrow range of environmental attitudes exhibited by the Indonesians interviewed may be partially explained by their narrower and largely anthropocentric view of the term environment.

The majority of Indonesian participants interviewed demonstrated poor awareness of environmental issues with inaccurate knowledge of those issues of which they knew something. Both environmental awareness and environmental knowledge seemed to have been developed from an anthropocentric perspective. The Indonesian community said they knew about environmental issues when they either knew very little or held alternative conceptions. As awareness of environmental issues increased there was an increased recognition of the interaction between local and global
issues. The Indonesian community were forthright in stating their environmental knowledge even though they showed inaccurate knowledge. The application of the Indonesian community’s environmental knowledge ranged from not enlightening or modifying their environmental actions to informing their actions to maintain environments.

Interview participants reported that schooling was the most common source of their environmental knowledge and shaped their environmental attitudes. Schooling and reading were associated with a broader view of environmentalism that recognised the interconnections and interrelationships associated with a more ecological view. The Indonesian participants exhibited an anthropocentric view of the world, which was consistent with a narrow range of environmental views and attitudes. Environmental knowledge was used to serve personal or human purposes. The Indonesians interviewed valued the idea of having knowledge.

4.4 Maldives
4.4.1 Environmental attitudes
As with the findings for the Indonesian sample some contextual comparisons of the Maldivian sample will be made with the other two communities, however, the main comparisons will be made in the next section of discussion.

Like the Australians, all the Maldivians interviewed thought environments were important and that people should minimise their impact on them. Like the Indonesians, all the Maldivians interviewed thought environments should be viewed from a perspective that considers the need for humans to consume environmental resources and, at the same time, the need to protect environments from human activities. Consequently, the Maldivian participants interviewed generated three different categories for environmental attitudes achieved by ordering environmental attitudes in terms of the reasons for minimising environmental impact (see Table 4.19). However, these categories were generated from a perspective of considering human needs in conjunction with minimising human impact on environments.
The six people in category one said that while environmental resources should be used, human impact should be minimised otherwise no resources will be left for human use. The following quotes are typical of this group of responses:

Take things like plants, if we exploit them it will be bad for us. I mean we know it’s going to be dangerous for us. It’s going to be difficult for us to live without the environment. ... We need the environment to support us. ... So, we are there to maintain the balance.

We live in this environment and we should protect it. Otherwise the sea level rise will have an effect on us.

Table 4.19

<table>
<thead>
<tr>
<th>Defining Elements of Environmental Attitude</th>
<th>Number of Participants (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  • environmental resources should be used but human impact should be minimised otherwise there will be no resources left to use</td>
<td>6</td>
</tr>
<tr>
<td>2  • environmental resources should be used but human impact should be minimised to preserve the environment for future generations</td>
<td>3</td>
</tr>
<tr>
<td>3  • environmental resources should be used but human impact should be minimised for the sake of other living things</td>
<td>1</td>
</tr>
</tbody>
</table>

The three people in the second category said human impact should be minimised to preserve the environment for future generations:

If the environment is damaged then it’s a long-term experience that humans have to consider. The environment is important. ... To keep a balance we need to give priority to the environment, not just for the time being but for the future. ... People need to make use of the resources so that life becomes more comfortable. But, if we use the environment in the wrong way, definitely in the long run, we will have to worry about it. It will be a problem for us.
The environment is important. Because of our actions, the environment is getting worse; we are influencing the environment. So, if we don’t have a better environment for the future we won’t be able to live happily. I mean the future generations.

The person in the third category said human environmental impact should be minimised for the sake of living things in addition to humans:

The environment is important and we should not harm the environment. The environment is getting polluted because of industries and we cannot stop that. If you want to develop the country, that’s the way. But, we are not the only things living in the environment. … There are many living things to consider. The environment is for us and for other living things.

The range of Maldivian views expressed by participants in this study about environments is reasonably consistent with the range described in the literature but from within a narrower perspective. Like the Indonesian sample, the overall range in views centred on the idea of compromise, weighing up the benefit humans derive from the use of resources with the impact humans have on them. This means that essentially there was no clearly defined biospheric or egoistic dimension to the Maldivian interview participants’ views. Even the views, which the literature may describe as egoistic were different because they were from within the context of balancing human and environmental perspectives. However, the resultant compromise was more to one side than the other. In addition, most Maldivian students interviewed arrived at their view from a ‘human domination’ perspective rather than from the position of a human within a broad ecological framework. Irrespective of other considerations, minimising human impact on environments was for human benefit and, therefore, essentially anthropocentric.

In addition to the interviews, data were also collected about the Maldivian sample’s attitudes towards environments using the NEP survey questionnaire. The questionnaire data were analysed using the same three
scales (*biospheric*, *altruistic* and *egoistic*) within the New Environmental Paradigm framework. Means and standard deviations for environmental attitudes and total NEP scores were calculated and are shown in Table 4.20 along with Cronbach alpha values to indicate the internal consistency of each scale.

<table>
<thead>
<tr>
<th>NEP Scale</th>
<th>Mean (1 to 5)</th>
<th>Standard Deviation</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maldivian (n=199)</td>
<td>3.44</td>
<td>0.64</td>
<td>0.75</td>
</tr>
<tr>
<td>Biospheric</td>
<td>3.44</td>
<td>0.64</td>
<td>0.75</td>
</tr>
<tr>
<td>Altruistic</td>
<td>3.97</td>
<td>0.70</td>
<td>0.77</td>
</tr>
<tr>
<td>Egoistic</td>
<td>3.10</td>
<td>0.87</td>
<td>0.74</td>
</tr>
<tr>
<td>Total NEP score</td>
<td>3.44</td>
<td>0.40</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

A *biospheric* mean of 3.44 and a standard deviation of 0.64 show that the majority of the Maldivian sample (see Figure 4.13) ranged from being *neutral* about to *agreeing* with this view. An *altruistic* mean of 3.97 and a standard deviation of 0.70 indicate that the majority of the Maldivian sample (see Figure 4.14) ranged from being *neutral* about towards *strongly agreeing* with this perspective. An *egoistic* mean of 3.10 and a standard deviation of 0.87 show that the majority of the Maldivian sample (see Figure 4.15) ranged from *disagreeing* with to *agreeing* with this perspective. An average value of 3.44 for the total NEP score with a standard deviation of 0.40 indicate that the majority of the Maldivian sample (see Figure 4.16) ranged from being *neutral* about towards *agreeing* with the New Environmental Paradigm.

Like the Indonesian sample, the Maldivian interview participants presented a narrower range of environmental attitudes compared to those described in the literature. Again, there was no evidence of clearly demonstratable *biospheric* or *egoistic* views, although elements of these views were recognised within the *altruistic* view found. The interview data also showed that the
Maldivian participants were tentative in their agreement with the New Environmental Paradigm. They tended to align with environmental attitudes that served human needs and which accommodated human impact on environments. An interesting finding from the Maldivian questionnaire analysis was the broad range in egoistic views present. The Maldivian respondents, although showing considerable variation, ranged towards agreeing with the egoistic perspective. This is in contrast to the other two communities studied and is more consistent with a HEP perspective than a NEP view of environmentalism.

Figures 4.13, 4.14, 4.15 and 4.16 are frequency graphs showing the distribution of respondents over the means for each scale or score indicated. These graphs show where the majority for each distribution is located.

*Figure 4.13* Percentage of Maldivian respondents for *biospheric* means.

*Figure 4.14* Percentage of Maldivian respondents for *altruistic* means.

*Figure 4.15* Percentage of Maldivian Respondents for *egoistic* means.

*Figure 4.16* Percentage of Maldivian respondents for total NEP scores
To triangulate these findings the single question from Part D of the questionnaire was used. The Maldivian sample's views on the relative importance of human needs compared to those of environments were represented by a mean of 2.91 with a standard deviation of 0.73. Like both the Australian and Indonesian samples, this shows that for the majority of Maldivian respondents (see Figure 4.17), when there is a conflict between the needs of people and those of environments, people’s needs and the needs of environments should both be met. Again this finding can be interpreted as being consistent with the findings from both the NEP questionnaire scales, although from a narrower perspective as discussed above, and those of the Maldivian interviews which indicate an overall balanced perspective. The correlation (Pearson correlation 2-tailed) between Part D and total NEP scores is 0.885 which is significant at the 0.05 level. The interview data indicate the more nuanced view that although both human and environmental needs should be met, they may not necessarily be met equally.

Figure 4.17 is a frequency graph showing the distribution of respondents for means comparing the importance of the needs of people with the importance of the needs of environments. It shows the majority response.

Figure 4.17 Percentage of Maldivian respondents for the comparison of the importance of human needs to those of environments.

Overall, the interview responses for Maldivian environmental attitudes were similar to those for the Indonesian sample except that the Maldivian sample reported use of a greater range but fewer different categories within the altruistic perspective. The Maldivian interview sample indicated a greater
degree of anthropocentricity than the Indonesian interview sample. This was consistent with the questionnaire findings, which showed the Maldivian sample to have a higher egoistic perspective than the Indonesian sample.

A high egoistic perspective is less consistent with a pro-NEP environmental perspective but is consistent with a pro-HEP view of environmentalism. The dimensions of environmental attitude described in Figure 2.1 (p. 20) were developed from western based literature and show that, if this relationship is correct and if the HEP and NEP paradigms are mutually exclusive, that is environmental attitudes from one paradigm have no commonality with those of the other, then a community exhibiting a pro-NEP view of environmentalism would not have a high egoistic perspective. Therefore, the findings from the Maldivian sample suggest that a community may simultaneously hold conflicting attitudes towards environments. Some individuals may hold pro-NEP environmental attitudes while, at the same time, others may hold pro-HEP attitudes. Alternatively, if individuals hold both views simultaneously it would indicate that the relationship depicted by Figure 2.1 is problematic in terms of the of the HEP and the NEP being mutually exclusive. This later possibility is explored in the next section of the data analysis.

Recently, a small number of studies have used the NEP questionnaire as a way of investigating environmental attitudes in underdeveloped non-western countries. A study of attitudes towards environments in a Mexican city showed that both pro-NEP and pro-HEP attitudes were held at the same time (Corral-Verdugo & Armendarez, 2000). In order to probe the effect of culture on environmental attitudes in other communities, Corral-Verdugo and Armendarez (2000) suggest it may be necessary to go beyond the NEP questionnaire and examine why a community maintains the views it does. The findings of the current study support this view. Specifically, it suggests that the Maldivian community may hold pro-NEP and pro-HEP views simultaneously with the possibility that this may be the case for individuals as well as the community as a whole.
4.4.2 Views of the term environment

To understand the reasons for the environmental attitudes expressed in the interviews, views of the term environment were explored. The Maldivian participants were fairly uniform in their view of the term environment. All Maldivians interviewed viewed the term environment from a broad perspective and all recognised the integrated and interrelated nature of environments. The only area of difference was in terms of the plural nature of environments. Hence only two categories were identified (see Table 4.21).

Table 4.21
Views of the Term Environment for Maldivian Participants

<table>
<thead>
<tr>
<th>Defining Elements of Each View</th>
<th>Number of Participants (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 single view of the term, no interaction of a number of environments, no collective or plural perspective</td>
<td>4</td>
</tr>
<tr>
<td>2 plural or collective view of the term</td>
<td>6</td>
</tr>
</tbody>
</table>

The four participants with views in category one did not recognise the plural or collective nature of environments. They viewed environments as one all-encompassing environment with no evidence to suggest that any of the views expressed in this category were conceptualised as identifiable and different environments. The following interview extract is characteristic of this and shows clearly that the land, sea, atmosphere and man were viewed as the same environment:

It’s the surroundings and how they are interrelated. It is all the land, sea, atmosphere and man. We depend on them and they are together. I think everything is part of one environment. The environment is the same.

The remaining six participants expressed the view in category two, which recognised the collective nature of the environment. They recognised that many environments interact at any one time. However, within this category there was the suggestion that there may be another dimension to the views
expressed about the meaning of the term *environment*. Some of the views expressed were more anthropocentric than other views. For example, one respondent described the term *environment* clearly as a collective of environments but from an exclusively human perspective:

(Environment means) your surroundings, that means who you live with, the place you live in, the people with whom you associate, everything in it. The chair, the table, the TV, the clothes you wear, the people (I’ve said that), the birds, the sky, the Sun, the Moon, just everything, even how you feel. These are all different but there is a relationship between us and the environments that affects us. We need the plants for oxygen; this is one type of environment. We need our parents for love and affection; this is another. We also need chairs to sit on.

Other views in this category were less human centred (more ecocentric). Although participants considered the collective nature of environments, they did so from a perspective that was not centred on humans:

People often don’t think about everything as being part of different environments. They only consider what affects them, not the land, trees and other animals. To assemble a gun or a car, they have to build a big factory. A chemical works will release some toxic gases. That will affect different environments, the whole world and everything in it, not just people.

Although this distinction does indicate a difference in perspective (anthropocentric versus ecocentric) both perspectives detailed above present a view that the term *environment* is plural.

Overall, the Maldivian views demonstrate a clear understanding of the term *environment* in terms of accepted definitions with nuances clearly articulated. However, some of the definitions of the term *environment* were characterised by an anthropocentric perspective, which is consistent with the
anthropocentric nature of the environmental attitudes described in the previous section.

The combination of a sophisticated, almost expert view of the term environment in combination with the inconsistency of an anthropocentric perspective suggests the Maldivian participants’ environmental attitudes may stem from a somewhat prescribed or learnt view of the term. It may indicate that the Maldivian participants have learnt or were taught this definition or expert view but that it has not yet been internalised into a broader view of the world or that it has been superimposed on a more anthropocentric worldview perspective. The main distinction between different views was the degree of anthropocentricity expressed. It is therefore important to examine the sources of the Maldivian participants’ environmental knowledge, its accuracy and how important knowledge has been in influencing their environmental attitudes.

4.4.3 Environmental knowledge
The responses of Maldivians interviewed fell into four categories of environmental knowledge using the same criteria as for the Indonesian sample, that is the relative importance and reasons for the importance attached to global and local environmental issues (Table 4.22). As with the Australian and Indonesian analyses, awareness of environmental issues was compared on a scale from very poor to very good (see Table 3.4) while accuracy of knowledge was measured on a scale from very inaccurate to very accurate (see Table 3.5). All the Maldivian participants had a good awareness of environmental issues. With one exception, their environmental knowledge was generally inaccurate.

The person with the view in category one considered local issues to be more important than global issues. It was reasoned that if local issues were taken care of then global issues would follow. The person with this view had a good awareness of environmental issues but knowledge of environmental issues was inaccurate:
If we are in the Maldives we have to take care of our local environment first of all. If we are taking care of our local environment then we are taking care of the rest of the environment.

The four people with a view in the second category considered global issues to be more important than local issues because global issues had a greater impact on a larger number of people. Participants with this view had a good awareness of environmental issues but again their knowledge was imprecise:

I think, in terms of Maldives, we need to worry more about the global environment because of the greenhouse effect and the sea level rise. It has a great effect on Maldives people. If the ice in the sea melts Maldives will sink.

Table 4.22

<table>
<thead>
<tr>
<th>Environmental Awareness and Knowledge of Maldivian Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defining Elements of Environmental Awareness and Knowledge</td>
</tr>
<tr>
<td>1  • good awareness and inaccurate knowledge with local issues more important than global issues</td>
</tr>
<tr>
<td>• because if local issues were managed then global issues would follow</td>
</tr>
<tr>
<td>2  • good awareness and inaccurate knowledge with global issues more important than local issues</td>
</tr>
<tr>
<td>• because global issues impact on a greater number of people</td>
</tr>
<tr>
<td>3  • good awareness and inaccurate knowledge with global issues more important than local issues</td>
</tr>
<tr>
<td>• because global issues have a greater impact on local environments</td>
</tr>
<tr>
<td>4  • good awareness and satisfactory knowledge with both local and global issues equally important</td>
</tr>
<tr>
<td>• because if people deal with local issues they can see that global issues can be dealt with</td>
</tr>
</tbody>
</table>

The four participants in category three indicated that their view also considered global issues to be more important than local issues since global issues affected local environments greatly. Generally, people with this view
showed a good awareness of environmental issues but demonstrated inaccurate knowledge as demonstrated by the following extract:

Carbon monoxide comes from the vehicles. All those things go up in the air and they form a layer and because of that ozone layer the heat is shut in and it sits like that on the Earth and the sea level also rises because of that. This is more important than plastic bags on the road because it affects the whole world. It affects more of the local environments.

The participant with the view in category four considered that both global and local environmental issues are of equal importance. The reason for this was that global issues are long term with different countries having to cooperate in a whole world effort if change is required. However, local issues are just as important because people can relate to them more easily and so appreciate that something can be done if the will exists. The person with this view had a good awareness of environmental issues and although their environmental knowledge was satisfactory it lacked depth and a scientific basis.

Although the views moved from a 'more local' perspective to a 'more global' perspective and then use of both, there seemed to be no definite trend in terms of awareness of environmental issues and accuracy of environmental knowledge. The only tentative relationship was that the person with a satisfactory accuracy of environmental knowledge considered both local and global issues to be important. The Maldivian students interviewed had a good awareness of environmental issues even though the accuracy of this knowledge was poor for the vast majority. Perhaps the Maldivians interviewed, because of their geographic vulnerability in terms of sea level, found they needed to be aware of environmental issues. Consequently, awareness of environmental issues was acquired as part of everyday life in the Maldives. Environmental issues were covered as part of the school curriculum as well as the subject of television documentaries. However, although aware of environmental issues, the pre-service teachers interviewed did not demonstrate an understanding of them or the science that
underpinned them very well. They knew about environmental effects on the Maldives, but issues such as the difference between the causes of the greenhouse effect and the hole in the ozone layer seemed to be not well understood even at a basic level. It is acknowledged that an understanding of the ozone layer is commonly misunderstood around the world (Boyes & Stanisstreet, 1993; Dove, 1996). The main reason for using the ozone layer as an example to illustrate environmental knowledge is because it is an issue covered by the environmental education literature in each community studied. In addition, an environmental issue that was known to be difficult to understand was considered useful for distinguishing between participants with a depth of environmental knowledge and those with limited knowledge of common issues such as pollution. Another feature of the Maldivian responses was the anthropocentric perspective – direct impact on people rather than on environmental systems – from which environmental issues were viewed.

Although Figure 2.1 shows that a community may hold both pro-NEP and pro-HEP views simultaneously, the research cited earlier about attitudes to environments and the NEP does not attempt to examine the views of individuals. This present study examines the views of individuals using interviews and the findings suggest that individuals may not hold views that are completely consistent with any one paradigm. For example, it has been shown that an individual may hold a relatively balanced attitude towards environments, taking into account the need to sustain ecological systems while balancing this need with human wellbeing. Nevertheless, as evidence builds, it suggests that although individuals compromise their views they do so from within an anthropocentric perspective. For example, the acquisition of knowledge about environments is in terms of what is relevant to human needs and interests.

It has also been demonstrated that human attitudes are complex and, as such, attempts to categorise individuals based on less than extensive information may be problematic. Still, as the evidence accumulates it is becoming clearer that both the Indonesian and the Maldivian students interviewed viewed environmentalism differently compared with the Australian students.
interviewed. There are similarities, which on the surface can be explained in terms of variations within an established paradigm. However, careful analysis suggests that there may be alternative interpretations and that the relationship between environmental attitudes described in Figure 2.1 may be simplistic and that individuals may hold both pro-NEP and pro-HEP simultaneously.

The Maldivian questionnaire data for environmental knowledge, like the other communities, was self-assessed with a mean of 2.99 and a standard deviation of 0.44 (1 = no knowledge, 2 = little knowledge, 3 = fair knowledge, 4 = good knowledge, 5 = very good knowledge). The interview data for environmental knowledge show that the Maldivian participants had good awareness of environmental issues but poor knowledge. For example, the quotes “they (vehicle emissions) form a layer (in the air) and because of that ozone layer the heat is shut in” and “if the ice in the sea melts Maldives will sink” show that the Maldivian students did know about the greenhouse effect and the ozone layer. However, they confused the two issues and linked them together. In addition, it is the sea level that rises rather than the land sinking and it is only the ice on land, which causes the sea level to rise not the ice in the sea. Some of these inaccuracies may be considered beyond general knowledge but an overall reading of the transcripts shows that fundamental errors were common occurrences as demonstrated by the dialogue extract below:

Interviewer: You’ve talked about the greenhouse effect and the ozone layer, can you tell me what the difference is between them?

Participant: Nothing, they are together. Carbon dioxide makes the ozone layer around the Earth, which causes the greenhouse effect.

Interviewer: Can you tell me what ozone is?

Participant: It’s the layer of gases like carbon dioxide and things like that – different types of gases.

Interviewer: What is an effect of the ozone layer?
Participant: It’s bad for us. In the Maldives we are seriously affected – the sea level.

Interviewer: What other effects can it have other than on people in the Maldives?

Participant: It will cause problems for other people. It is worldwide.

Interviewer: What about problems for other organisms?

Participant: Yes, they also have these problems but we caused these problems and we should fix them, other organisms can not do this.

The Maldivian transcripts describe inaccurate accounts of the influences of the greenhouse effect and the ozone layer on sea levels, including an inaccurate account of what the ozone layer actually is as described above. Although only one example is cited above, there were many more. Inaccurate information is given despite the fact that students say they know about the environmental issues being discussed. Consequently, when interpreting the questionnaire findings the interview data indicate that the Maldivian respondents were more aware of environmental issues than they were knowledgeable of them and that their environmental knowledge reflected an anthropocentric perspective.

4.4.4 Nature of environmental knowledge from different sources

In the interviews participants identified four categories of the nature of environmental knowledge from different sources. The Maldivian outcome space was developed from the interaction of the same two criteria as for the Indonesian sample; namely, source of knowledge and its application and is shown in Table 4.23 with school being a source of environmental knowledge for all participants.

The three participants with a view in the first category obtained their information on environments from school and parents. Parents and traditional experiences were identified as important sources of environmental knowledge, influencing decision making in addition to the information taught
### Table 4.23
**Nature of Environmental Knowledge from Different Sources for Maldivian Participants**

<table>
<thead>
<tr>
<th>Defining Elements for Nature of Environmental Knowledge from Different Sources</th>
<th>Number of Participants (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 • school and parents to reduce human impact but it is difficult to do this through personal action</td>
<td>3</td>
</tr>
<tr>
<td>2 • school to prevent people from harming environments but it is difficult to do this through personal action</td>
<td>2</td>
</tr>
<tr>
<td>3 • school to learn about environments to inform people so they can make their own decisions</td>
<td>2</td>
</tr>
<tr>
<td>4 • school and media to inform people to make their own decisions and to take action</td>
<td>3</td>
</tr>
</tbody>
</table>

in school. Participants said they had been taught that people should learn about environments in order to reduce human impact. However, they also said it was difficult to do this through personal action:

> Always our parents would say this is what we should do from our ancestors but I have been taught different in school. But, I can’t take any action even if some people are destroying the environment. For example, if they are cutting down trees too much, I can’t take any action. I feel this because people will not accept it.

The two participants who expressed views in category two obtained their knowledge of environments from study at school. They said the purpose of environmental knowledge was to prevent people from harming the environment. However, they also said that individuals were powerless to act for themselves:

> When I was in primary school we learnt about erosion, the environment, pollution, those kinds of things. I can advise the students (participant’s future students) that the environment is very important and not to harm the environment, but actually one person can’t help.
They should also know that we live in this environment and we should protect it. But we cannot do it ourselves. I think we will have to depend on another country to provide us with food.

The two participants with views in category three obtained their environmental knowledge from school as well. However, they said the purpose of knowledge is to learn about environments so that people can make their own decisions about environmental issues:

    That is from my study, not from anything else. I have a personal interest hearing about things going around. When I go shopping, if it is something I can carry with my own hand, I ask not to give me a plastic bag.

The three participants with views in category four gained their environmental knowledge from school and the media. Knowledge or information is used to inform people in their decision making. People are then able to act in a more informed way:

    After reading so many books from teachers and also from reading some ecology, from TV and also from radio, so from all these media I came to this conclusion. ... I feel that if I just think in the short term then I'm going to be in trouble later on. So, the decision should be made after thinking twice. I need it (knowledge) to make a decision. I make up my own mind and then act.

Although school was the main source of environmental knowledge, it was supplemented by other sources. As the additional sources of information moved from more traditional, such as parents, to less traditional, such as the media, there was an increase in the confidence and the power of individuals to take action and effect environmental change. People who gained their knowledge of environments from traditional sources, such as parents, and relied on this knowledge rather than on combining it with more expert information seemed to feel less empowered to change conditions impacting on and harming environments.
Similarly to the Indonesian findings, one question the Maldivian findings raise is what role does school play as a source of environmental knowledge? Unlike the Indonesian community, the Maldivian community did have a good awareness of environmental issues. However, their actual knowledge of environmental issues was inaccurate. Does this mean that school students were being taught inaccurate information about environmental issues or are there other explanations for the lack of accurate knowledge and understanding?

Given that the Maldivian participants had inaccurate environmental knowledge, the question to be answered is: does the community value knowledge? The data presented and discussed to answer this question are from the survey questionnaire. The *importance of knowledge* scale relates to the importance the community attaches to knowledge and to the learning of facts and information. The mean for the Maldivian sample (n=199) was 4.05 with a standard deviation of 0.91 (1 = rarely, 2 = sometimes, 3 = fairly often, 4 = often, 5 = very often). These data indicate that the majority of the Maldivian sample (see Figure 4.18) valued knowledge from *fairly often* to towards *very often*. This is consistent with earlier findings because the Maldivian students interviewed considered environmental issues to be important and were aware of many issues. However, it still leaves the question why was the community's actual knowledge of environmental issues inaccurate? In addition, since school was the main source of environmental knowledge and knowledge was valued, why was the community’s environmental knowledge inaccurate? The answer to this question is discussed in section 4.6.5 in terms of culture and environmental attitudes.

Figure 4.18 is a frequency graph showing the distribution of respondents over the means for the *importance of knowledge* scale. It shows the majority response.
Figure 4.18 Percentage of Maldivian respondents for the importance of knowledge scale means.

4.4.5 Summary of Maldivian participants’ perspectives

The Maldivian interview participants represented a narrower range of environmental attitudes compared to those described in the literature and when compared with the findings of the questionnaire analysis. There was no evidence of biospheric or egoistic views as such, although elements of these views were recognised within the altruistic view found. In contrast the Maldivian questionnaire respondents ranged from being neutral about to agreeing with the biospheric perspective of the NEP. They ranged from being neutral about to strongly agreeing with the altruistic perspective while they ranged from disagreeing with to agreeing with the egoistic perspective. Some Maldivians agreed with the egoistic perspective of the NEP. As with the Indonesian sample it was suggested that methodological issues might be responsible for this difference in the range of views between the interview and questionnaire findings. This means that when participants were able to articulate their views fully, different meanings could be subscribed to them compared to those indicated by a statistical analysis of responses to statements made in a questionnaire. The Maldivian participants thought that, when there was conflict between the needs of people and the needs of environments, both the needs of people and the needs of environments should both be met but perhaps not equally – with human needs usually a priority. The Maldivian interview participants’ environmental attitudes varied in terms of their considering human needs in conjunction with minimising human impact on environments. The Maldivian questionnaire sample ranged from being neutral about towards agreeing with the New Environmental Paradigm. As with the Indonesian interview participants, the Maldivian participants exhibited anthropocentric environmental attitudes.

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The Maldivian participants demonstrated a narrow view of what they meant by the term *environment*. The majority viewed the term from an almost expert perspective but illustrated their view from an anthropocentric orientation, which is inconsistent with the overall view of an expert. The Maldivian interview participants recognised the integrated and interrelated nature of the term *environment* as well as its collective or pluralistic dimension. They seemed to present an essentially uniform and learnt view. The Maldivian participants predominantly interpreted environments in terms of human sociocultural environments although other types of environments were overtly recognised. The essentially anthropocentric range of environmental attitudes demonstrated by the Maldivian interview participants may be partially explained by their essentially anthropocentric view of the term *environment*.

The Maldivian sample demonstrated a good awareness of environmental issues however their actual knowledge was inaccurate. Both environmental awareness and environmental knowledge showed an anthropocentric orientation. As knowledge of environmental issues increased it was accompanied by a growing recognition of the importance of both local and global issues.

Schooling was perceived as the most common source of the Maldivian community’s environmental knowledge. For the Maldivian community, less traditional sources of knowledge such as schooling and the media were associated with a tendency to apply knowledge by taking personal action. The Maldivian community valued knowledge.

4.5 Comparison of the three communities

4.5.1 Environmental attitudes

This section reports the analysis of the data on environmental attitude for each of the three communities studied and highlights similarities and differences that emerge. In the case of statistical data, oneway analysis of variance (ANOVA) was used to compare means for each scale across the three communities. The results of these analyses are shown in table form for each scale followed by an overall comparison of all scales. A graphical
comparison concludes this section so that relationships between each measure are more easily seen.

The means for each community for the biospheric scale are compared in Table 4.24 and reflect attitudes towards environments from a deep ecological perspective.

Table 4.24
Biospheric Perspective Showing Means and Standard Deviations for Each Community

<table>
<thead>
<tr>
<th>Country</th>
<th>Mean (1 to 5)</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>3.64</td>
<td>0.59</td>
</tr>
<tr>
<td>(n=225)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>3.53</td>
<td>0.76</td>
</tr>
<tr>
<td>(n=211)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maldives</td>
<td>3.44</td>
<td>0.64</td>
</tr>
<tr>
<td>(n=199)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

One way ANOVA indicated statistically significant differences \([F(2,632)=4.75 \ (p < .01)]\) between means. Bonferroni Post Hoc tests show Australia to be significantly different \((p < .05)\) from the Maldives.

All means are above mid-point \((3.0)\) indicating all three communities show a pro-biospheric perspective for the questionnaire data. The Australian and Maldivian sample means are significantly different to one another with the Australian sample biospheric perspective significantly higher than that for the Maldivian sample. This indicates that the Australian sample consider environments as a balanced ecological system with limited scope for human intervention and abuse while the Maldivian sample did not agree as strongly with this view. The Indonesian view is in between and not significantly different from either of the other two communities. The standard deviation for the Indonesian sample is higher than those for the other communities indicating they hold slightly more diverse views for this scale.

The interview data for environmental attitude show that for both the Indonesian and Maldivian communities the biospheric perspective did not exist
as such but was viewed more as the *biospheric* end of an *altruistic* perspective suggesting that the Australian community has broader environmental attitudes which include a *biospheric* perspective. The findings from the interviews indicate that for the questionnaire analysis, the statistical allocation of data to predefined groups may be problematic, in that they may not represent the actual views of respondents.

The *altruistic* scale views attitudes towards environments as a compromise between the needs of humans and the needs of environments. The means for each community studied are shown in Table 4.25.

**Table 4.25**

*Altruistic Perspective Showing Means and Standard Deviations for Each Community*

<table>
<thead>
<tr>
<th>Country</th>
<th>Mean (1 to 5)</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>4.38</td>
<td>0.51</td>
</tr>
<tr>
<td>(n=225)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>4.30</td>
<td>0.56</td>
</tr>
<tr>
<td>(n=211)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maldives</td>
<td>3.97</td>
<td>0.70</td>
</tr>
<tr>
<td>(n=199)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Oneway ANOVA indicated statistically significant differences \(F(2,632)=27.27\) \((p < .01)\) between means. Bonferroni Post Hoc tests showed Australia and Indonesia to be significantly different \((p < .05)\) from the Maldives.

All means were high, indicating all three communities exhibited *pro-altruistic* views. The Australian and Indonesian sample means are higher and significantly different to the Maldivian sample mean for the *altruistic* perspective indicating that the Australian and Indonesian samples consider environments as a compromise between the needs of humans and the needs of environments while the Maldivian sample did not agree as strongly with this view. This finding, when interpreted in conjunction with the interview finding, that although the Maldivian participants viewed environments from a compromise perspective the weightings may not necessarily be equal, indicates that the Maldivian sample may hold a different view about the
balance between human and environmental needs rather than simply not agreeing as strongly with this view. The standard deviation for the Maldivian sample is higher than the other communities indicating the Maldivian sample held more diverse views for this scale.

The means for each community for the egoistic scale are compared in Table 4.26 and reflect attitudes towards environments as being dominated by human needs.

<table>
<thead>
<tr>
<th>Country</th>
<th>Mean (1 to 5)</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>2.03</td>
<td>0.73</td>
</tr>
<tr>
<td>(n=225)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>2.70</td>
<td>0.63</td>
</tr>
<tr>
<td>(n=211)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maldives</td>
<td>3.10</td>
<td>0.87</td>
</tr>
<tr>
<td>(n=199)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Oneway ANOVA indicate significant differences \([F(2,632)=111.56 \ (p \ < \ .01)]\) between means. Bonferroni Post Hoc tests show Australia, Indonesia and the Maldives all to be significantly different \((p \ < \ .05)\) from each other.

The mean for the Australian sample was low indicating that respondents centred on disagreement with the egoistic perspective and considered that environments should not be dominated by human needs. The Indonesian sample mean was higher than the Australian sample mean and ranged from disagreement with to being neutral about the egoistic perspective. The difference between the Australian and Indonesian level of disagreement with the egoistic perspective is statistically significant. The Maldivian mean for the egoistic perspective is relatively high compared to both the Australian and Indonesian means. This shows that the Maldivian sample tended to be neutral about agreeing with the egoistic perspective. The Maldivian agreement is statistically significantly different to both the Australian and Indonesian disagreement with the egoistic perspective. It would suggest that the
Maldivian sample’s concern for environments is more towards favouring human needs over those of environments. These findings are consistent with the findings and discussion for the biospheric and altruistic perspectives. The standard deviation for the Maldivian sample was again higher than for the other two countries indicating a more diverse view for this scale.

Comparisons of all three NEP scales were made across the three communities by allocating respondents a total NEP score as outlined in the method and graphing the means for each scale to enable visual comparisons of similarities and differences. The total NEP score aligns all three scales in the same direction, reflecting a pro-environmental perspective, by reversing the score for the egoistic scale (see section 4.2 above) and then adding each respondent’s scores for all twelve items and then dividing by 12 for ease of comparison with the individual NEP scale scores. The total NEP scores range from a possible minimum of twelve to a possible maximum of sixty. Table 4.27 shows the means for the total NEP score across all three communities.

Table 4.27

<table>
<thead>
<tr>
<th>Country</th>
<th>Mean (12 to 60)</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia (n=225)</td>
<td>4.00</td>
<td>0.46</td>
</tr>
<tr>
<td>Indonesia (n=211)</td>
<td>3.71</td>
<td>0.40</td>
</tr>
<tr>
<td>Maldives (n=199)</td>
<td>3.44</td>
<td>0.40</td>
</tr>
</tbody>
</table>

Oneway ANOVA indicated significant differences \[F(2,632)=92.85 \ (p < .01)\] between means. Bonferroni Post Hoc tests show Australia, Indonesia and the Maldives to all be significantly different \(p < .05\) from each other.

The mean for the Australian sample is the highest followed by the mean for the Indonesian sample with the Maldivian sample mean the lowest. This suggests the Australian sample exhibited the highest pro-environmental view while the Maldivian sample had the lowest pro-environmental view. The
Indonesian sample had a pro-environmental view in between. Although each community's total NEP score is significantly different from each other they are all above the neutral mean of 3 indicating that all three communities have environmental views consistent with the New Environmental Paradigm. That is, they are responding positively to the New Environmental Paradigm but to different degrees.

The overall NEP scores for each community need some explanation in terms of the interview data detailed above. When interviewed, Maldivian and Indonesian student teachers revealed a much narrower range of environmental attitudes than the total NEP scores would have predicted. The attitudes revealed by the interviews were anthropocentric and lacking a true biospheric and egoistic dimension. In some respects, the Indonesian and Maldivian communities were in conflict with a pro-NEP perspective despite the fact that the NEP questionnaire scores predicted they would be pro-NEP.

The graphical comparison of the three environmental attitude scales (biospheric, altruistic and egoistic) is shown in Figure 4.19 (standard deviations for each scale mean are shown in Tables 4.10, 4.15 and 4.20). It should be remembered that the data for the egoistic scale has been reversed to reflect a pro-environmental scale so that all scales can be summed to produce an overall NEP score. The graph represents all three scales in the same pro-NEP direction. Effectively, the egoistic scale is now a reverse-egoistic scale.

![Graph showing environmental attitudes](image)

*Figure 4.19* Comparison of all three environmental attitude scale means.
These data show an important trend. The reverse-egoistic value for the Australian community is higher than the altruistic value when compared to the reverse-egoistic and altruistic values for the Indonesian and Maldivian communities. This shows that, the Australian community has a different attitude towards environments compared to the other two communities. For whatever reason, both the Indonesian and the Maldivian communities are more anthropocentric in their environmental attitudes compared to the Australian community. They scored lower on the reverse-egoistic scale (higher on the egoistic scale) than the Australian community when compared to the altruistic scale. It is also significant that the direction of the graphs for all three scales is the same across the three communities. For each attitude scale, the values for the Australian community are the highest followed by those for Indonesia with those for the Maldives being the lowest. This may indicate a response set bias. Response set bias has been recognised by intercultural researchers (see for example Hui & Triandis, 1989; Watkins & Cheung, 1995; Watkins, 1996; Halse & Baumgart, 2000) and becomes an issue when there is a tendency for respondents from one culture to respond in a systematically different way to questions regardless of their content. However, the fact that the means for the egoistic scale were reversed to align with a pro-NEP perspective suggests that the NEP questionnaire was constructed to minimise response set bias and to make it obvious if this phenomenon was present. Specifically, the Maldivian sample means for the biospheric and altruistic scales were high while the mean for the egoistic scale was low when compared with the means for the other two communities. This demonstrates that the Maldivian sample did not respond consistently one way or the other. Consequently, the likelihood of a consistent response set bias, in terms of the mean for each community is reduced. However, other types of response set bias may exist, such as a modesty response and are discussed as these issues arise (see p. 180). Overall, these data show a consistent response for the three attitude scales for each of the three communities.

This study suggests there are problems with using the NEP questionnaire to determine environmental attitudes in non-western cultures. Both the questionnaire data and interview data for the Australian sample are consistent in all respects. Each source of data and each form of data analysis
show that the Australian sample exhibits a pro-NEP view of environmentalism. The NEP questionnaire seems valid for predicting a NEP view of environmentalism for the predominantly western Australian sample, but the data for the Indonesian and Maldivian samples are not consistent. It has been argued in this study, and elsewhere (Hui, & Triandis, 1985; Watkins, 1996) that there is a need to go beyond the questionnaire data, and predetermined groupings, to interview participants when dealing with communities of non-western cultural backgrounds when using western culturally based instruments. This view is supported by researchers in a number of different contexts (see, for example, Saljo, 1991; Watkins, 1996). The reasons cited are that western theories, constructs and measuring instruments, which are appropriate for western cultural contexts, are less valid for non-western contexts as they are based on different worldviews; different theories and different constructs (Enriquez, 1982; Hui & Triandis, 1985; Sinha, 1993). The questions included in the NEP questionnaire were written from a western perspective with culturally embedded assumptions about the educational and cultural background of potential respondents. The present findings suggest that these assumptions may not be valid and that the NEP questionnaire may not be a useful instrument when the cultural background of the sample is non-western.

An additional explanation for the inconsistencies identified between the questionnaire and interview findings, apart from the cultural base, might be that some individuals in communities may simultaneously hold competing views, as suggested by Corral-Verdugo and Armendarez (2000). From a western perspective these views may be competing but, from a non-western perspective they may not be. The findings of this study suggest that both pro-NEP and pro-HEP views have been identified in the non-western communities studied. Indicators of these competing views were identified only when they were allowed to permeate from the data. They were masked when allocated to predetermined identities such as the NEP scales. This finding has implications when analysing data from communities where language, beliefs, values and attitudes are different. Consequently, these aspects of each community need to be examined to ascertain their impact on environmental attitudes.
4.5.2 Views of the term environment

This section compares how each community defined and used the term environment in relation to their environmental attitudes. Overall, the greatest variation was exhibited by the Australian sample, which was also distinguished by the use of examples predominantly from natural environments and, in some cases, solely from natural environmental components. In contrast, the Indonesian sample used examples predominantly from built and sociocultural components almost to the exclusion of examples from natural environments. Both the Australian and Indonesian samples’ views differed from the Maldivian sample’s perspective, which tended to most closely resemble the definition of environment used by experts and indicating that the Maldivian participants could have an equally expert view of environmentalism. However the Maldivian, as well as the Indonesian participants’ views were characterised by an anthropocentric perspective while the Australian sample’s views were more ecocentric in their perspective. Table 4.28 shows the main differences in views of the term environment across the three communities investigated.

This comparison reinforces the previous finding that there is a diverse range in the Australian community’s view of the term environment. It was reasoned that this may be because Australians experience a variety of life experiences, that they have an outgoing way of life, which generates a view of the world that is diverse. It was also suggested that one of the reasons the Australian community is able to sustain this lifestyle is because they are relatively wealthy compared with other countries in the study. Australians have enough money to be able to afford life-broadening experiences. The anthropocentric nature of the Indonesian and Maldivian samples’ views is also highlighted by this comparison. It is possible that the reverse situation may partially explain this finding. It may be that the Indonesian and Maldivian participants do not have the breadth of life experiences – that they have a way of life which generates a narrower view of the world. This possibility will be explored with the analysis of the intercultural understanding scales to follow. The reason for the Indonesian and Maldivian participants limiting their definitions of environments to built and sociocultural dimensions will also be explored.
<table>
<thead>
<tr>
<th>Country</th>
<th>Characteristics used to rank views</th>
<th>Main differences in comparison to other communities studied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Intersection of:</td>
<td>• greater range of breadth, integration and plurality compared to both Indonesia and Maldives</td>
</tr>
<tr>
<td></td>
<td>• breadth of view</td>
<td>• use mainly natural examples compared to Indonesia</td>
</tr>
<tr>
<td></td>
<td>• integration and interdependence</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• plurality of the concept</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>• breadth of view</td>
<td>• broad, integrated, and plural compared to Australia</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• use mainly built examples compared to both Australia and Maldives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• anthropocentric compared to Australia</td>
</tr>
<tr>
<td>Maldives</td>
<td>• plurality of the concept</td>
<td>• broad and integrated compared to Australia</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• use mainly sociocultural examples compared to Australia and Indonesia</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• anthropocentric compared to Australia</td>
</tr>
</tbody>
</table>

The consistency of the finding that the Indonesian and Maldivian communities exhibit anthropocentric views and attitudes about environmentalism suggests that this perspective may be deeply embedded in the identity of these communities and therefore how they see the world. The fact that the Indonesian and Maldivian communities limited their environmental definitions and illustrated their views with examples from built and sociocultural environmental components is consistent with this attitude toward environments. However, these findings pose the question: why did the Maldivian sample, in both the questionnaire and the interviews, provide data that suggest they do not hold pro-environmental views that are as strong as the other communities? This is despite the fact that the Maldivian sample said the environment was important and should be viewed from a balanced perspective. It may be that the Maldivian sample’s tendency to illustrate their environmental views with examples of a sociocultural nature is significant. That is, the Maldivians interviewed may view their world from a more anthropocentric perspective than the Indonesians interviewed. This
perspective is more consistent with a pro-HEP view of environmentalism although the Indonesian sample also showed this tendency.

4.5.3 Environmental knowledge
This section compares the level of environmental awareness held by each community as well as the accuracy of this knowledge and how each community regards the relative importance of local and global environmental issues. Table 4.29 shows the means and standard deviations for self-reported environmental knowledge across the three communities.

Table 4.29
Self-Reported Environmental Knowledge Showing Means and Standard Deviations

<table>
<thead>
<tr>
<th>Country</th>
<th>Mean (1 to 5)</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>2.90</td>
<td>0.70</td>
</tr>
<tr>
<td></td>
<td>(n=225)</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>3.29</td>
<td>0.64</td>
</tr>
<tr>
<td></td>
<td>(n=211)</td>
<td></td>
</tr>
<tr>
<td>Maldives</td>
<td>2.99</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td>(n=199)</td>
<td></td>
</tr>
</tbody>
</table>

Oneway ANOVA indicated significant differences \( F(2,632)=24.24 \ (p < .01) \) between means. Bonferroni Post Hoc tests showed Indonesia to be significantly different \( p < .05 \) from Australia and the Maldives.

The mean for the Indonesian sample is highest followed by the mean for the Maldivian sample with the Australian sample mean lowest. The data indicate the majority of the Indonesian sample (see Figure 4.20) considered their environmental knowledge was fair to good while the majority of the Maldivian sample (see Figure 4.21) and Australian sample (see Figure 4.22) considered their environmental knowledge to be little to fair. However, although the Indonesian mean is significantly different to the Australian and the Maldivian means the difference, in absolute terms, is not great. Effectively, the majority of all three communities indicated that their environmental knowledge centred on fair with means about 3.0.
Figures 4.20, 4.21 and 4.22 are frequency graphs showing the distribution of respondents over the means for knowledge scores. These graphs show where the majority for each distribution is located.

**Figure 4.20** Percentage of means for Indonesian self-reported environmental knowledge scores

**Figure 4.21** Percentage of means for Maldivian self-reported environmental knowledge scores

**Figure 4.22** Percentage of means for Australian self-reported environmental knowledge scores

These findings contrast with those from the interview data. The awareness of environmental issues (knowing that an issue exists) for the Australian sample ranged from very aware with good and accurate knowledge (knowing information about the issue) to very little awareness and poor accuracy of knowledge. The Indonesian sample was not as wide ranging in their views with the majority having little awareness and little accurate knowledge of environmental issues. The Maldivians were, compared with the other communities, the most aware of environmental issues. However, the accuracy of that knowledge was about the same as for the Indonesian sample. Table 4.30 compares the awareness and accuracy of knowledge, as
well as the relative importance of local and global environmental issues for the three communities studied.

It has been suggested that the reason the Australian participants felt they knew little about environmental issues, when in fact they were aware of many issues and had an accurate knowledge of them was because they did not want to overtly espouse knowledge. They did not want to be seen to value knowledge. The reason for this may be attributed to the Australian community’s identity and how they view the world. This possibility will be explored with the analysis of the intercultural understanding scales that follow. Another possible explanation is that the Australian respondents considered their knowledge small compared with the totality of knowledge available for a given environmental issue. Respondents from Indonesia and the Maldives might not have perceived the totality of knowledge as being so large.

Table 4.30
Comparison of Main Differences in Environmental Knowledge

<table>
<thead>
<tr>
<th>Country</th>
<th>Characteristic used to generate outcome space</th>
<th>Main differences compared to other communities</th>
</tr>
</thead>
</table>
| Australia| awareness and accuracy of environmental knowledge | • generally good but varied awareness, varied accuracy  
• equal importance of local and global issues  
• knew more than they indicated |
| Indonesia| relative importance of local and global environmental issues | • poor awareness and inaccurate knowledge  
• generally global issues more important than local issues  
• anthropocentric, knew less than they indicated |
| Maldives | relative importance of local and global environmental issues | • good awareness but inaccurate knowledge  
• generally global issues more important than local issues  
• anthropocentric |
It was also suggested that the reason the Indonesian participants thought they knew about environmental issues, but were not aware of many of them and did not know very much about those of which they were aware, was because they were keen to be seen to have knowledge even if they did not. The Indonesian participants did value knowledge and were keen to be seen to have knowledge. Again, the reasons for this may be part of Indonesian identity and will be explored with the analysis of intercultural understanding scales. Another suggestion that will be explored by the analysis of the intercultural understandings scales is that the reason the Maldivian participants have an awareness of environmental issues yet have inaccurate knowledge of them is because they are concerned with how environmental issues affect them (people) rather than understanding the issue itself.

4.5.4 Sources of environmental knowledge
Definitions of the term environment and how much is known about environmental issues have been compared for each community. This section compares the sources of environmental knowledge for the participants in each community and the reasons why this knowledge was obtained.

4.5.4.1 Comparison of sources of environmental knowledge across communities
For the Australian participants, the main source of environmental knowledge was life experiences, which was in contrast to that of the Indonesian and Maldivian participants, which were grounded in school experience. When school experiences were complemented by expert information from reading and the media, views tended to be less anthropocentric and more consistent with preserving environments and reducing human impact. However, if school experiences were complemented by less expert information from parents and the limited experiences of traditional surroundings, then views developed were more anthropocentric and individuals felt less empowered to act and reduce human impact on environments. Effectively, broadly based and informed knowledge was more likely to produce pro-environmental views. Conversely, less worldly knowledge derived from familiar surroundings did not promote greater understandings of environments and was likely to produce traditional responses to environmental issues as well as feelings of futility and a lack of empowerment for individuals to act.
Throughout this study the outcome space for a stated phenomenon has been grounded in the data and so the criteria used for analysis has been different for different communities. Consequently, attempts to directly compare one community context with another is difficult when using phenomenographic analysis. However, for this phenomenon, source of environmental information, the criteria used across all three communities were very similar and so a direct comparison can be justified. Figure 4.23 shows the relationship between the sources of environmental knowledge (see Tables 4.13, 4.18 and 4.23) and the views about environments that participants subsequently develop. The position of each community is indicated across these views.

Sources of Environmental Knowledge

worldly
(overseas travel, media)

schooling
(reduce impact)

less-worldly
(parents, usual surroundings)

maintain environments
(no further harm)

(reduce further harm)

powerless to institute change
(follow traditions)

Australian
(see Table 4.13)

Indonesian (see Table 4.18)

Maldivian (see Table 4.23)

Figure 4.23 The relationship between sources of environmental knowledge and environmental views.

4.5.4.2 The implications of life experiences for the Australian sample's environmental knowledge

The evidence presented in this section suggests answers to some of the questions raised earlier. The Australian participants all said they obtained most of their environmental knowledge from the variety of life's experiences. This would suggest a possible explanation for the diversity of the Australian
sample's responses when defining the term environment. The diversity of Australian experiences was so great, overseas travel, outdoor recreation, the influence of other people especially family, place of residence and information from the media including television, magazines, newspapers and books (worldly), that it would seem likely to produce the variety of environmental definitions stated earlier.

If it is part of a community's way of life to explore their world through travel and pay for information via various forms of the media, then the perspective generated is likely to be very different from a community that sees learning about environments and environmental issues as formal study. A culture that learns about such issues as part of their leisure or as a form of entertainment will have the resources to do so. The form the resources take is also important. Time, money and technology are a prerequisite for this form of education – time to travel, time to read, time to watch television and time to explore environments – as well as the money to provide the technology with which to do it. Non-essential funds for travel, to buy books, magazines, and other associated expenses are a resource that must be accessible. A culture that has the capacity to integrate these activities into its fabric, to provide its population with comparatively expensive experiences, will be a different culture to one that does not. Therefore, money or affluence is a factor that influences worldview and, subsequently, influences views on environments and environmental issues.

A worldview that is, in part, shaped by and a product of worldly life experiences where people actively seek out and engage with a diversity of environments that influence views on environments and environmental issues brings with it a sense of active engagement in learning about environments. With the Australian sample, this active involvement in acquiring knowledge of environments has implications for environmental education. It suggests that, in cultures like Australia, environmental education may be more productively taught by actively involving students in learning about environments – by using a life relevant active pedagogy. The evidence suggests that environmental education may be more productively taught with students 'out there' in environments being actively involved and
engaged by environments and environmental issues. This suggestion needs to be investigated further although it is consistent with the NSW Environmental Education Curriculum Statement K-12 (NSW DSE, 1989).

4.5.4.3 The implications of schooling and curriculum for the Indonesian and Maldivian sample’s environmental knowledge

All the Indonesians and Maldivians sampled said they obtained at least some of their environmental knowledge from school rather than from travel and other broader, world experiences. Therefore, a possible explanation for the Indonesian and Maldivian samples using built and sociocultural environmental components as their examples when defining environments, to the exclusion of natural components in many instances, is that this was what they had been taught at school and are the components reinforced by their everyday lives.

The Maldivian Environmental Studies Primary Syllabus (Educational Development Centre, undated, pp. 1 - 2) states that environmental studies is about the people and the effect of their life on the environment ... awareness of social and cultural issues ... respect for the natural world and for individual people and cultures ... negotiation and conflict resolution skills, and the ability to identify and clarify values.

The syllabus goes on to develop the structure of environmental studies in terms of five units: People, Earth, Living Things, Changing World and Interdependence (Educational Development Centre, undated). Many of these units are elaborated upon in terms of a human perspective. For example, the unit on People has three sub-sections: Health and Nutrition, Population and Myself. The unit Interdependence is divided into four sub-sections: Fishing and Agriculture, Communication, Trade and Aid, and Tourism (Educational Development Centre, undated). These examples show that the Maldivian Environmental Studies Primary Syllabus is organised in terms of impact on humans – human interests and human endeavours. The sub-section dealing with the Earth, which is one of the more biospherically centred units, has as an objective, “to develop an understanding of the importance of the main
components of the Earth to human life" (Educational Development Centre, undated). The inclusion of the phrase "to human life" focuses this objective from a human perspective. Another example of the anthropocentric perspective embedded in the syllabus is the unit *Changing World*, which has an objective to "study the stages of development of the resources, energy, transport and technology in the Maldives, and the impact of these stages on the standard of Maldivian life" (Educational Development Centre, undated). These are not isolated examples and they have not been extracted out of context. They are representative of a syllabus which, to its credit, is wide ranging and makes every effort to present a balanced perspective on environmentalism. However, the syllabus does tie even its study of natural environments to human needs and interests. Each of the Maldivian participants in this study had studied environmental education from this perspective. If not at school, then as part of their teacher education training which included study of the syllabus.

There is no national or compulsory Environmental Education or Environmental Studies subject in Indonesia. However, since 1994 (although the curriculum was developed in 1993) provision has been made, as part of the National Curriculum, for locally developed subjects (*Muatan Lokal*) to be included as part of the curriculum (Badan Penelitian dan Pengembangan Pendidikan dan Kebudayaan Depdikbud, 1993). It is in this form that subjects have been developed to incorporate environmentalism. One such subject is called *Local Life and Environmental Education*, which takes on the perspective of its local community. For example, if this subject were taught in a school in Surabaya it would incorporate issues specific to the city of Surabaya. Regardless of local content, all subjects developed as a result of this initiative have to comply with three restrictions as outlined below:

First, the topics have to be not antagonistic with the principle of national ideology and religion and match with students' development level and must be familiar to students. Second, the topics have to enable students to grow their sense of beauty and improve the student's and community's cleanliness, health, discipline, safety, familiarity with the local community, match environmental
conservation projects and improve their will to work. Third, the topics must fit in with schools and with their local needs. The topics must be able to achieve the national education aims, be accepted by parents, social community and the city government ... (Badan Penelitian dan Pengembangan Pendidikan dan Kebudayaan Depdikbud, 1993).

Consequently, environmental education subjects or curricula developed in response to the Muatan Lokal avoid the incorporation of contentious environmental issues that have the potential to criticise governments (Badan Penelitian dan Pengembangan Pendidikan dan Kebudayaan Depdikbud, 1993) and therefore “they (curriculum developers) cannot develop a curriculum for fostering critical thinking” (Depdikbud, 2001). The result of these restrictions on curriculum development have produced a view of environmental education where the aim of the Local Life and Environmental Education subject was to develop good, healthy, clean and disciplined citizens who can actively perform the positive role of realising the beautiful city of ... (insert specific city name). To foster among the students the desirable attitudes and actions that are necessary to create a beautiful, safe and clean environment (Kanwil Depdikbud DKI Jakarta, 1993).

This evidence suggests that in both Indonesia and the Maldives the nature of the environmental education/studies curriculum does impact on how the term environment is viewed and goes some way to establishing that source of environmental knowledge influences how environmentalism is viewed. This is likely to be the case, even when individual participants have not studied environmental education specifically as part of their school experience, since it is the dominant view of the time and will, therefore, filter through other aspects of the curriculum, since environmental education, as such, is not taught. In the case of the Indonesian community, as with the Maldivian community, participants would have studied this curriculum material as part of their teacher training. The contents of the environmental education curriculum also provide further insights into why the Indonesian sample viewed environments from an anthropocentric perspective, and used local
examples, and why the Maldivian students, although viewing environments from an anthropocentric perspective, were more globally aware. In the case of some of the Indonesian sample, local traditional experiences were sources of environmental knowledge. The connection between environmental attitudes and local contexts related to traditional customs and cultural practices has, at least in part, been shown to be a possible consequence of political restrictions placed on curriculum development. However, another possibility is that the Indonesian students interviewed lived in urban environments with little opportunity or resources to travel, and therefore, that some of the Indonesian students interviewed may have limited their examples to local experiences and so only cited examples of the built and sociocultural components of environments. This is consistent with the finding of Gooch (1995) who found that support for the NEP was much greater in Sweden than in the neighbouring countries of Latvia and Estonia. However, the level of concern about local environmental issues was much higher in Latvia and Estonia than in Sweden. An explanation offered by Gooch for this difference was that local environmental issues more directly affected the Latvians and Estonians but were not reflected in support for the NEP. The implication is that a more pro-NEP view reflects a more global than local perspective on environmentalism, which may help explain the Indonesian and Maldivian samples having lower NEP questionnaire scores.

In contrast to the Indonesian examples, the Maldivian participants had the advantage of both a formally taught environmental studies curriculum and personal experiences, as a result of living on low-lying islands which may be subject to sea level rises from global warming (United Nations General Assembly, 1989; United Nations Environment Programme, 1990). These data suggest that the unique geographical location and topography of the Maldives would generate interest in environmental issues from the perspective of self-interest or even self-preservation. Consequently, when studied formally in schools, students would be inclined to more readily relate to and so become aware of many environmental issues. The finding that accuracy of their knowledge was not great suggests that either what they were taught was not accurate or that the detail of the issue was not important
to them or that even after being taught in school alternative conceptions persisted (see for example, Wandersee, Mintzes & Novak, 1995).

These findings add weight to the argument that individuals in the Maldivian sample may hold both pro-NEP and pro-HEP views. This is reinforced by the fact that the Maldivian participants defined the term environment in ways closest to those of experts yet viewed environments from an anthropocentric perspective. It also indicates that the Maldivian community may move between the views acquired informally through daily life and cultural practices, and the fundamentally different views acquired through formal schooling. This is a common phenomenon in everyday life. For example, people see a sign on the beach, which says “No Animals Allowed” and then proceed onto the beach. In everyday life people do not see themselves as animals but when they move into formal, academic reflection they do recognise humans as animals. Thus, it is possible that formal and informal learning promotes the simultaneous development of pro-NEP and pro-HEP views but does not facilitate the reconciliation of the differences between the two paradigms. This phenomenon may not be restricted to any one community or culture but the potential to resolve conflicting views may have a cultural dimension.

Whilst an anthropocentric perspective is evident amongst both the Indonesian and Maldivian samples, there may be different reasons for this in each community. It would follow, from the previous point that Maldivians feel they live at the mercy of their environment (United Nations General Assembly, 1989; United Nations Environment Programme, 1990). The greenhouse effect, contributing to global warming, may cause the sea level to rise and so threaten the existence of some Maldivian islands. The instinct to survive can be a very powerful motivator that might influence perspectives on environmental issues. Yet, some of the Maldivian sample also showed an ecocentric orientation that may be a consequence of developing a holistic, interrelated and ecological perspective on environmentalism resulting from formal learning in school and reinforced by the practical, everyday experience of living a metre or two above sea level.
For the Indonesian sample it would seem that the lack of awareness of environmental issues was a result of students not being taught about environmental issues as part of an environmental education curriculum. Yet, the Indonesian participants said they had learnt about environmental issues at school. One possible reason for this inconsistency could be attributed to the development of a different view of what constitutes environmental education. The Indonesian sample was taught from an environmental perspective that saw environmentalism as developing good, healthy, clean and disciplined citizens who can actively ... create a beautiful, safe and clean environment (Kanwil Depdikbud DKI Jakarta, 1993). This view of environmentalism is very different from those discussed in Chapter 2 and is anthropocentric in perspective, especially because it encourages humans to 'create' an environment. The environment the Indonesian students were talking about appears to be very different to the one, say, the Australian students had in their minds. In essence, the Indonesian students probably did know a lot about environments; they were simply different environments to those assumed to be the basis of this study. It would, therefore, appear that the Indonesian sample's lack of accuracy about the environmental issues explored in this study might be because these issues were not dealt with in the school's environmental education curriculum and that the students had limited personal environmental experiences to promote environmental understandings outside the school curriculum. It may also be that environmental education is not taught in some schools. Although there is research available about what is and is not taught in Australian schools to substantiate this claim (Skamp, 1996), there is very little environmental education research from either Indonesia or the Maldives, particularly about environmental education practice.

As has already been discussed, the Australian sample thought they knew little about environmental issues yet actually seemed to have a good knowledge of them. A possible explanation for this was that Australian participants may have been exposed to a broad spectrum of experiences that inform their knowledge of environmental issues. If this is the case, the breadth of experience may have led to an awareness of a broad range of issues. In addition, the accuracy of the environmental knowledge held by the
Australian sample might be a result of the interaction of diverse views combined with formal instruction in schools. However, because the Australian sample’s experiences are so diverse and gathered independently of one another, individuals do not know where their knowledge stands in comparison to others. As one of the Australians interviewed said, “You don’t go around talking about things like that (environmental issues) in general conversation, do you?” At this stage the hypothesis that the Australian community studied were unable to gauge the extent of their environmental knowledge because they did not make comparisons with others, is suggested by the data but will need to be examined more closely as information about Australian culture is examined.

One further question is: why did the Indonesian and Maldivian samples cite school as their main source of environmental knowledge yet only a few Australian participants cited schooling. Instead, the Australian participants cited overseas travel, the media and other personal experiences even though environmental education is a mandatory cross-curriculum subject in schools attended by the sample in this study. Perhaps this difference can be explored in terms of the value each community places on, or the importance of, knowledge.

4.5.4.4 The importance of knowledge and its implications for environmental knowledge

The data presented and discussed in this section is from the survey questionnaire and extracted from the Intercultural Understandings instrument (Halse & Baumgart, 1995, 1999, 2000) and relates to the importance attached to knowledge and to the learning of facts and information (see p. 62 for the three questions that compose the importance of knowledge scale). The means and standard deviations for this scale are shown in Table 4.31 along with the Cronbach alpha values, which indicate the internal consistency of the scale for each community.
Table 4.31
Importance of Knowledge Across Three Communities

<table>
<thead>
<tr>
<th>Country</th>
<th>Mean (1 to 5)</th>
<th>Standard Deviation</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>3.62</td>
<td>0.79</td>
<td>0.72</td>
</tr>
<tr>
<td>(n=225)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>3.83</td>
<td>0.74</td>
<td>0.65</td>
</tr>
<tr>
<td>(n=211)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maldives</td>
<td>4.00</td>
<td>0.98</td>
<td>0.79</td>
</tr>
<tr>
<td>(n=199)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All means are high with one-way ANOVA indicating significant differences \(F(2,632)=11.07\) \((p < .01)\) between means. Bonferroni Post Hoc tests show Australia to be significantly different \((p < .05)\) from the Maldives and Indonesia. The mean for the Australian sample is the lowest, indicating that the Australian sample did not consider that Australians rated knowledge and facts as highly as the other two communities. However, the standard deviation for the Maldives is higher than the other countries, indicating a more diverse view for this scale. This is consistent with data discussed earlier and suggests that the Maldivian sample had a greater diversity of view about the importance of knowledge compared to the Australian and Indonesian samples. Figure 4.24 shows a graphical comparison of the means for the three communities studied (standard deviations were: Australia 0.79, Indonesia 0.74 and Maldives 0.91).

![Graph showing comparison of importance of knowledge scale means](image)

*Figure 4.24*  Comparison of importance of knowledge scale means.
The fact that the Indonesian sample valued knowledge indicates why they felt they knew about environmental issues. If a community values knowledge, then members of that community would feel it desirable to have knowledge. Therefore, they may have responded as if they knew about environmental issues because they would think it desirable to create a positive impression. This is in addition to the argument that the Indonesian participants may have had knowledge of environments – their knowledge being different to the knowledge expected in this study. The fact that the Australian sample did not value knowledge as highly as the Indonesian and Maldivian samples is also consistent with the earlier discussion. If a community does not value knowledge highly, it is not important to create the impression of having knowledge, even if they do (see ‘modesty/humility hypothesis’ Halse & Baumgart, 2000). It is not surprising then that the Australian sample actually knew more about environmental issues than they indicated. Since most human characteristics are complex, having more than one dimension, it is not suggested that this is the only reason for the Australian sample saying they did not know much about environmental issues, but the data would suggest it may be one reason.

The fact that the Indonesian and Maldivian samples cited school as their main source of environmental knowledge is also consistent with the fact that these communities value knowledge, since school is a major site for learning and was where the Indonesian sample acquired its knowledge. However, this point could only be confirmed by asking the question, is school where you learnt about environmental issues? This question was not asked and so a more definitive conclusion is not possible from the data collected.

4.5.5 Relative importance of needs of humans and environments
An attempt to capture a snapshot of respondents’ views on the relative importance of human needs and environmental considerations was made with a single question. As stated earlier the purpose of this snapshot was to triangulate findings from the environmental attitudes scales and those from interviews. Table 4.32 shows the means and standard deviations for this single item so that they can be compared for all three communities.
Table 4.32

Needs of People and Needs of Environments Showing Means and Standard Deviations

<table>
<thead>
<tr>
<th>Country</th>
<th>Mean (1 to 5)</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>3.37</td>
<td>0.68</td>
</tr>
<tr>
<td>(n=225)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>3.09</td>
<td>0.63</td>
</tr>
<tr>
<td>(n=211)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maldives</td>
<td>2.91</td>
<td>0.73</td>
</tr>
<tr>
<td>(n=199)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

One way ANOVA indicates significant differences \[ F(2,632) = 24.73 \ (p < .01) \] between means. Bonferroni Post Hoc tests show Australia, Indonesia and the Maldives to all be significantly different \( (p < .05) \) from each other.

The mean for the Australian sample is the highest followed by the mean for the Indonesian sample with the Maldivian sample mean the lowest. All three communities having means around 3.0 (although significantly different from one another) indicates that both environmental considerations along with the needs of people should be met but to different degrees. This is consistent with the findings for total NEP scores.

Although derived differently and independently, the total NEP scores and the scores for the relative importance of the needs of people and the needs of environments scale reflect similar worldviews or ideologies. The consistency of these scales as a measure of this worldview can be assessed by comparing means for the total NEP scores with those for the needs of people and needs of environments scores for each of the three communities studied. Figure 4.25 compares the means for both these scales (standard deviations for total NEP scores/ needs of people and needs of environments scores were: Australia 0.46/0.68, Indonesia, 0.40/0.63 and Maldives 0.40/0.73).
Figure 4.25 Comparison of means between total NEP scores and needs of people and needs of environments scores.

The means for both measures follow a similar pattern. The Australian mean is the highest for both measures while the Maldivian mean is the lowest for both measures. The Indonesian means are in between. This indicates that, overall respondents were consistent in their answers to questions for both scales. This comparison substantiates the argument developed earlier that it is only when interviews probe the views of participants that the nature of differences emerges. The statistical findings are consistent but the real story is in the detail of what people think and in the reasons for their thinking. Much of this detail is a product of who people are and how their views are shaped – their cultural identity.

Diversity in responses between communities was evidenced in three ways. Indonesian respondents did not use the full response scale available compared to the Australian and Maldivian respondents. Secondly, the Indonesian students tended to assign higher ratings to questions than Australian and Maldivian students. The third type of diversity in responses was associated with what might be called the ‘modesty’ or ‘not wanting to brag’ tendency of Australian students. This third type of diversity of response has implications for the Australian data analysis and its interpretation especially when making comparisons with other cultures because it is a cultural feature peculiar to the Australian sample. This final point will be
explored more fully in the context of the analysis of the inter-cultural understandings data.

4.6 Inter-Cultural Understanding

Having analysed the ICUE questionnaire instrument as part of the pilot study and established four scales (importance of knowledge, change through intervention, independent thought and action and symbolic and inner self) it was decided to explore these cultural dimensions during the interviews. As outlined in Chapter 3, this was because there were a large number of cultural dimensions that could be explored and that the limits of time and the fact that the interview data would be analysed and examined in conjunction with the questionnaire data meant that this would provide the most complementary set of data with which to work. The interview questions asked participants to talk about the views of people in their country rather than their personal view. However, many participants illustrated their response with personal examples. This section outlines the findings for three of the four scales identified from the ICUE questionnaire – the importance of knowledge scale having been described and discussed earlier in context with the discussion on environmental knowledge.

The interview data lead the discussion for each community. Each community generated a set of categories of description that described the views expressed by that community for each of the three ICUE scales. The outcome space for each scale was achieved using an appropriate characteristic, grounded in the data, to rank them hierarchically. Similarities and differences from the interview findings for the three communities studied are identified, discussed and explained in context when there was a need, however, most comparisons are made after each community is discussed independently.

Oneway analysis of variance was used to analyse the questionnaire data. Means for each of the three scales were compared across all three communities. The results of these analyses are shown in table form for each scale with comparisons being made graphically for all three scales. Interview findings were then compared with the findings from the questionnaire.
4.6.1 Australian Inter-Cultural Understanding

4.6.1.1 Change Through Intervention

The change through intervention scale relates to the priority placed on a future-oriented, technological society that sees human action and intervention as necessary to bring about change and improvement. When interviewed, the Australian sample generated three different categories or views about change through intervention which were achieved by hierarchically ordering views in terms of technology driving change to improve the lives of people (Table 4.33).

Table 4.33
Change Through Intervention for Australian Participants

<table>
<thead>
<tr>
<th>Defining Elements of Change Through Intervention</th>
<th>Number of Participants (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. change may or may not be important and useful but technology is not</td>
<td>1</td>
</tr>
<tr>
<td>1. technology will not produce a better future</td>
<td></td>
</tr>
<tr>
<td>1. people, rather than technology should direct change</td>
<td></td>
</tr>
<tr>
<td>2. technology is important and can be useful and may or may not promote positive change</td>
<td>4</td>
</tr>
<tr>
<td>2. people should be responsible for change and purposefully use technology rather than technology driving change</td>
<td></td>
</tr>
<tr>
<td>2. change driving technology can improve people’s lives but it may not</td>
<td></td>
</tr>
<tr>
<td>3. technology is important and useful and promotes positive change</td>
<td>5</td>
</tr>
<tr>
<td>3. effective use of technology involves critical analysis of applications to make appropriate choices</td>
<td></td>
</tr>
<tr>
<td>3. technologically driven change can improve the lives of people</td>
<td></td>
</tr>
</tbody>
</table>

The participant with a view in category one said Australians think that technology will not produce a better future and that change could be useful but it might not be. This person said people, not technology, should direct change and that people think they should be in control:

In medicine, technology helps a great deal in curing disease and producing better nutrition in food. But, people appreciate the natural
things, the basics of life rather than seeing technology as the solution. ... I tend to have a negative outlook on the way the world’s developing. It’s becoming really technologically advanced and forgetting other parts including people. ... People think the world is interested in money and business and advancing into the future. But people should care about people. We seem to think technology is the solution. There’s the ‘Big Brother’ effect; somebody wants to control us. It’s not for me. People have their own thoughts and their own opinions. People should tell technology what to do. People think technology’s important but it’s not.

The four people with views in category two said that people think change could be useful but they also think it might not be. They said technology might be useful as a change agent but it might not be. This group thought that ultimately people are responsible for change and that, at times, people choose to use technology as their agent to drive change, whether the resulting change is for better or for worse. Consequently, they concluded that change driving technology could improve people’s lives but it might not:

People believe technology can cause change. Like, we didn’t have the rockets going up when we were growing up but they do now. And, although they say it’s not the cause of the hole in the ozone layer, it has got to have some effect. ... We think some change is useful, some not. Is a mobile ‘phone useful? It might be harmful, but we choose to use it or not. Do we really want to be contacted all the time? But, we choose to keep developing communication technology.

People think some change is useful and necessary. Athletes running faster isn’t necessary. It’s not a must but finding new medicines is. But, we choose to develop technology to do these things, even if they aren’t necessary.

The five participants with views in category three thought people think change is important and useful. They also thought that Australians think technology is important and useful and promote positive change. However,
the most effective use of technology will involve critical analysis of different applications and making appropriate choices among alternatives. Moreover, the view of those in this category was that Australians believe that technologically driven change can improve the lives of people:

People believe technology makes the change. A lot of changes occurring today are directly from technology; better forecasting and knowing which way the winds are blowing. ... We're not afraid of change but we do think we need to think about change. Sometimes there are different alternatives. We need to think about them to get the best one.

We think change is necessary because we make advances through it, like when antibiotics came along. ... I think technology is important for change. We can't change things without technology. ... We think it improves the quality of life.

The main divergence in views for the Australians interviewed was in the usefulness of technology and its ability to drive change rather than people being more in control of change. There was a relationship between the acceptance of change and the usefulness of technology. People who thought that Australians accept change more readily also thought that they find technology useful for promoting change. However, there was a general view that both change and applications of technology need to be critically reflected upon rather than just accepted. An issue that this finding raises is: why did the participants think Australians should be critically reflective? One hypothesis is that those interviewed thought Australians live in a technologically advanced world. Consequently, life has been made easier and there are improved living standards. However, the resultant pressures impinge on life-style and make life increasingly more directed by the technology introduced by governments and commercial systems rather than allowing people to be free to choose the level and degree with which they interact with technology.

These findings suggest that the participants interviewed thought Australians are interventionist and use both technology and themselves (people) to drive
change. That is, they search for better solutions to problems and embrace the changes that result. However, some participants interviewed wished to have more voice in the process of change and be in control of outcomes while others were less concerned with the issues of voice and control.

4.6.1.2 Independent Thought and Action

The independent thought and action scale relates to an approach to knowledge where people are encouraged to understand the world for themselves, to build from past experiences, to develop their own ideas and to question or be critical if necessary. Nine of the ten Australians interviewed felt Australians hold their own views on issues and that these views are based on first hand life experiences. They also said these experiences are many and varied and, consequently, the views held are the result of complex interactions. The area of difference between participants was in terms of the level and extent of critical analysis used to arrive at views and the subsequent degree of independence of views held. Consequently, three different categories of independent thought and action were generated by analysing the responses of the Australian participants as shown in Table 4.34. The degree of independence from the influences of others in developing views was used to generate the categories.

Table 4.34
Independent Thought and Action for Australian Participants

<table>
<thead>
<tr>
<th>Defining Elements of Independent Thought and Action</th>
<th>Number of Participants (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 • views reflect social and cultural influences, particularly the media with people not explicitly thinking for themselves or seeking first hand experiences but relying on others which is not how it should be, but how it is.</td>
<td>1</td>
</tr>
<tr>
<td>2 • people form their own views but are guided by social and cultural influences and accept the experiences of others while relying less on personal experiences</td>
<td>4</td>
</tr>
<tr>
<td>3 • people should develop independent views based on concrete first hand experiences and critically evaluate social and cultural influences. People should say what they think but have open minds and recognise that people are different and develop tolerance of difference.</td>
<td>5</td>
</tr>
</tbody>
</table>
The person with the view in category one said experiences and views are the product of social and cultural influences, particularly the media, which tell people about the world. This participant thought that people generally believe what they are told and do not think for themselves or seek first hand experiences. Although this was the view expressed by the person in this category, it was not necessarily desirable but reflected reality:

People get their ideas through the media. People sit and watch TV, they don’t go out there and find out for themselves. We want to but we haven’t got the time and we’re probably not interested. We should be but we’re not. People believe what they’re told. I haven’t personally gone out and studied much at all.

The four people with views in category two acknowledged that people do form their own views but they said society and culture, particularly religion, are significant influences that help people shape their views. They said people analyse surrounding influences less critically and are less dependent on personal experiences when compared to the descriptions given of people in category three. However, it was maintained that people basically develop their own opinions:

I’m a religious person so I suppose I follow those beliefs. ... Parents have a big influence on people. Although people have their own opinions, they should listen to parents more. I was too stubborn to listen to my parents and had to do my own thing.

It’s mainly a general view that you get after listening to others ... but people make up their own minds. ... If people were radical they wouldn’t get the right jobs. You are allowed to think those things but you couldn’t go out there and demand that other people change. You have to listen to others as well.

The five participants with views in category three thought it was important for people to be critical of surrounding influences and to develop independent views that are their own, building on concrete first hand
experiences. Participants in this category believed that people should have open minds and not just accept the views of others. People should say what they think but recognise that people are different and that there will be many different views:

People should be open-minded and shouldn’t believe in just one person’s view. They should take into account several views then read about them and develop a sense of perception and then act on that perception. ... Everyone’s perception is different, one person might not agree with someone else’s. People should believe in their own personal opinion. Don’t be a follower, speak up and say what you feel. Not everyone’s going to agree with everyone else.

Society and culture – it just dictates. It’s just accepted, but it should be questioned. We’re all becoming uniform and we aren’t. ... People have their own minds and their own thoughts and their own opinions. People should listen to others but they don’t have to agree with what they say.

Nine of the ten Australians interviewed said they thought Australians evaluate their surroundings and selectively assimilate relevant information to help form their own views. They said people in Australia value variation of thought and independence of thought and are open to the opinions of others and are vocal in expressing their views. The divergence in views was in terms of the degree to which people use information from their surroundings to help form views. Although it was recognised that independence is not absolute and that everyone is influenced by their surroundings to some degree, the Australians interviewed indicated that they thought people are not greatly influenced by the thoughts and actions of others – half were definite in their view. They thought Australians are generally tolerant of different views although they also recognise that people do not have to agree with them. It is worth noting that, although the Australian participants thought Australians are independent in thought and action, they overtly recognise the influences of culture and history on views developed. This is evidenced by the following comments made by participants across all three
categories and indicates that although people may be critical in their thought and action, their membership of and place in a community and culture influence them:

When people do religion it gives them a sense of value, a sense of worth that becomes instilled because religion comes with a lot of personal opinions, it has its own history that you’re suppose to have – personal beliefs are not really yours.

Society and culture – it just dictates. It’s accepted ... even when you can’t see it.

People are conscious of what they do and think but they still do things the way they, and those before them, have always done them. History gets in the way. It takes a lot to get people to really do what they think. But it’s not just history, our lives are managed, you have to keep an eye on progress.

4.6.1.3 Symbolic and Inner Self
The symbolic and inner self scale relates to the importance attached to the inner self and inner meaning, to aspects of spiritualism, and to the unity of body, mind and spirit. All Australians interviewed thought Australians believe that it is important to respect people and the things around them and to care for others. They also said it is important to look for the beauty and the good in other people. They thought that selfishness is a problem but they recognised that it is an integral part of human identity. There was recognition that the influences on the development of a symbolic and inner self are varied and include history, tradition and religion. However, these influences are not necessary and what is important is that individuals have their own identity rather than reflect something imposed. The area of difference between what participants said Australians think was in terms of how or whether inner feelings are used. Consequently, the Australian participants generated three different categories for symbolic and inner self (Table 4.35).
The person with the view in category one felt Australians are not in control of their inner self. It was acknowledged that inner senses are present and that they are used to relate to and reflect on life but it was felt that uncontrollable external factors like governments and technology have a greater impact on the world and that people are relatively powerless:

People have a lack of respect for the environment. People don’t know, so they don’t respect. They don’t know because they are not in control of what they should know. ... Technology makes the change, not people. People are scared of change. ... Well, it could be because of religious reasons but they don’t really know. People let governments and religion tell them what to do. We can’t think with our hearts and our conscience any more. People still have them but we don’t use them.

Table 4.35
Symbolic and Inner Self for Australian Participants

<table>
<thead>
<tr>
<th>Defining Elements of Symbolic and Inner Self</th>
<th>Number of Participants (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 • the inner self is present but external influences like governments have a larger impact than individuals so people do not feel in control of or use their inner self</td>
<td>1</td>
</tr>
<tr>
<td>2 • the inner self is present but people do not think to develop and use it but people should develop it, use it and be in control of it</td>
<td>6</td>
</tr>
<tr>
<td>3 • the inner self should be used to embrace others, tolerate difference, avoid confrontation, care for others and grow as a person therefore people should develop and use their inner self</td>
<td>3</td>
</tr>
</tbody>
</table>

The six people with views in category two thought Australians think it is important to have a sense of the symbolic and inner self even if it is not used. They thought people think it is good to have these inner senses and to feel in control of them but they thought people would not think to use them in any purposeful way beyond the self. It is not that people do not want to use these inner senses, it is that people do not think to use them.
Australians think personal beliefs are important. When you do religion you have a sense of value, a sense of worth. It’s instinctive knowledge. ... You have to cherish it for yourself even if you don’t use it.

We believe people should do what is morally right, not so much in a Christian like way, just common sense and figure things out that way. ... It’s important that there is a natural balance within people just like there should be a natural balance on Earth.

The three people with views in category three thought Australians believe that feelings of the symbolic and inner self should be harnessed to further develop a sense of self. They think that the symbolic and inner self should be used to help embrace others, to tolerate difference, avoid confrontation, care for others and grow as a person - the emphasis being on the use of this inner self:

People should exist and cooperate in harmony. ... Appreciation of everyone in the world trying to work together, to sustain the environment and create a better future and appreciate each other and work in harmony with nature. ... I wanted to try, in my small way to get people to appreciate the world and other people’s cultures so that we don’t have so much bias, racism and hatred and competition between different nations. Australians believe we have to grow together as people.

We (Australians) believe it’s important to experience natural stuff. It helps people develop spirituality. People have to use what’s inside of them. People are selfish and this overrides what they think should happen. Most of the time people just follow their needs. We need to look past this and seek who we are as people, as a person in a group of people.

The majority of Australians interviewed believed Australians recognise both the existence and importance of the symbolic and inner self. However, many thought that Australians do not overtly project their feelings of inner self
beyond themselves to influence the world around them. Feelings of inner self are seen as part of self-identity but their influence is often overridden by other components of identity and by external factors.

Nevertheless, there was a range in feelings of internal symbolism and self expressed by the participants about Australians. Some participants gave personal examples to illustrate their views. Some made connections between themselves and environments around them — to personally and deeply identify with them — and so include them in their zone of personal concern:

I love water and I used to go bushwalking every week. So, I love the mountains and I love, I love nature. ... I just love being outside enjoying how beautiful Sydney and Australia is.

However, others were not:

We were brought up to respect the environment and to respect nature, but we weren’t brought up to make a fuss about things. You had your own views, but you don’t stand out. ... You don’t want to be radical as long as you know in your heart that you were doing the right thing. You couldn’t go out and demand that other people change.

This may explain why the Australians interviewed experienced the full range of views towards environments indicated in the literature. Not just because it continues the trend of depicting Australians as a diverse and varied population, but because it portrays Australians as diverse in their connections between inner self and meaning, spiritualism, and the unity of body, mind and spirit and their impact on the world around them including alternative interpretations of religion and environmentalism (see for example, Spretnak, 1986; Bradley, 1990; Skamp, 1990; Skamp, 1992).

4.6.1.4 Summary of Australian cultural characteristics
At the outset it is recognised that any attempt to explore an Australian community’s culture will be criticised for what it does not do. The task of examining any culture is a mammoth undertaking particularly when it is the
culture of a community. This study sought to explore some dimensions of an Australian community’s culture in an attempt to gain an insight into reasons for some of the views held about environments at a particular time. This section concludes with a summary of what the Australian students said about some Australian cultural features at the particular time the interviews were conducted and in the context of those interviews.

The Australian interview participants indicated that Australians are interventionist and use both technology and people to drive change. They identified a relationship between the acceptance of change and the usefulness of technology. Participants said Australians who accept change tend to think technology is useful in promoting change. However, both change and applications of technology need to be critically examined before being accepted. The participants said Australians are forward looking and actively search for better solutions to problems and embrace the changes that result. They see human action as the driving force behind change but recognise that technology itself is capable of precipitating change. This was seen as a problem and some participants felt that Australians want to have more voice in the process of change and be more in control of outcomes. However, other participants said Australians are less concerned with the issues of voice and control. Overall, the participants said Australians view change and technology positively and as able to improve the lives of people.

The Australians interviewed said Australians critically evaluate their surroundings and selectively assimilate relevant information to help develop their ideas. They value first hand experiences, variation and independence of thought and are open to the opinions of others. They said Australians are vocal in expressing their views but also listen to the views of others. They are tolerant of different views although they recognise they do not have to agree with them. They also said Australians recognise that life brings with it many and varied experiences and that the views Australians hold are the result of many complex interactions.

However, underlying this seemingly critically questioning approach to understanding the world around them, there is a suspicion that external factors are impacting on the views Australians hold in a way they do not fully
realise, appreciate, understand or are able to control. The influences of society, culture and history are overtly recognised by Australians but there are other influences that are not easily identified. There was an undefined feeling that Australians are not in absolute control of their views – that in some way their views are being manipulated. Participants questioned the true independence of what they thought were the views Australians hold. Australians value critical, independent thought and action, but recognise there is a vast variety of diverse influences from many sources each impacting on thinking, decision making and subsequent formulation of views. There was the suspicion that the thoughts of Australians are not their own.

The majority of the Australian participants interviewed thought Australians recognise both the existence and importance of the symbolic and inner self. They said this aspect of Australian identity helps to make connections with others, to respect others, to look for the beauty and good in others and to care for others. They said history, tradition and religion influence the symbolic and inner self. However, what was most important was that it was part of who Australians are, including their personal and national identity. Most references to this aspect of identity were in terms of the inner self with no mention of the unity of body, mind and spirit. There were very few references made by participants to aspects of spiritualism even though the importance of religion was mentioned a number of times. There did not seem to be a connection between religion and spiritualism.

Most of those interviewed did not think Australians overtly project their feelings of inner self beyond the self to the world around them. Feelings of inner self are part of their self-identity but connections of the inner self to external factors are often suppressed. They are either overridden by other components of identity or by the nature of external factors themselves. In most cases, feelings of inner self are simply not used because participants thought Australians do not recognise that their feelings of inner self can be used. It would seem that the Australian participants thought Australians do not recognise the full extent of the symbolic and inner self and are even less inclined to use it. Participants said that Australians who do use aspects of their
inner self feel it should be developed more fully to embrace others, to tolerate difference, to avoid confrontation, to care for others and to grow as a person.

4.6.2 **Indonesian Inter-Cultural Understanding**

4.6.2.1 **Change Through Intervention**

When interviewed the Indonesian participants generated three different categories or views for *change through intervention* (Table 4.36). The outcome space was achieved by ordering these views according to the benefits of change for people. All the Indonesian participants interviewed said Indonesians think the world is changing and that technology is being used to help produce change. All participants also said Indonesians think that such change is for human benefit and human action is needed for change.

<table>
<thead>
<tr>
<th>Defining Elements of Change Through Intervention</th>
<th>Number of Participants (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. people use technology to produce change which often does not benefit people</td>
<td>4</td>
</tr>
<tr>
<td>1. the negative impact of technology cannot always be predicted and it can outweigh the advantages</td>
<td></td>
</tr>
<tr>
<td>2. people use technology to produce change which has both positive and negative impact</td>
<td>3</td>
</tr>
<tr>
<td>2. change can benefit people but is not actively sought because there can be disadvantages</td>
<td></td>
</tr>
<tr>
<td>3. people use technology to produce change for human benefit</td>
<td>3</td>
</tr>
<tr>
<td>3. problems associated with change are small compared to the benefits for people</td>
<td></td>
</tr>
</tbody>
</table>

The four people with views in category one thought Indonesians are not enthusiastic about change because change and the use of technology brings just as many problems as it does benefits. They said it is often difficult to control the negative impacts of technology and that many of these impacts can not be predicted. The emphasis for this category was that there are disadvantages associated with change as stated below:
Things have changed. The tendency of present people to use chemical products which cause bad effects and because of this maybe then more diseases or more bad effects. Technology makes things easier to be done. Using telecommunications people can observe what happens outside. So, we can see people in other countries using drugs. The youth in this country, their habits and customs are not in accordance with Indonesia's own culture. Therefore TV has unpredicted negatives. The technology may damage the morality of the people.

There are bad and good effects of change. Formerly they needed more people but now one pilot is needed to fly the helicopter for fertilising. They can do the work faster and it costs less, but many people have no jobs.

The three people whose responses fell in category two said that Indonesians think some technology is used to produce change which results in various impacts on people but that people accommodate these impacts in a variety of different ways with varying degrees of enthusiasm for a variety of reasons. They said Indonesians think change can bring benefits to people but that Indonesians do not actively seek them because there are disadvantages associated with change:

Technology is good as long as it doesn't have bad effects. Watching television is good. But, because of this technology people see bad things and this will influence the viewers. Sometimes I watch TV, sometimes I don't.

People do not worry about change. In the past, people did not use tractors but now they do. People get accustomed to using the technology. Perhaps it would have been better to still use the cattle. You can sell the calf and use the waste for fertiliser. The waste from the tractor is pollution but it ploughs the field faster.

The focus of the view for the three participants in category three was that people purposefully engineer change by employing technology for human
benefit. Human action is needed for change. These participants said Indonesians are enthusiastic about change and said that problems associated with change are inconsequential compared to the benefits. However, it was acknowledged that both advantages and disadvantages result from change:

Change is very important. In daily life change is needed to support the progress. The progress is applying things that are better for us than before. The progress supports people's activities. The technology is important. ... Some people worry about nuclear power stations but they will do no harm.

In the past people go by foot. Now they go by car or motorbike. This is very helpful and beneficial for people. There are some negative aspects like pollution, but these are small. ... Technology is important to help people, to make things easier. Without technology we don't experience change at all.

The Indonesian interview participants said that Indonesians think humans are needed for change and that change is for human benefit. The difference in views was in terms of the overall benefit humans actually receive from change and from applications of technology. It was thought that people who perceive there are great benefits as a result of change embrace it enthusiastically, while those who think change brings problems are less enthusiastic about embracing change.

The Indonesian participants were anthropocentric in their views on change and intervention. Change and applications of technology were judged in terms of human benefit. Other perspectives were not considered, including the environmental perspective. There was a relationship between perceptions of embracing change, control and awareness of unintended outcomes. It was thought that people who embrace change are more in control of the change going on around them and are less concerned with unintended outcomes. It was also thought that Indonesians who do not embrace change enthusiastically feel less in control of change and technological applications and are more aware of unintended outcomes. Despite this, at no stage did the
Indonesian participants interviewed indicate Indonesians should not use technology or that change should not take place.

The Indonesian participants thought Indonesians are interventionist as far as change is concerned. However, change is seen to be more a result of human intervention rather than being driven by technology. Nevertheless, technology is seen as a tool to be used to promote change. Another feature of participants’ perceptions of the Indonesian view of change was that interventions should not impact on Indonesian beliefs and values. Indonesian culture should not change. The Indonesians interviewed thought Indonesians are more accepting of negative outcomes of change and technological applications provided they do not impact on Indonesian culture. This is further evidenced in the quotes below:

By using the telephone, it’s beneficial because people can talk across cities. But the TV, people will be influenced by what they see people in other countries do. This might be bad for Indonesians, the way we live.

People who worry about change, may be only looking at the negative effects. People can minimise the bad effects. This can be done by preserving one’s culture and hindering the influence of foreign cultures.

This evidence suggests that Indonesian identity is an important issue. The Indonesians interviewed saw their world through a lens shaped by Indonesian culture and focused by their own first hand experiences as individuals.

4.6.2.2 Independent Thought and Action
Indonesian participants recognised that Indonesian thinking, decision-making and subsequent actions are greatly influenced by the practice and teachings of Islam. Other influences are Indonesian culture, particularly customs and family although many of these influences are also shaped by Islam. Essentially, the differences between participants’ views were in terms of the
Indonesian participants interviewed indicate Indonesians should not use technology or that change should not take place.

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degree of religious influence or commitment and the extent to which Islam influences Indonesian views. The Indonesian sample generated two different categories of *independent thought and action* (see Table 4.37). These categories are based on the degree of Islamic influence on Indonesian views.

Table 4.37

*Independent Thought and Action for Indonesian Participants*

<table>
<thead>
<tr>
<th>Defining Elements of Independent Thought and Action</th>
<th>Number of Participants (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 • the rules of Islam must be followed because it provides everything you need to know • religious teachings should not be questioned but should be obeyed without thinking</td>
<td>4</td>
</tr>
<tr>
<td>2 • people’s views should be within the limits religious teachings allow • some issues are open to interpretation and can be influenced by family and Indonesian culture if they are consistent with religious teachings</td>
<td>6</td>
</tr>
</tbody>
</table>

The four people with views in category one said the rules of Islam must be followed and that religion guides Indonesians in everything, including economic and political decision-making. If a person does not know how to think or act in a given situation then they have not adequately studied their religion. Participants in this category did not think Indonesians have any choices. Religious teachings should not be questioned – they should be obeyed without thinking:

What I know is that religion only teaches good things. Indonesians follow the Islam rules. Indonesians believe the Islam teachings. ... The decision who to marry is not actually from myself. It is from my family, from other people and from my religion.

Political views and economic views, they are included in religion. By becoming a teacher you can pass on the knowledge you get from study. It is part of religious duty. ... We have no idea how to change things because it is the custom, the practice and the habit, what we do.
The religion tells us. These ideas are included in the religion. We are not permitted to change them.

The six people with views in category two said that Indonesians do have their own opinions, however, their views should be within the limits that religious teachings allow with some room for individual thinking, decision-making and action. They felt some issues are open to interpretation and that the religion does give some choice. They said there are other influences on thinking and action such as family, Indonesian culture and the media but the overwhelming influence is religion. Independence only occurs within limits allowed by religion:

Indonesians believe all religious teachings. We need to practice the duty of Islam, what is compulsory in Islam. We must do this and this. But sometimes our view depends on the case, on the individual case. Where there are two views you can choose – for example head cover. In my personal view, girls without head covers is okay.

In Islam there are rules. This is forbidden and this is not. So, just follow what the rules say. Religion is number one importance in life, then people. ... We need to fear the God almighty and then whatever we do is controlled by that fear. But, I disagree totally that women should live under man. Now, to some degree women and men are equal.

It is important to belong to society. Religion is a big part of Indonesian culture. From our childhood we know religion. There are good things and bad things in the world. Because of religion we can decide the correct ones. There is room for choice within religion. ... Religion, Islam, our religion helps decide everything. Religion even influences the economy.

The Indonesian students interviewed said their society and their culture are based on and dominated by the Islamic faith. This domination is accepted and not questioned and those with a need to see and do things differently feel they are able to do this within the limits set by Islam. Participants believed
that most aspects of Indonesian life are shaped by the teachings of Islam. Indonesians are able to make their own decisions and follow through with actions freely but their religious beliefs set clear boundaries on their thoughts and actions.

4.6.2.3 *Symbolic and Inner Self*

The Indonesians interviewed said Indonesians value customs, traditions, language and ceremonies as an important part of who they are as people and their culture generally. Religion is seen as a centrally important part of everyday life. These views combine to produce a sense of harmony and respect for others and society as a whole. The Indonesians interviewed also felt that it is important for Indonesian religious and socially and culturally embedded values and attitudes to be preserved. Consequently, there are rules to follow and a religion to be obeyed. The differences in views were in terms of the influences on and ultimately the control over the views held by individuals. As a result, the Indonesian sample generated three categories for *symbolic and inner self* differentiated by the autonomy people have in developing and maintaining a sense of inner self-identity (Table 4.38).

<table>
<thead>
<tr>
<th>Defining Elements of Symbolic and Inner Self</th>
<th>Number of Participants (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 • the inner self should be totally determined by cultural values and attitudes and religion</td>
<td>1</td>
</tr>
<tr>
<td>2 • the inner self should be in synergy with cultural belief systems particularly religion</td>
<td>6</td>
</tr>
<tr>
<td>3 • people should have the freedom to be in control and to be responsible for who they are</td>
<td>3</td>
</tr>
</tbody>
</table>

The person with the view in category one said Indonesians are greatly influenced by external factors and are a reflection of Islamic teachings in the context of their culture to the point where it defines individual identity. Although this participant moved between using the terms *Indonesian culture* and *Javanese culture* as if the terms were interchangeable, the impression
created was that an external set of beliefs and attitudes is imposed on Indonesians to shape their identity. A person’s inner self is directed by external influences including Islamic culture. This person did not think it is possible for an Indonesian to change anything in life because everything is determined by Islamic culture and therefore, the way things are is the way they should be:

Our culture is original Javanese. People tend to cooperate and work together. It is reflected in our culture and secondly in our religion. We build the house together and help one another. ... I have no idea how to change this because this is the custom, the practice, the habit. This is our heart. ... Technological advances make people forget God The Almighty. My life is for Islam and for Indonesia.

The six people with a view in category two thought Indonesians allow their inner self to be greatly influenced by the belief systems around them to the point where their personal identity is in synergy with their culture, particularly their religion. They believed Indonesians think their culture should be valued and is more important than the need for food and clothing. People should follow the rules of society because fitting in with others is very important:

Religious teachings are important for the good of people. In Islam, people are taught to interact with others, like respect for elders, keeping the area clean, getting married. These make people feel good inside. ... It is important to cooperate with people and be happy. Brothers and sisters should be good to each other. This is more important than food and clothing. It is for harmony, each person is part.

It is important to have a job and be well respected. Respect is more important than having a good salary because of the pride one gets out of being respected. ... It is important to belong to society. If I have no respect I feel separated. Poor people would not sacrifice respect for income. ... Indonesians work together, they cooperate. People clean
the house together. ... In religion there are things that tell you what to do and what not to do. This binds us together. It is good to feel you belong.

The three people with views in the third category thought Indonesians feel there is room for interpretation of external influences on their inner self and they look to themselves for success, for strength of character and to develop as an open and direct person, whose development of the inner self is determined by them rather than imposed on them. They said Indonesians feel the need for some inner freedom, for the person themselves to be in control of who they are and choose the influences that impact on their identity:

A person has to be strong in what they think. A person needs to be confident in themself in facing daily life. ... We believe religion is a big influence on a person’s actions. But if our religious background is strong, then we can filter any bad influence. ... In Islam there are rules. The females cannot show their face, not open, not in public. But, there is some interpretation here. The females wearing no head covers, in themselves they will know a little more freedom.

It is important for a person to try so he will get the solution (what he wants). If he has pain, he will succeed. Without the pain he will not succeed. ... We believe each person has got his or her own blessings. It is important to use these. It is not good for them to be squashed. You must be yourself.

These findings indicate that the Indonesian participants thought Indonesians consider the symbolic and inner self to be important. The importance of the unity of body, mind and spirit is focused by the importance placed on customs, traditions, language and ceremonies all in the context of an Indonesian Islamic culture. Living life in religious harmony with respect for others while considering the demands and rules of society was found to be fundamental to the inner feelings of Indonesians by those interviewed. Variations were in terms of the autonomy of the individual relative to the
dominance of religious and cultural influences on the formation of views held.

Even so, the domination of one factor, Indonesian Islamic culture, was so all pervasive that it would have profound effects on any issue impacted upon by personal symbolism, spiritualism and feelings of inner self. This finding goes a long way in explaining why the Indonesians interviewed held relatively anthropocentric views and a narrow diversity of structurally different views about environmentalism and associated issues. Islamic beliefs tend to be anthropocentric by nature. They focus the centrality of people in all things including environmentalism. Consequently, if Indonesian identity is shaped by Islamic culture then it follows that Indonesians would hold environmental attitudes consistent with people as the central focus.

4.6.2.4 Summary of Indonesian cultural characteristics

This section concludes with a summary of what the Indonesian students said about Indonesian culture. It is again stressed that this snap-shot of Indonesian culture is restricted to the specific information collected from the participants in a particular context at a particular time.

The Indonesian students interviewed said that Indonesian identity is extremely important. They said their identity is shaped by their culture, whether expressed as Indonesian or as Javanese and they actively work to maintain the integrity of this identity. Indonesian society and culture are based on and dominated by Islam. This domination is accepted and not questioned. Individuals with a need to see and do things differently felt this was possible from within the limits set by Islam. Consequently, the student community interviewed said Indonesians are greatly influenced by the teachings of Islam and their life and views are restricted by the self-imposed limits set by their Indonesian Islamic culture. Not only are the distinctions between Indonesian and Javanese culture blurred but the boundaries between culture and religion are also blurred. Indonesian/Javanese Islamic culture seems to be viewed as a whole – as a continuous entity. The Indonesian students created the impression that Indonesian independence in thought and action is more limited than Indonesians consciously realise. The
nature of self-identity, the inner self, is defined by the importance placed on customs, traditions, language and ceremonies whether these be Javanese or Indonesian. Living life in religious harmony with respect for others, while considering the demands and rules of society, was found to be fundamental to the inner feelings and wellbeing of Indonesians.

The Indonesian participants portrayed Indonesians as anthropocentric in most of their views. Change and applications of technology are judged in terms of human benefit. They said humans are needed for change to take place and ultimately all change is viewed in terms of how it can benefit humans. It was to this end that the Indonesian participants said Indonesians are interventionist. The students saw change as a result of human intervention rather than as being driven by technology. Nevertheless, technology was seen as a tool for human use to promote change. However, any change or intervention should not impact on Indonesian beliefs and values. Indonesian Islamic culture is not to be changed.

4.6.3 Maldivian Inter-Cultural Understanding

4.6.3.1 Change Through Intervention

All the Maldivian participants interviewed said that change and the application of technology is useful and necessary and that there are both positive and negative outcomes of change. All participants said that such change provides benefits for society but that environments may suffer as a result of human interventions. The Maldivian sample generated three different categories for change through intervention (see Table 4.39). The outcome space was achieved by ordering these views according to the degree to which change is driven by intervention, either by people or by technological applications.

The person with the view in category one said Maldivians think change is something that just happens. Change occurs because things do not stay the same. Change is a consequence of life. People do not cause it and technology does not drive it. Change is the result of continued progress rather than intervention. Change and new technologies are impositions that are
accommodated if they do not interfere with traditional ways or go against religion:

The world is just changing. Earlier we didn’t have engines so people sailed and fished. Now people use chains and advanced fishing lines. People find it easier to do work. It happens bit by bit if people want it too. But we shouldn’t have drastic changes. We should try things if we want but we should not forget we are Muslims and forget the old ways that are good.

Table 4.39

<table>
<thead>
<tr>
<th>Defining Elements of Change Through Intervention</th>
<th>Number of Participants (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. people do not cause change and technology does not drive it, change just happens</td>
<td>1</td>
</tr>
<tr>
<td>- change should not interfere with traditional ways and religious practices</td>
<td></td>
</tr>
<tr>
<td>2. change is a result of technological applications rather than people actively causing change</td>
<td>4</td>
</tr>
<tr>
<td>- change should be in harmony with traditional ways</td>
<td></td>
</tr>
<tr>
<td>3. people actively use technology to cause change and move away from traditional ways</td>
<td>5</td>
</tr>
<tr>
<td>- human action was needed for change and to advance away from traditional ways</td>
<td></td>
</tr>
</tbody>
</table>

The four people with views in category two said Maldivians see change less as a consequence of people and more as an outcome of technological applications. Change happens as a result of technological advances rather than because people are pushing for it. Interventions occur because the technology is available. However, this group, more than the previous group, recognised the negative impact of technology. They recognised that change and technology will change Maldivian lives but, at the same time, they still want contact with traditional ways of life:
The world is changing. Distance is shorter because of telecommunications and technology. In some ways change is good but some other technologies are not. Technology is important for change. Technology is actually making change happen. ... Old people worry about change. They think the traditional way is always good. We do have to change but we should change our life so it is the way Islam does things. We can change our lives and stay with our religion.

Change will help people to improve; improve their beliefs and their opinions, the way they treat other people and also the way they use new technologies like computers. I mean our standard of living is going to go up because of these technologies. ... Too much technology is not good. Too much technology is making people lethargic, like calculators rusting our brain. Sometimes nature is better; the way we did things before.

The view of the five participants in category three was that people are actively using technology to cause change and that people are embracing change to achieve benefits for people and are consciously moving away from traditional ways. Human action is needed for change and this human action is mainly in the form of applying technology. The participants said Maldivians are enthusiastic about change and using technology and tend to down play or minimise the effects of negative outcomes:

The world is changing but of course it is the people mostly who change it. People have to invent and use the technology. Because the people are changing, the world is changing, the environment is changing; all these things are changing. Change is necessary. We cannot live the way we lived a hundred years ago. We need to be more advanced. We need to find out about technology and use it to make life more comfortable. We need it to make use of the world’s resources in a meaningful way. We need to base a modern society on science and technology.
The way people live, the way people think, the way people use resources is changing. People's attitudes and beliefs are changing. These changes are advanced with technology and it is a good change for most parts. Technology actually helps to do the processes faster. Sometimes people don't like change. ... If there is change we need to explore it, we need to experience it. Sometimes exploring change is hard because of the culture, people's attitudes, but we must do it.

The Maldivian participants said that change ranges from being a consequence of the normal flow of life through to people applying technology and actively intervening to purposefully push for change. When people are driving change and actively being interventionist they are not concerned with maintaining strong links with traditional life. In fact, the driving force behind such intervention is the desire for advancement, to improve the quality of life and move on to what is perceived as a better way of life. When it is perceived that change is a consequence of using available technology, people are more cautious about change and are careful to maintain links with traditions and customs. They are particularly careful to minimise change and maintain religious harmony. This is particularly the case when change is seen as less interventionist and more as a consequence of life. Under these circumstances, change should not interfere with traditional ways or religious practices.

Unlike the Indonesian participants, the Maldivian participants did not seem to align attachment to tradition with control. They said Maldivians embrace change enthusiastically because they think it will advance them economically rather than because they are less concerned with control. Alternatively, if they do not embrace change enthusiastically it is because they think it is just part of life rather than because they are likely to loose control of their lives.

The Maldivian participants indicated that Maldivians are generally interventionist - interventions being designed to purposefully improve the standard of living. If interventions result in links with tradition being compromised then this is acceptable, provided some links with tradition are maintained and fundamental religious beliefs are not discarded. Change should be achieved without unnecessary sacrifices and conflicts.
The Maldivian participants indicated that Maldivians, like Australians and Indonesians, are also interventionist but to a lesser extent. In the view of Maldivian participants, change results when highly motivated people push for change and when new technologies are introduced that promote change. This is in addition to the normal processes of change being a consequence of evolving practices. The Maldivian participants were not concerned with control over change and intervention; they were directed by the desire to improve quality of life. Interventions were not overly linked to traditions, beliefs and culture. Connections to traditions were maintained particularly when change resulted from the normal processes of living. However, maintaining links with tradition only became a significant issue when a change was inconsistent with religious practices. The Maldivian participants indicated that, for Maldivians, the importance of change being consistent with Maldivian identity is not as important as it is for Indonesians.

The finding that the Maldivian participants said Maldivians are keen to intervene and promote change for a better life, to improve their living standards and embrace an advanced technological world without being overly constrained by tradition, suggests a reason for Maldivians not holding pro-environmental views as strongly as the Australian and Indonesian communities. In their desire to intervene and change their culture, and improve their living standard, the Maldivians interviewed may have subordinated some of their views and beliefs about environments. The desire to achieve a more advanced living standard may have been so strong that they compromised their environmental attitudes. This was despite the fact that the Maldivian participants were aware of environmental issues and said environments were important and should be viewed from a perspective that weighted human needs with the need to maintain environments. There may be no reconciliation of these different views. It may be that economic and lifestyle choices are being given priority over environmental considerations.

4.6.3.2 Independent Thought and Action

The Maldivian sample maintained that it was important for Maldivians to make their own decisions and to be informed in their decision making. Most said that religion, education and parents are important influences on decision
making. The differences between views are in terms of how important decision making autonomy is and how central religion is to thinking and to subsequent action taken. The Maldivian sample generated three different categories for independent thought and action (see Table 4.40). These categories were based on the degree of an individual’s independence of thought and action.

Table 4.40
Independent Thought and Action for Maldivian Participants

<table>
<thead>
<tr>
<th>Defining Elements of Independent Thought and Action</th>
<th>Number of Participants (n=10)</th>
</tr>
</thead>
</table>
| 1 • religious teachings are an important influence on thinking and should not be questioned  
  • education is also an influence on decision making but not as great as religion | 3 |
| 2 • religion is important in decision making but education is increasing in importance  
  • education enables people to see alternatives to traditional ways | 6 |
| 3 • decisions should be based on personal experiences  
  • education is the basis for informed decision making | 1 |

The three people with views in the first category said Maldivians think religion is a very important influence on decision making and that people should not do anything against religious teachings. Religious teachings should not be questioned; however, education is also an important influence on thinking and action:

We should think about religion first. We have to stick to that way and think that way. We have to think like Moslems. We shouldn’t do anything that’s against religion. … My father wants me to be educated, more educated, because it will help my future. Religion is more important than other things. Religion says you shouldn’t wear shorts so we don’t wear shorts. Religion says it is not good to argue. We don’t ask why. We are told that is why. They won’t say why. It’s just the way. According to religion, normally we don’t
ask why. I don’t ask why. ... I think that we can change our lives but we can stick to our religion. It is not that hard because in our religion the rules are not that restricted. ... Study is important. So, if I study it will help me get a job.

The six people with views in category two said people should make their own decisions and take responsibility for them. However, they said that religion is an important influence on decision making, as is education. Consequently, some decisions are made within limits imposed by these influences. Religion seems to be less of an influence than it has been in the past while the influence of education is becoming more important. Education helps people to see alternative ways of viewing things and parents are also an influence on decision making:

We don’t do things against religion. ... My father influences my thinking because I have been with him from the time I began to understand the world. This is how I am because my mother and my father think education is important for me. ... My father just advises me. He doesn’t say to me you have to do this. He says this is the way the world is, this is the way people are and this will, I think, be the outcome of this. But it’s up to you to decide. ... When people are educated they are equal. You understand and everything improves. It is important to become mature, understand the world better, know things, concepts and things.

Education is important. It is important to learn English. Religion is also important. There should be a balance. ... We have very strong feelings towards our religion. Every aspect of our lives has something to do with religion. But nowadays this is changing. We are becoming much more western. We have started changing ourselves. ... Because of the tourists, most people see different parts of the world and they try to move towards that. ... I have a different idea. Both men and women have to be equal. Both have to share equality. Educated people see life from a different angle. I feel girls should have equal rights to be educated abroad. Religion doesn’t say we can’t do this.
Religious commitment is not as strong as other Islamic cultures but it is still very strong and we must do what religion tells us. Education makes people aware of what they are doing, how they are doing it and why they have to do it. The one who is educated will think more before they do. ... I will argue, but I have to give in. One reason is maybe that this social way of looking at the problem, social attitude. I think it is this Asia. I want to change this culture. I want to be someone who is doing something, something recognisable. I think if I have a skill I should use it, but they don’t give me a chance. ... I want, I desperately want to explore changes but it is not quite possible because of the culture – people’s attitudes.

The person with the views in category three said that people should make up their own minds about all issues and that people should base their decisions on information gained from personal experiences. Education is seen as important in this process because informed decisions can only be made when there is a diversity of information from which to draw:

Well-educated people, they start thinking and they don’t only think about themselves and their beliefs. So, they change due to education, and their beliefs change too. We have to go and find information. We should look in places we haven’t looked before. This is how I get my information. ... I don’t think many people believe in this (environmentalism) but I have experienced this and have read about it and I have thought about it and have changed my mind.

These views show that the Maldivian participants thought there is a range in Maldivian views from being less influenced by the thoughts and actions of others to being greatly influenced by religious teachings. This range may be explained from an historical perspective. Historically, religion has dominated Maldivian culture since Islam was embraced as the official religion. At present this domination seems to be easing as Maldivian culture is exposed to different, more western influences. Paralleling the decline in the influence of religion is the increasing importance of education.
From the data collected, the movement away from a traditional way of life may be a response to increased communication and exposure to more global economic and political pressures. These in turn generate aspirations for affluence and promote materialism. Education is seen as the way ahead – the way to a better life as measured against emerging new criteria. The views of the Maldivian participants would be reflecting this trend. Consequently, the Maldivian participants have portrayed Maldivians as varied in their independence of thought and action.

4.6.3.3 Symbolic and Inner Self
The Maldivian interview participants revealed that Maldivians feel a deep respect for others and for self-dignity. They value the cooperation and understanding of others and feel that peace and harmony is important and should be part of life. However, they also think that external influences impact on and help form their inner feelings and symbolism. External impact is mainly in the form of views of others, society itself and religious teachings and practices. Where the Maldivian participants differed was in the amount of control Maldivians feel they should have or want over external influences. The Maldivian participants generated three categories for symbolic and inner self within the overall view of personal symbolism, spiritualism and feelings of inner-self as described above (see Table 4.41).

Table 4.41
Symbolic and Inner Self for Maldivian Participants

<table>
<thead>
<tr>
<th>Defining Elements of Symbolic and Inner Self</th>
<th>Number of Participants (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 • religious teachings and social expectations should be accepted without question to achieve inner peace and harmony</td>
<td>3</td>
</tr>
<tr>
<td>2 • religious teachings and social expectations should be followed even without agreement and at the cost of inner peace and harmony</td>
<td>4</td>
</tr>
<tr>
<td>3 • people should question external influences, including religion, and not follow them blindly so they can be in control of their actions</td>
<td>3</td>
</tr>
</tbody>
</table>
The three people with a view in category one did not think Maldivians question external influences; they accept them and do what is expected of them because they feel that educating themselves about these influences will help them to understand why they should be obeyed. Personal actions should be confined to achieving what religion teaches because this is what Maldivians want in life and inner peace will be achieved through greater acceptance and understanding of religious teachings:

For Maldivians, religion is more important than other things. According to religion people don’t ask why. I don’t ask why. ... I study for self-satisfaction. We all need our satisfaction and we also need to have fun in our life and feel good inside – to be peaceful. It is important to take action and satisfy our personal feelings. ... Sometimes we work at religion to understand it.

We should think about religion fist. We shouldn’t do anything against religion. ... It is important to feel loved and happy and satisfied. People should know each other from the heart before they get married.

The four people with views in category two recognised that external pressures, such as religion and society, are strong and important and that they should be followed even if people do not agree with them. They said Maldivians recognise that “their spirit” may be “killed” but they still do what is expected of them. There was recognition within this view that change may come but until it does Maldivians will do what their society and their religion expect from them even though they do not agree:

Maldivians think it is important to be respected. It is also important to respect others, then they respect you. ... I like to be alone, be myself. I don’t want to depend on somebody else, but it is not the practice. I want to do things my way I will then sometimes argue, but I have to give in. This is a social way of looking at the problem, a social attitude. It kills my spirit.
Religion has the greatest influence on our lives. You shouldn’t kill a snake in the house. We don’t know the reason why, maybe an old belief that snakes found in the house bring luck. We still don’t kill snakes. When we think the religion is not right, like with divorce, we cannot take action because people will not accept it. They will think that we are having much more feelings than them. They think we are much more proud.

The third category reflects the views of three people who thought Maldivians want to be in control of outside influences as well as in control of related decisions and actions. They believe that external influences, including religion, should be questioned and not followed blindly. They feel people should be in control of who they are and what they value as well as their actions in life. The implications of religious teachings should be fully explained and understood before they are accepted and acted upon:

   The need to keep our dignity comes from within us actually. This is because people should respect each other. We think respect is very important and people want everybody else to respect them. ... He is worried. He thinks that me being more educated will make me more superior to him. He thinks that he is not going to have control over me because I am more educated than him. The religion might say that men should have control but there should be two way between the boy and the girl. People will have to think about this.

   God gives us children and He will provide for those people’s beliefs. But I don’t think it is the belief for the younger generation. Even though we are Moslems we don’t actually know much about or understand our religion. We only know the daily practices we have to perform. ... Because of education, people are starting to think for themselves. Their beliefs are changing because of their education. People are what they believe. What they are inside them is important not what we are told to believe. It is important to question first.

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The findings from the interviews show that the Maldivian participants thought symbolic and inner self is important for Maldivians. The importance of internal symbolism and inner feelings is in terms of self-dignity, respect for others, valuing the cooperation and understanding of others and the importance of inner peace and harmony. The Maldivian categories range from thinking it is important to be in control of influences on the formation and maintenance of views through accepting external influences with reservations, to accepting them almost unquestioningly. The Maldivians interviewed indicated that Maldivians range in their view of the control they want to have on the formation and maintenance of their views.

The main influences on inner symbolism and feelings are religion and social expectations. Bubbling below the surface of these influences, however, is an undercurrent of commitment to and faith in change. This change seems to result from new experiences with western cultures and societies. As one participant said, “Maldivians try to live peacefully. We live peacefully because we belong to the same religion and nation and we talk the same language.” This, the Maldivian participants saw as Maldivian identity. If Maldivian identity is broadening then the diversity of Maldivian inner symbolism and feelings may be expected to increase as new views emerge and compete along side existing views. The Maldivian participants knew there are external influences impacting on the symbolic and inner self of Maldivians. However, the different categories are a reflection of how much the participants saw these external influences impacting on Maldivian views, which are a consequence of the changing nature of the interactions and balance between religion, education and exposure to new and culturally different experiences.

The Maldivians interviewed showed that Maldivians demonstrate an extraordinary ability to accept and accommodate new and divergent experiences. They indicated Maldivians have a well-developed sense of inner symbolism and inner self. Yet, it seems to be in a state of flux. Maldivians value a definite yet open symbolic and inner self. This may go some way to explaining the tension between the Maldivian awareness and acknowledgment of the importance of environmental issues and the finding that they score lowest on the overall NEP scale and seem to have the least
pro-environmental perspective of the three communities studied. Maldivians may be starting to modify their inner symbolism and what is important to them as both individuals and as a community to reflect broader social and cultural changes. They may be starting to realign their environmental priorities and embrace a more economically driven and materialistic view of the world.

4.6.3.4 Summary of Maldivian cultural characteristics

The section on Maldivian culture concludes with a summary of how the students interviewed portrayed some aspects of their culture. This summary is, like the Australian and Indonesian summaries, restricted to those students interviewed at the time they were interviewed and in the context of that time.

The Maldivian participants said that people drive change and that the desire for change is to improve the quality of life and standards of living. Change was seen as a human intervention and a consequence of purposefully using technology as well as a result of the ever-changing nature of life. The Maldivian participants acknowledged that traditions could be modified so long as links are maintained with traditional ways and fundamental religious beliefs. Maldivian culture was portrayed as undergoing rapid change as it continues to be exposed to more global influences. The influence of religion was reported as declining while the importance of education is increasing. Such change was reported to generate aspirations of affluence and promote materialism. Religion and social expectations were portrayed as the main influences on Maldivian identity, symbolism and the inner-self. However, the extent of these influences is altering as a result of the changes in Maldivian culture. Some Maldivian participants welcomed these changes and the reasons for them while others did not.

The Maldivian participants seemed to accept and accommodate new and divergent experiences. Their sense of inner symbolism and self-identity seemed less defined as a result of their changing interactions with the wider world. The Maldivian participants indicated that Maldivians seem to be reassessing what is important to them as individuals and as a community.
4.6.4 Comparison of cultural dimensions

This section examines the cultural beliefs and views identified from the inter-cultural understanding data to gain further insights into the reasons for each community’s attitudes towards environments. The beliefs and views identified from the interview findings are combined with the findings from the questionnaire analysis. This section begins with an analysis of the questionnaire data and a comparison of the findings across the three communities.

4.6.4.1 Comparison of questionnaire ICUE findings for the three communities

Data from the questionnaire survey were statistically analysed for the three inter-cultural understanding scales (see p. 62 for scale item questions) with the means and standard deviations for each community shown in Table 4.42. Cronbach alpha values for each scale are included to indicate the internal consistency of each scale.

Table 4.42

Comparison of Questionnaire ICUE Findings for the Three Communities

<table>
<thead>
<tr>
<th>Country</th>
<th>Change Through Intervention</th>
<th>Independent Thought and Action</th>
<th>Symbolic and Inner Self</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>3.88</td>
<td>0.60</td>
<td>0.77</td>
</tr>
<tr>
<td>(n=225)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>3.78</td>
<td>0.63</td>
<td>0.73</td>
</tr>
<tr>
<td>(n=211)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maldives</td>
<td>3.80</td>
<td>0.90</td>
<td>0.70</td>
</tr>
<tr>
<td>(n=199)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* indicates significant differences

For the change through intervention scale the means for all three communities are high, just below 4 (often), with standard deviation between 0.6 and 0.9, indicating that respondents from all three communities considered their country to be relatively interventionist. The standard deviation for the Maldivian sample is higher than the other communities indicating a more diverse view for this scale. However, oneway ANOVA indicates no
statistically significant difference between the communities for this scale. This statistical finding is consistent with the findings from the interview data. However, although all three communities said they were interventionist and saw human action as necessary to bring about change and improvement in society, they did so to different degrees and for different reasons as discussed earlier and as summarised in the next section.

For the independent thought and action scale one way ANOVA indicated significant differences \([F(2,632)=20.71 \ (p < .01)]\) between means. Bonferroni Post Hoc tests show the Australian community to be significantly different \((p < .05)\) from the Maldivian and Indonesian communities. The mean for the Australian sample is the lowest at just above 3 (fairly often) indicating that the Australian sample did not consider Australians to be as independent in thought as the other two communities. Both the Maldivian and the Indonesian samples considered people in their respective countries to be relatively independent in thought. This is not the result expected, since the interview findings show that the participants from these communities were greatly influenced by factors such as religion. However, this finding may be related to the nature of the interview sample itself, which was relatively small. Alternatively, the Australian questionnaire sample may have understated their independent nature. This latter explanation is consistent with the finding that the Australian sample understated their awareness of environmental issues as well as their knowledge of them. Understating a characteristic that some would see as desirable may be a feature of the Australian sample. Alternatively, and consistent with the interview findings, the Australian sample may be voicing the view that people may not be in control of their views; they only think they are. Again, the standard deviation for the Maldives is higher than the other communities indicating a more diverse view for this scale.

Oneway ANOVA for the symbolic and inner self scale indicates significant differences \([F(2,632)=36.54 \ (p < .01)]\) between means. Bonferroni Post Hoc tests shows Australia to be significantly different \((p < .05)\) from the Maldives and Indonesia. The mean for the Australian sample is the lowest at just below 3 (fairly often) indicating that the Australian sample did not consider
Australians to rate inner self and spiritualism as highly as the other two communities. Both the Maldivian and the Indonesian samples considered people in their communities to rate the inner self and spiritualism more highly than the Australian sample. This is also consistent with the interview data and confirms that although the Australian participants do acknowledge a spiritual dimension it is not as highly developed as other dimensions.

As with the previous scales the standard deviation for the Maldives is higher than the other countries indicating a more diverse view for this scale as well. This greater diversity of view, indicated by a consistently high standard deviation, is consistent with the Maldivian interview findings. The Maldivian sample does seem to have a greater diversity of views than the Indonesian sample with at least the same degree of diversity as the Australian sample.

Although the findings from the questionnaire data analysis aligned with those from the interview findings in the majority of cases, there were some inconsistencies. Where there were inconsistencies they were explained using insights gained from the nature and cultural characteristics of the participant communities. The main inconsistency being the relatively lower score than expected for the independent thought and action scale for the Australian community compared to the other communities.

4.6.4.2 Summary of overall ICUE findings for the three communities
Table 4.43 summarises the findings from the ICUE questionnaire as informed and enriched by the interview findings. The summary of findings is divided into the three ICUE scales for ease of comparison although a more integrated and holistic picture for each community is described below.

The picture of the cultural characteristics emerging for each community does seem to be consistent, with different aspects reinforcing one another. Overall, the Australian community were interventionist, using technology as a tool to bring about change. However, change was critically reflected upon so that technological applications were evaluated in terms of both their advantages and disadvantages. This occurred at both an individual and a societal level so that individuals were responsible for making their own informed decisions
<table>
<thead>
<tr>
<th>Dimension</th>
<th>Australia</th>
<th>Indonesia</th>
<th>Maldives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change Through Intervention</td>
<td>• interventionist&lt;br&gt;• change driven by technology&lt;br&gt;• open to change to balance benefits&lt;br&gt;• over dependence on technology can be a problem&lt;br&gt;• critically reflective of change and technology</td>
<td>• interventionist&lt;br&gt;• change driven by people&lt;br&gt;• interventions are for human benefit&lt;br&gt;• change is useful if Indonesian identity is not compromised&lt;br&gt;• need to be in control of change outcomes</td>
<td>• interventionist but less so than others&lt;br&gt;• change driven by people&lt;br&gt;• interventions are for human benefit&lt;br&gt;• change is useful provided links with tradition are maintained&lt;br&gt;• control of change outcomes not of central important</td>
</tr>
<tr>
<td>Independent in Thought and Action</td>
<td>• independent in thought &amp; action but less so than others&lt;br&gt;• understate independence of thought &amp; action&lt;br&gt;• critically evaluate and develop views from experience but recognise external influences&lt;br&gt;• open to views of others&lt;br&gt;• recognise covert control by external influences</td>
<td>• independent in thought &amp; action&lt;br&gt;• realise limits of independence of thought &amp; action&lt;br&gt;• accept views from Indonesian identity and Islam without question&lt;br&gt;• less open to views of non-Indonesians&lt;br&gt;• accept covert and overt control by external influences</td>
<td>• independent in thought &amp; action&lt;br&gt;• did not realised limits to independence of thought &amp; action&lt;br&gt;• views being modified by external influences&lt;br&gt;• open to views of others provided able to be accommodated&lt;br&gt;• not always recognise extent of covert control by external influences</td>
</tr>
<tr>
<td>Symbolic and Inner Self</td>
<td>• recognise existence and importance of symbolic &amp; inner self but with limitations&lt;br&gt;• influenced by history, religion and traditions&lt;br&gt;• symbolic &amp; inner self part of self identity but is not a social influence&lt;br&gt;• some aspects of life are influenced by the S &amp; IS and some think this should increase</td>
<td>• symbolic &amp; inner self very important, very well defined and very stable&lt;br&gt;• shaped by Indonesian identity and Islam&lt;br&gt;• symbolic &amp; inner self large part of self identity and a social influence&lt;br&gt;• life is determined by the S &amp; IS and religious harmony in the context of Indonesian society</td>
<td>• symbolic &amp; inner self important but less defined as society undergoes change&lt;br&gt;• influenced by history, religion and traditions&lt;br&gt;• symbolic &amp; inner self part of self identity but is declining as a social influence&lt;br&gt;• life is influenced by S &amp; IS but its influence has declined due to external influences</td>
</tr>
</tbody>
</table>
based on personal and collective experiences. However, there was a realisation that outside or external influences such as economics, politics, history and society exerted a greater influence than individuals were prepared to overtly recognise.

Although the Australian community studied were open to the views of others, they were prepared to critically evaluate them and either accept, modify or reject them. They were confident to make these decisions within themselves as individuals. Feelings from within the inner-self were important. However, they were often suppressed or at least devalued when it came to public expression. Some community members felt inner feelings such as spiritualism and other forms of self-symbolism should be more overtly valued and used in social decision-making but commented that this did not happen at present.

The Indonesian community studied was also interventionist with people driving change for human benefit. However, change was shaped by Indonesian culture and Islam as practised by Indonesians. The Indonesian community studied felt they needed to be in control of any change initiative to avoid negative unintended change outcomes. Such outcomes were evaluated very much from a human perspective. The Indonesian community studied recognised and overtly accepted the controlling influence of their society and religion. Their anthropocentric assessment and evaluation of change was a reflection of their almost unquestioned obedience to Islam and the demands of Indonesian society as a developing country. Although external influences on individuals were expected and accepted they were limited to Indonesian cultural origins.

As individuals, the Indonesian community was a product of Indonesian culture, society and religion. They sought harmony within themselves, with their religion and with others who shared their beliefs – their worldview and their symbolism. However, this expression of harmony did not extend beyond Islam and Indonesian society to whatever may be perceived as a threat to this way of life. The Indonesian student community’s inclusive, anthropocentric nature was not limited to individuals. It extended to include
all Indonesians with common cultural and religious beliefs but it did not extend to what was thought to be non-Indonesian.

The Maldivian community was more complex than the other communities studied. It exhibited considerable variation, perhaps due to the change the community was reflecting as a result of its interaction with western influences. Although the Maldivian community studied regarded itself as interventionist it was less so compared to the other communities studied. Although people for the benefit of people drove change, the necessity for control of change, seen in the Indonesian community, was absent in the Maldivian community. Change was for human benefit but more specifically for the benefit of individuals provided the individual was still able to make connections with tradition and other culturally important influences such as religion.

Although the Maldivian community studied did recognise the effect of external influences, such as the need for education, they did not seem to realise the extent of many of the more covert influences such as economic and political globalisation. The inner-feelings and symbolism of individuals was well recognised and highly regarded. However, its importance was being eroded with continued contact with western influences. Symbolism and inner-feelings, although remaining important for individuals, were moving towards being less important socially. They were being suppressed or at least devalued when it came to public decision making.

### 4.6.5 Culture and environmental attitudes

This section draws on both the questionnaire findings and those from the interviews as the need arises. Although the two different methods of data collection and analysis preclude the combination of both sets of findings, the findings from the interviews are used to explain and understand those from the questionnaire. At times the interview data are used to focus and enrich the findings from the questionnaire. Where findings from both methods echo one another or follow the same pattern this is indicated.
The Australian community demonstrated the full range of environmental attitudes found in the literature (Dunlap et al., 1992; Schultz & Zelezny, 1998; Schultz & Zelezny, 1999; Dunlap et al., 2000). This included biospheric, altruistic and egoistic perspectives within the context of agreeing with the New Environmental Paradigm. However, when interviewed, the Indonesian and Maldivian communities both exhibited a narrower range of views with no true biospheric or egoistic perspective present. However, elements of these perspectives were present within the altruistic perspective, which characterised the environmental attitudes of these communities.

The questionnaire findings for Indonesia and the Maldives did indicate the presence of biospheric or egoistic perspectives but it has been argued that this may be an artefact of the method of data analysis in that when participants were able to articulate their views fully, different meanings could be subscribed to them compared to those indicated by a statistical analysis of responses to statements made in a questionnaire. The Indonesian and Maldivian communities tended to agree with the NEP although agreement was inconsistent across the sample. The inconsistency was that a pro-HEP perspective was present in the form of environmental attitudes meeting human needs ahead of ecological considerations. The Indonesian and Maldivian communities were anthropocentric in their environmental attitudes.

These differences in attitudes towards environments can be understood and explained, at least in part, using the cultural beliefs and views of the communities studied as identified by the ICUE instrument. Table 4.44 shows Pearson correlation (2-tailed) analysis for the environmental attitudes scales and the ICUE scales.

The Australian respondents' total NEP scores correlated with the change through intervention scale indicating that this scale predicted a pro-NEP view of environmentalism. The altruistic perspective of the NEP correlated significantly with the change through intervention scale with a strong negative correlation between the egoistic and the change through intervention scale. These findings show that, for the Australian sample, people who place a high
Table 4.44
Correlation of Environmental Attitude Scales with ICUE Scales for the Three Communities

<table>
<thead>
<tr>
<th>Country</th>
<th>Environmental Attitude Scale</th>
<th>Change Through Intervention</th>
<th>Independent Thought and Action</th>
<th>Symbolic and Inner Self</th>
<th>Importance of Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Total NEP Score</td>
<td>.612*</td>
<td>.005</td>
<td>-.008</td>
<td>.124</td>
</tr>
<tr>
<td>(N=225)</td>
<td>Biospheric</td>
<td>.068</td>
<td>-.064</td>
<td>-.098</td>
<td>-.010</td>
</tr>
<tr>
<td></td>
<td>Altruistic</td>
<td>.352*</td>
<td>-.001</td>
<td>.041</td>
<td>.119</td>
</tr>
<tr>
<td></td>
<td>Egoistic</td>
<td>-.845*</td>
<td>-.061</td>
<td>-.036</td>
<td>-.156*</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Total NEP Score</td>
<td>.057</td>
<td>.247*</td>
<td>.687*</td>
<td>.184*</td>
</tr>
<tr>
<td>N=211</td>
<td>Biospheric</td>
<td>.060</td>
<td>.168*</td>
<td>.852*</td>
<td>.167*</td>
</tr>
<tr>
<td></td>
<td>Altruistic</td>
<td>.096</td>
<td>.322*</td>
<td>.361*</td>
<td>.243*</td>
</tr>
<tr>
<td></td>
<td>Egoistic</td>
<td>.048</td>
<td>.019</td>
<td>.039</td>
<td>.066</td>
</tr>
<tr>
<td>Maldives</td>
<td>Total NEP Score</td>
<td>.244*</td>
<td>.114</td>
<td>.097</td>
<td>.350*</td>
</tr>
<tr>
<td>N=199</td>
<td>Biospheric</td>
<td>.096</td>
<td>.118</td>
<td>.111</td>
<td>.175*</td>
</tr>
<tr>
<td></td>
<td>Altruistic</td>
<td>.192*</td>
<td>.074</td>
<td>.140*</td>
<td>.283*</td>
</tr>
<tr>
<td></td>
<td>Egoistic</td>
<td>-.112</td>
<td>-.011</td>
<td>.059</td>
<td>-.128</td>
</tr>
</tbody>
</table>

* indicates significant differences

priority on a future-oriented, technological society and see human action and intervention as necessary for change and improvement are likely to exhibit pro-NEP environmental attitudes. In addition, the weak negative correlation between an egoistic environmental attitude and the importance of knowledge scale shows that, for the Australian sample, people who do not think it is important to have knowledge and learn facts and information will not exhibit a pro-NEP view of environmentalism.
The correlations between the Indonesian community’s environmental attitudes scales and the ICUE scales are in sharp contrast to those for the Australian community. The Indonesian respondents’ total NEP scores correlated with all the other ICUE scales except the change through intervention scale – that is, the total NEP score correlated with the independent thought and action, symbolic and inner self and the importance of knowledge scales. This indicates that these three scales are predictors of a pro-NEP view of environmentalism. Specifically, Indonesian respondents who attach importance to the inner self and inner meaning, to aspects of spiritualism, and to the unity of body, mind and spirit (symbolic and inner self) tend to exhibit pro-NEP views of environmentalism as do those who try to understand the world for themselves, who build from past experiences, develop their own ideas and who question or are critical if necessary (independent thought and action) as well as those who value knowledge and the learning of facts and information (importance of knowledge). Of the three scales that compose the total NEP scores, the egoistic scale did not correlate significantly with the three ICUE scales described above (see Table 4.44). This suggests that respondents with characteristics consistent with these three ICUE scales do not exhibit an egoistic perspective on environmentalism.

The Maldivian community exhibited a different relationship between total NEP scores and ICUE scales compared with both the Australian and Indonesian communities. The Maldivian respondents’ total NEP scores correlated with the change through intervention and the importance of knowledge scales. This indicates that Maldivian respondents who place a high priority on a future-oriented, technological society and who see human action and intervention as necessary for change and improvement are likely to exhibit pro-NEP environmental attitudes along with those who value knowledge and the learning of facts and information. Of the three scales that compose the total NEP scores, the importance of knowledge scale correlated with the biospheric and altruistic perspectives indicating that people who valued knowledge were more likely to hold pro-NEP views of environmentalism. There was also a weak correlation between the change through intervention and the symbolic and inner self, ICUE scales with the altruistic perspective. This indicates that people who exhibit characteristics consistent with these two
scales are more likely to consider environmental issues from competing perspectives.

The Australian community tends to be open to change and is more critically reflective in its decision-making and review of new information. Any change in environmental attitude is more likely to be relatively consistent with the philosophy and worldview that underpins that attitude rather than being inconsistently aligned with a cultural or religious perspective. In contrast, the findings indicate that the Indonesian and Maldivian communities are more likely to filter new information and change to environmental attitudes through their cultural beliefs, customs and, particularly for the Indonesian community, religion. For the Indonesian and Maldivian communities this means that customs, cultural beliefs and religion tend to mediate changes in worldview, such as those embodied by the NEP, more than they do for the Australian community. Conversely, the Australian community tends to incorporate modifications to worldview in terms of the philosophy, beliefs and values that underpin them more than the Indonesian and Maldivian communities do. One of the strongest cultural beliefs held by the Indonesian community is that Indonesian identity should be preserved. A consequence of this belief is that the maintenance of cultural identity is fundamental in decision making. Hence the anthropocentric nature of the Indonesian community can be understood from this perspective.

The anthropocentric perspective of the Maldivian community may be explained by more than one factor. Consistent with viewing environmentalism from an egoistic perspective, individuals seem prepared to modify or override their environmental beliefs and values to achieve what they perceive as a more desirable personal outcome – improved living standards. That is, another reason for some Maldivian participants holding anthropocentric environmental views is that, in their desire to improve their living standards and embrace an advanced technological world, they may have subordinated or acted inconsistently with their views and beliefs about environments. This is despite the fact that they said environments are important and should be viewed from a perspective that balances human needs with the need to maintain environments. Consequently, some aspects
of the anthropocentricity evident in the Maldivian participants' environmental attitudes may be viewed as individual self-centredness rather than as reflecting an *egoistic* environmental perspective. For example, a view held by many Maldivians is that it is important for people to reduce greenhouse gases so that the sea level does not rise (United Nations General Assembly, 1989; United Nations Environment Programme, 1990). However, an individual may not see the reduction of greenhouse gases as a priority if it interferes with personal economic advancement. In this example, an individual chooses to override his or her attitude towards environments for personal benefit. This does not mean that the individual does not hold the view that greenhouse gases should not be reduced. It means that the view held is ignored. The person's action is inconsistent with or not a reflection of the view held, which may be *altruistic* rather than, as it would seem, *egoistic*. In other words, the true environmental attitude is masked by self-centred needs.

The Australian participants showed considerable variation in their views of what was meant by the term *environment*. More sophisticated views recognised that a number of perspectives on environments exist simultaneously in an indistinguishable interrelationship. However, even those who held this view did so in an academic sense. The everyday view of the term, held by the majority of the Australian participants, was that it stands for the natural environment. The dominant image of the term was as animals, forests, waterways and so on. Nevertheless, the Australian participants did have a broad range of accurate environmental knowledge, which was supported by their breadth of life experiences including travel and non-school education as well as school. This contrasted with the less diverse Indonesian and Maldivian community's definition of the term. Both these communities viewed the term *environment* from an anthropocentric perspective, as expected from the above discussion. However, the Indonesian students had more limited knowledge about environmental issues than they thought they did, and the knowledge they had was often flawed or inaccurate. Nevertheless, they valued knowledge and said schooling was an important source of their knowledge. They tended to view environments from a human built perspective. The Maldivian students were very aware of
many environmental issues, although there were inaccuracies in their knowledge. The Maldivians valued knowledge and cited schooling as an important source of their environmental knowledge. However, they viewed environments from a more sociocultural perspective.

These differences in views of the term *environment*, and other aspects of the contexts influencing environmental attitudes, can also be more clearly understood in terms of the cultural beliefs and views identified for the communities studied. The Australian community studied relied on personal experiences in life for the views developed and held. The idea of formally acquiring knowledge through schooling was not highly valued. Rather, the informal education received through travel and the media was cited as the main sources of environmental knowledge. This may also explain why the Australian students were aware of more and knew more about environmental issues than they thought they did. The communication and information systems that bathe Australian life, combined with their willingness to question and develop their own ideas, may be so taken for granted that Australians are not consciously aware of the information they are constantly collecting, processing and assimilating as part of their everyday lives. Consequently, Australians build on a variety of experiences and form new views without fully realising it. These include views and information about environmental issues.

Because of the high value placed on maintaining Indonesian identity, the Indonesian community was not open to outside influences. The Indonesian students were not exposed to the influences of the media nor did they travel a great deal. Travel beyond Indonesia was virtually nonexistent. Consequently, school was their main source of information about environments. The fact that environmentalism was only taught in school as a minor part of the curriculum within other subjects or as an elective subject in some schools meant that students could not be expected to know a great deal about global environmental issues. Where environmental education was taught it was from a very different perspective compared to the Australian and Maldivian syllabuses. The emphasis was on teaching personal health, hygiene and cleanliness to produce disciplined citizens who could create a
beautiful, safe and clean environment. Many aspects of environmentalism found in the Maldivian and Australian syllabuses were not present in the Indonesian view of environments. More importantly, the concepts of critical analysis and reflection and arriving at personal understandings were absent and discouraged.

Similarly, in the past Maldivians have been restricted in their exposure to diverse and different influences and have had their views shaped by relatively homogeneous ethnic and religious influences. However, as contact with more diverse and different influences has increased, the traditional Maldivian way of life has been influenced. Alternative views are now more valued and change has resulted. The Maldivian students have been exposed to a variety of media influences, particularly television. In addition, Maldivians are starting to travel a great deal, not just between islands but internationally as a result of aid and educational programs. This increasing diversity of life experiences combined with the importance of schooling, which includes a separate environmental studies subject in primary school, means the Maldivian community studied has been exposed to views on many different aspects of environmentalism. The changing Maldivian life may also explain the inconsistencies between the Maldivian students' awareness of environmental issues and the fact that they have views from both the NEP and the HEP. It may be that as the rate of change in Maldivian society levels out, these inconsistencies will start to resolve.
CHAPTER 5: IMPLICATIONS AND CONCLUSION

5.1 Introduction
The purpose of this study was to identify environmental attitudes held by communities of pre-service teachers in three different countries (Australia, Indonesia and Maldives) and to examine three hypotheses. First, the culture and cultural identity of a community are important influences on the environmental attitudes held by that community and that aspects of culture can be examined to understand why a community holds the environmental attitudes it does. Secondly, knowledge is important in the development of environmental attitudes and that information about the environmental knowledge held by a community may be important in explaining and understanding the environmental attitudes held. Thirdly, a contributing factor in the development of environmental knowledge and attitudes may be the formal education programs implemented by a community. Therefore, the environmental education program taught within a community may influence environmental knowledge and the environmental attitudes held.

5.2 The influence of culture in a survey of environmental knowledge and attitudes
The Australian community varied in its attitudes towards environments from being individually self-centred through to thinking that the wellbeing of environments is more important than that of humans. In contrast, both the Indonesian and Maldivian communities exhibited a narrower range of attitudes towards environments than the Australian community, tending to occupy the middle ground of balancing human impact on environments with the benefits to be gained by such impact. All three communities showed agreement with the New Environmental Paradigm perspective on environmentalism. However, both the Indonesian and Maldivian communities were more neutral in their agreement compared with the Australian community and were anthropocentric in their environmental attitudes - that is, views were consistent with what is essentially best for humans. Differences in Indonesian and Maldivian environmental attitudes
were in terms of the reasons given for minimising human impact on environments.

The fact that both the Indonesian and Maldivian communities said they agreed with the New Environmental Paradigm yet exhibit essentially anthropocentric attitudes towards environments is worthy of further discussion. The main issue is that an anthropocentric perspective on environmentalism is more consistent with the HEP and is in conflict with agreement with a NEP view of environmentalism.

Recently, a small number of studies have used the NEP questionnaire as a way of investigating environmental attitudes in other than developed western cultures. Furman (1998) measured the support for the NEP in Istanbul, Turkey, and found scores to be similar to those reported for Pennsylvania. Support for the NEP view of environmentalism was found to be much greater in Sweden than in the neighbouring countries of Latvia and Estonia where concern for local environmental issues was much higher indicating the possibility that agreement with the NEP is consistent with a more global environmental perspective (Gooch, 1995).

There are also a limited number of studies about the relationship between culture and environmental attitudes using other than the NEP. Wisner (1995) showed that African attitudes towards environments could be understood in terms of place, livelihood and life world, rather than in terms of western views of environmentalism. Kempton, Boster and Hartly (1995) used 'cultural models' to explain differences in views about nature and environmental issues such as climate change. They also showed that some environmental actions are influenced by cultural values. In studies with Latino Americans Schultz, Unipan and Gamba (2000) concluded that environmental attitudes may become less pro-environmental with acculturation into their host environment. A survey of Nigerian secondary school students found that they had poor knowledge of environmental issues and a negative attitude toward environmentalism (Mansaray & Ajiboye, 1997).
As this collection of isolated studies suggests, "as yet, little is known about the relationship between culture and environmental attitudes" (Schultz et al., 2000, p. 22). The combination of cultural determinants that contribute to an environmental attitude may be unique to each culture and to each subculture and even to each community, making this an important area for further investigation. Additionally, although the findings of Schultz et al. (2000) indicate that cultural context may be a component of environmental attitudes, the extent of cultural influence has not been determined. Consequently, the conclusion reached by Furman (1998), that support for the NEP view of environmentalism in Istanbul was found to be similar to that reported for Pennsylvania, may be problematic. The evidence from this study indicates that this problem arises because the use of the Dunlap and Van Lierie (1978) questionnaire, without additional data, may not convey an accurate picture of each community's environmental views. Consequently, it can be argued that if an instrument, in this case a questionnaire, is not purposefully developed for use across cultural contexts then such a use may render findings less valid than if it were developed for such use.

This study has shown that the NEP questionnaire, which was devised for use in collecting data from western cultures, might not be adequate for determining attitudes towards environments in developing or underdeveloped non-western countries since the knowledge, beliefs and attitudes embedded in the questions asked and the language of the questions may give rise to different meanings and interpretations in different cultures. Reflecting the findings of Corral-Verduco and Armendarez (2000), it has also shown that it is possible for both pro-NEP and pro-HEP attitudes to be held simultaneously by individuals as well as within a community. In addition, the original New Environmental Paradigm was conceived as a view of environmentalism emerging from a dominant social paradigm (DSP) in which humans believed in progress and the abundance of resources. They had a devotion to economic growth and prosperity developed through a faith in science and technology and a commitment to a laissez faire economy and private property rights with limited government planning and intervention (Dunlap & Van Liere, 1978). The development of the NEP instrument was an attempt to measure the degree to which people were
committed to this new and emerging paradigm. The nature and therefore the influence of a DSP, irrespective of environmental views, on any new and emerging environmental paradigm will be different for different cultures. It can be argued that the different dominant social paradigms of different cultures exert contextual influences on how the questions for the NEP instrument are read, interpreted and answered. An example from this study that illustrates this is the finding that different communities interpreted the term *environment*, which is at the core of any study on environmentalism, differently. In the case of Indonesia, one reason for the different interpretations was culturally embedded – environmental education, as taught in schools, had to be consistent with and reflect social, cultural and religious ideologies. Essentially, the NEP questionnaire was conceived in the context of a specific DSP and was constructed to differentiate views within that DSP or from within a specific cultural context. This study has shown that the assumption that cultural context is transferable is problematic because different communities manifest different cultural frames that influence their worldview. Thus, findings of the present study confirm the suggestion by Corral-Verdugo and Armendarez (2000) that cultural context has an influence on environmental attitudes and that the NEP questionnaire, by itself, may not be an adequate instrument with which to measure environmental attitude in some cultures.

Specifically, one reason why the Indonesian and Maldivian communities seemed to agree with the New Environmental Paradigm, yet at the same time exhibited anthropocentric attitudes towards environments, was that each community and possibly individuals within each community held both pro-NEP and pro-HEP views simultaneously and that the dominant social paradigm in which data was collected was different to that which underpinned the instrument. If this interpretation is correct, one implication is that the NEP questionnaire developed by Dunlap and Van Lierie (1978) not only measures a NEP perspective but also a HEP perspective on environmentalism. There needs to be a clear distinction made between a NEP view of environmentalism and the NEP instrument developed by Dunlap and Van Lierie (1978). The instrument or questionnaire was developed to measure the agreement of a community with a NEP view of
environmentalism. This study indicates that the NEP instrument measures not only agreement with a pro-NEP but also a pro-HEP view of environmentalism. Individuals responding within a HEP would score high on the egoistic scale and low on the biospheric scale. Alternatively, individuals responding from within a NEP would score high on the biospheric scale and low on the egoistic scale. This would move the means for both these scales towards a middle value in association with large standard deviations. One way of determining if this effect is occurring would be to inspect the standard deviations for the biospheric and egoistic scales. High standard deviations for the biospheric and egoistic scales would be indicative of this effect. The standard deviations for each scale, for each community are shown in Table 5.1.

Table 5.1

All Three NEP Scales Showing Standard Deviations for Each Community

<table>
<thead>
<tr>
<th>Scale</th>
<th>Standard Deviation</th>
<th>Australia (n=225)</th>
<th>Indonesia (n=211)</th>
<th>Maldives (n=199)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biospheric</td>
<td></td>
<td>0.59</td>
<td>0.76</td>
<td>0.64</td>
</tr>
<tr>
<td>Altruistic</td>
<td></td>
<td>0.51</td>
<td>0.56</td>
<td>0.70</td>
</tr>
<tr>
<td>Egoistic</td>
<td></td>
<td>0.73</td>
<td>0.63</td>
<td>0.87</td>
</tr>
</tbody>
</table>

The high standard deviations for the biospheric and egoistic scales for Australia, Indonesia and the Maldives are all consistent with the explanation that some individuals within each community are responding to the NEP questionnaire from a pro-HEP perspective while others are responding from a pro-NEP perspective. Further evidence that supports this interpretation is that the standard deviations for the biospheric and egoistic scales for each community are higher than those for the altruistic scale for each community except for the Maldives where the standard deviation for the biospheric scale, although high, is not higher than that for the Maldivian altruistic scale. Nevertheless, there is strong evidence to support the explanation that a community can hold views consistent with both paradigms, especially the very high standard deviation for the Maldivian egoistic scale. This particular value indicates that the Maldivian community responded with a great degree of variation compared to the other communities and the other scales. It may also be
possible that individuals within communities hold competing views – that is, both NEP and HEP perspectives.

Further evidence indicating that culture influences environmentalism is that each of the three communities studied viewed the term *environment* from different perspectives. The Australian participants viewed environment from an essentially natural environmental perspective. The Indonesian participants viewed the term from an essentially built perspective while the Maldivian participants viewed it from an essentially sociocultural perspective. This is not to say that each community did not recognise the term from many perspectives and that there were many differences in views within each community. However, the data indicate that each community entered the interview discourse on environmentalism from different starting points and from within different contexts based on fundamentally different views of the concepts underpinning the discussion. Each community responded to the questionnaire with fundamentally different views about what constitutes the term *environment* with the result that the NEP questionnaire was measuring attitudes to different things for each community. Each community held a different view of what was meant by the term *environment*, and more generally *environmentalism*, and therefore the attitude being measured was towards something different for each community. It is also significant that the Indonesian and Maldivian communities viewed the term *environment* from a human or anthropocentric perspective. This view is consistent with a pro-HEP perspective on environmentalism and is strong additional evidence that the NEP questionnaire was not only measuring attitudes to different views of environmentalism but also to a HEP perspective on environmentalism as well as a NEP perspective.

These findings have implications for environmental education curriculum development as well as for the broader field of policy development. Fundamental underpinnings of environmentalism (meaning a broadened view and understanding of environments) can be specific to the different communities or groups involved in and dialogue on an environmental issue. They are powerfully contextualised by the culture of each community so that each community develops very different understandings of
environmentalism. Consequently, any discussion involving aspects of environmentalism should include a process of defining basic terms and concepts at the outset so that discussion can move towards outcomes that when agreed to, will remain as agreed. Essentially, when time is devoted to establishing an understanding of context any agreement reached will be genuine and not undermined later by misinterpretations and misunderstandings.

At a policy level, basic terms and concepts, the so-called ‘givens’ by those involved in discussions, would need to be defined and contextualised. This applies not only to education contexts but also to other areas of human discourse such as diplomacy. It would be wise for national representatives, meeting at international forums, to invest time and expertise in investigating the views held by those with whom they intend to meet so they would be meeting with an understanding of the nature, cultural derivation and context of the views of others. A cultural understanding of and sensitivity towards others is a prerequisite when attempting to engage in meaningful dialogue. This is essential where issues and perspectives vary in importance and where tolerance and understanding of difference is required for mutual and positive movement towards sustainable actions.

What these findings suggest is that there may be a whole suite of underlying, interconnected information that people and communities draw on to inform views and discourse about and attitudes towards environments. Whilst this idea is not new (Mezirow, 1991, 2000; Elias, 1997; Lamm, 2000), the current study shows that there may be an ecology (organic, interrelated and integrated) of learned information that influences thinking, views and attitudes. The influence of culture and the context it contributes to and in the development of attitudes towards environments is perhaps as influential as the traditional content associated with environmental studies. There may be a web of ‘being’ and of ‘knowing’ that underpins, sculptures and so shapes beliefs, attitudes and views. It is not highly visible and, at times, there are attempts to underrate its existence, such as when the Australian participants said they did not know very much about environmentalism. Nevertheless,
this cultural context is part of the knowledge required for meaningful dialogue in environmentalism.

The finding of greatest importance is that culture has a profound influence on attitudes towards environments. In addition, the way the term environment varies in interpretation and understanding from community to community can also be attributed, at least in part, to the influence of culture. Consequently, the findings from this study raise the hypothesis that if these assertions are true for the influence of culture on environmentalism, then it follows that everything people are – their identity and their very being – may influence attitudes towards all things including environments. This is a hypothesis raised by this study and is consistent with the views of environmentalists and ecological thinkers such as Mezirow (1991, 2000), Elias (1997) and Lamm (2000) and supported by the argument that in the particular lies the general. It may be that it is not only culture which influences views and attitudes towards environments, but everything that culminates in the formation of attitudes and an individual’s view of the world. Indeed, White (1967) argued that the Judaeo-Christian worldview is the cause of a western dominating and exploitative approach to nature. The inference is that there may be a time evolved ecological system of learning – of picking up external information, processing it and forming views and attitudes based not only on new information but on what is already there in a person’s consciousness, some of which may be social consciousness (Russell, 2001) – both directly relevant and seemingly less relevant. The view that culture influences the way information is processed, that it influences thinking and learning and relating to the world may be an ecology of learning and is a view emerging from this study but will need to be extensively explored by further research.

5.3 The importance of environmental knowledge

This study found that the majority of the Australian sample had a good awareness of environmental issues and at least a satisfactory knowledge of the issues discussed. In contrast, the Indonesian participants demonstrated poor awareness of environmental issues with inaccurate knowledge of what they did know, while the Maldivian participants demonstrated a good awareness of environmental issues but their knowledge was inaccurate.
Although the Australian participants’ life experiences and schooling were the main sources of their environmental knowledge, their outgoing view of the world, combined with comparative wealth, enabled them to acquire environmental knowledge as part of their life experiences rather than just as part of formal learning efforts. However, the NSW schooling system employs a cross-curricular environmental education policy statement throughout primary and secondary schooling. Schooling was perceived as the most common source of the Indonesian and Maldivian communities’ environmental knowledge. Schooling and reading were associated with broader views of environmental issues and environmentalism generally. The difference between the Indonesian and Maldivian communities was that the Indonesian community’s schooling did not include a compulsory environmental education syllabus or policy. Where schools did teach environmental education the curriculum documents emphasised very different aspects of environments compared with the Maldivian syllabus. The Indonesian students acquired their knowledge about environmental issues as part of their science curriculum whereas the Maldivian community were taught environmental education from a specified syllabus that dealt explicitly with these issues throughout primary school. Although this difference may explain why the Maldivians had better awareness of environmental issues and greater accuracy of environmental knowledge than the Indonesian community, it does not explain why the Australian community was more aware of environmental issues and had greater knowledge than both these communities.

The evidence collected during this study suggests that the Australian community’s greater awareness and knowledge of environmental issues may stem from their outgoing and outward looking nature, which is supported, at least in part, by greater financial resources and access to multimedia. This is consistent with the findings from the ICUE questionnaire analysis that the Australian community critically evaluated their surroundings to assimilate relevant information to inform their views and search for better solutions to problems and embrace resulting changes. The Australian community also valued variation of thought and independence of thought and was open to the opinions of others. In short, the Australian community indicated it was
able to accommodate a variety of different views. These are important findings because they reinforce the importance of the contextual and process components - identity, culture, the ability to problem solve and tolerate change - in understanding environmentalism as well as indicate that contextual influences, as opposed to subject knowledge, are all part of the content of environmentalism. This is important as environmental knowledge is acquired in context as part of everyday life experiences, and intimately entwines with the sociocultural contexts that combine to give it meaning. These findings also add weight to the notion that learning in context is more powerful in promoting change through the assimilation of long term, life-relevant views than learning in a more structured, less real-life contextualised classroom environment.

5.4 The role of schooling

All communities cited learning at school as a source of their knowledge about environments. Schooling was cited as the main source of environmental information for the Indonesian community, as it was, but to a lesser extent, for the Maldivian community. Although a source of environmental knowledge, schooling was not identified as the main source of environmental knowledge for the Australian community.

For the Australian community there appears to be an almost inverse relationship between schooling as a source of environmental knowledge and the awareness and accuracy of the information obtained and pro-NEP environmental attitudes. However, the role of schooling as a source of environmental knowledge for the Australian community would need to be researched thoroughly before any definitive conclusion can be made since this study presents only the perceptions of those interviewed. For the Australian community, the findings indicated that the relative contribution of schooling to environmental knowledge was not great. However, this may be a conclusion reached based on incomplete evidence. When the findings about the influence of cultural are drawn upon, it can be argued that schooling may have been a more important influence than the Australians interviewed indicated. The Australian participants may have learnt more about environmentalism at school than they realised, but this may have been
overshadowed by everyday out of school learning experiences. Furthermore, out of school experiences may have reinforced what was learnt at school. In addition, environmental knowledge obtained through schooling may not be automatically transferred to good awareness and knowledge of environmental issues. It may be that environmental knowledge learnt at school is better retained and understood when combined with the influences of everyday life that underpin and reinforce it. This is especially true when the overall knowledge gained is consistent with the more socially and culturally based outcomes of environmental education. These include the realisation and acceptance of difference, listening to and attempting to understand the views and perspectives of others as well as the general skills associated with problem solving such as balancing views and searching for alternative solutions (New South Wales Department of School Education, 1989). These skills and attitudes were identified by this study as some of the features of Australian cultural identity and therefore, indicate that the influence of schooling is greater than the Australians interviewed indicated.

The study findings suggest that the form environmental knowledge takes in schools may not, by itself, promote as pro-NEP environmental views as thought. The finding that the Australian community learns about environmentalism in their everyday lives, in an active and outgoing way through travel and the media, demonstrates the power of an individual's personal connections and involvement in learning, and that these connections are anchored in culture and worldviews. If environmental education concentrates on the acquisition of knowledge, in the absence of cultural contexts and processes, then the attitudes developed may not be consistent with those it is attempting to develop. This study suggests that it is the active pedagogy – the use of teaching strategies that require student activity and involvement in environmentalism in terms of critically examining issues and doing something about them – that is important in developing pro-NEP views. Environmental education that does not incorporate student-active pedagogy may be less effective than that which does. However, some researchers (Zelezny, 2000) have questioned whether conceptual knowledge is advanced if environmental education involves more outdoor experiences.
5.5 Additional findings

This study found that there were problems with using the NEP questionnaire when determining environmental attitudes in developing, non-western cultures because it was not constructed for use in different cultural contexts. When interviewed, the Maldivian and Indonesian communities revealed a much narrower range of environmental attitudes than the NEP questionnaire predicted. These attitudes were anthropocentric, and inconsistent with a pro-NEP perspective despite the fact that the NEP questionnaire estimated the community to be pro-NEP. Although it is acknowledged that the interview sample was small, this finding highlights the need to go beyond the questionnaire and predetermined groupings when dealing with communities of other than developed, western cultural backgrounds while using western culturally based instruments. The questions included in the NEP questionnaire were written by western environmentalists and, as such, intuitively reflected a western perspective (see discussion on the construction of the questionnaire in Dunlap & Van Liere, 1978) and assumed that terms such as *environment*, were being interpreted in a consistent way. The study findings suggest that the NEP questionnaire may be limited when respondents are from non-western cultures and that there is a need for a more culturally sensitive instrument.

As discussed above, one possible explanation identified for the inconsistencies between the questionnaire and interview findings is that some communities and individuals may simultaneously embrace competing paradigms. Indicators of the resultant multiple and competing views were identified from the interviews only when they were allowed to surface from the data. They were masked when allocated to predetermined identities such as the NEP scales. This finding has implications when analysing data from communities where language, beliefs and attitudes are different. It suggests that the NEP is culturally specific and that the perspectives, which underpin it have a cultural bias and carry an unintended cultural context that is not transferable to cultures that do not share similar knowledge, beliefs, values and attitudes. The extent and limits of this non-transferability has not been determined by this study. However, the findings from this study suggest that the relationship between the biospheric, altruistic and egoistic dimensions of

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environmental attitude shown in Figure 2.1 need to be modified to more accurately account for communities and individuals simultaneously holding both pro-NEP and pro-HEP views. This reconceptualisation includes an overlap between the biospheric and egoistic dimensions and is shown in Figure 5.1. This reconceptualisation then replaces the environmental attitude component of Figure 2.3.

![Figure 5.1](image)

Figure 5.1 The reconceptualised dimensions of environmental attitude.

5.6 Implications of the study limitations

The main limitation of this study stems from the purposive selection of the sample and the interview sample size. The students within each community studied were purposefully selected and the community, within each country, was also purposively selected. This was a necessary constraint of the study since it was impossible to explore the views of all people in each of the three countries studied. Trainee teachers may not necessarily be typical of other communities within countries. Nevertheless, the sample selection process was consistent with the overall purpose of the study, which was to see if culture, represented by a limited number of values, beliefs and worldviews, influenced environmental attitudes.
It is not important, for this study, that a sample of a community represent anything more than the community from which it is drawn. That the samples used in this study are representative of their communities is all that is required. Generalisations beyond this are not necessary for the purposes of this study. Having said this, it is recognised that many influences that impact on and help to build and identify a community extend beyond it. Education systems, for example, impact on and influence many communities and at another level help to bind and identify a community. Therefore, this study asserts that different communities, identified by aspects of their culture and difference to others, have different views about and different attitudes towards environments. This study also asserts that differences in environmental views can, at least in part, be attributed to differences in knowledge, values, beliefs and worldviews associated with a culture as well as differences in the learning ecologies that operate in different cultures.

5.7 Suggestions for further research

Research has shown that there are a number of attitudes towards environments ranging from those which are underpinned by human egocentrism, through to those balancing a number of competing views and perspectives to attitudes which recognise the deep ecological basis of environmentalism in terms of the integration and interrelationships associated with diverse biological systems. It has been shown by this study and by others (Gooch, 1995; Mansaray & Ajiboye, 1997; Corral-Verdugo & Armendarez, 2000; Schultz, et al., 2000) that environmental attitudes are influenced by human beliefs, values and worldviews – that is, by culture. A culture, which critically evaluates surroundings, selects and assimilates relevant information and searches for information to inform views and to find better solutions to problems and embrace resulting changes will embody a worldview that values variation of thought and independence of thought and is open to the opinions of others and tolerant of different and sometimes conflicting views. However, this study only addressed some aspects of a vast array of cultural dimensions. A more exhaustive study of the impact of culture on environmental attitudes is needed. When such research has been undertaken it may be possible to identify key cultural indicators and aspects
of the way people process information, think and learn and so provide insights into the more critical cultural influences on environmental attitudes.

It may also be possible to review the NEP questionnaire, as developed by Dunlap and Van Lierie (1978) and later updated by Dunlap et al. (1992) and Dunlap et al. (2000), and modify it to produce an instrument that is more inclusive of diverse cultural contexts. However, such a solution may not be possible since the Dunlap and Van Lierie (1978) questionnaire is nested in a view of environmentalism generated from a worldview that may not be consistent with diverse cultural contexts. Consequently, the NEP as a view of environmentalism would first need to be examined in terms of its cultural underpinnings and inclusiveness.

This study has shown that environmental education includes not only knowledge of environmental issues but also an understanding of the cultural contexts and processes of analysis that are entwined with them. This view of environmentalism should be further explored to see how learning about environments could be promoted at a school level and throughout broader community layers. Although it has been suggested that school environmental education should incorporate contexts and processes in synergy with environmental issues, the nature of these contexts and processes has not been fully explored. Consequently, the whole school curriculum needs to be examined so that an environmental education curriculum can be developed to promote effective environmental education within individual school cultures and contexts. Effective environmental education will take account of not only contexts and processes, but will be in synergy with student lifestyle choices that are transferable across contexts within communities and so promote sustainable environments within schools and, at the same time, extend beyond them. This study suggests that life experiences, as part of an overall outgoing lifestyle, help promote pro-NEP views. This is not to say that an outgoing, open lifestyle is a necessary part of effective environmental education. However, it acknowledges that such a lifestyle has been shown to be associated with pro-NEP views in an Australian cultural context. The connections between the two need to be explored further as does the nature and influence of the way people think and learn to support pro-NEP views.
At the outset, this study stated that environmentalism has been issue driven rather than theoretically based. This implied a lack of an extensive and cohesive conceptual framework around which environmentalism could be studied and understood. This study does not attempt to develop such a framework. Indeed, it serves to amplify the need for one. Long standing views and perspectives, such as the NEP, have been found wanting, not in terms of basic ideas or underlying philosophy, but in terms of connections and interrelationships with culture. This study has raised a number of indicators of areas that need to be considered and addressed in developing a more comprehensive and culturally appropriate conceptual framework for environmentalism in a globalised world. It has also added weight to the growing realisation that environmentalism is not yet a core content area in school curricula.

5.8 Implications and recommendations

The study findings impact on school curricula – specifically environmental education – environmental policy development and the conceptual framework that underpins environmentalism. The recommendations that emanate from these implications will be dealt with in the context of discussion as they arise.

School curricula vary from country to country and across each province, state or region within each country. There is some uniformity of school curricula in terms of the more established disciplines such as mathematics, science and language. However, the newer disciplines, such as environmental education, vary enormously – as much within countries as between them. In NSW, Australia, environmental education is a cross-curricular discipline, which is directed by a Kindergarten to Year 12 Policy Statement. In the Maldives, environmental studies is a formal subject studied in primary schools and directed by a syllabus. Some aspects of environmentalism are also taught in senior years in the Maldives as part of subjects like science and geography. Indonesia does not have a compulsory subject called environmental education and where environmental education is taught, it is from a human health and hygiene perspective where the emphasis is on the maintenance of Indonesian identity and consistent with Islamic teachings. However,
disciplines like science include some aspects of environmentalism that deal with more global environmental issues. Regardless of the organisational structure or form that education about environments takes, most teaching is directed by the perceived need to know about environmental issues.

This study has shown that such arrangements for environmental education may be problematic. Although environmental education has specific content in terms of knowledge, understandings, skills, values and attitudes, for example the knowledge and understanding of an environmental issue as well as the values and attitudes associated with it, environmental education is most effectively taught in context and as part of a more holistic study of environmentalism. It has also been stated that the issues that drive environmental education may not be, in themselves, an effective driving force. An area that merits further study is that the school curriculum, in its entirety, may need to be revisited to incorporate environmental education both within each of the discipline areas and throughout the school. In this context environmental education may be viewed as an organic, evolving school-wide enterprise in synergy with its community, curriculum and sociocultural context, with each subject discipline being responsible and accountable for the integration of environmentalism throughout its curriculum. This is consistent with the finding from this study, which suggest each community interprets and relates to environmentalism in a way consistent with its history, beliefs and identity. It may be that the school, at a holistic level, could develop and implement inclusive policies of resource management that are consistent with a contemporary view of environmentalism. It would be valuable to determine, by research, if a whole school approach to environmental education could integrate its influence with communities that interact with it, allowing context, community-life processes and the environmental learning ecology associated with the school community to shape its growth and development.

Environmental Education, as an academic field of study, is in its infancy. Humanity is only just starting to recognise and understand its vast diversity as part of the Earth’s ecology and to understand the role of people in terms of global environmental sustainability – the ability of the Earth’s ecological
systems to operate in the future. Consequently, there is a need for research to take place about environmentalism in a way that is cumulative and developmental. One of the most important and pressing tasks is to construct a conceptual framework of environmentalism. This present study has contributed to this process. It has shown that, like most global phenomena, environmentalism should not be viewed from the narrow perspective of one view of the world – that a diversity of worldviews is needed to evolve a more inclusive framework for environmentalism.

5.9 Conclusion

This study has shown that environmental attitudes are influenced by culture. Within any community individuals are the products of many, varied and intersecting cultures. Impact is dependent on the history and interests of individuals themselves. No one individual within a community is subject to identical influences. However, communities are identified by their culture and by those characteristics and experiences which distinguish them from others and that engender identity. Therefore, it is not surprising that culture is an important influence on environmental attitudes. It has also been shown that some aspects of a community's culture indicate why it holds the environmental attitudes it does. Consequently, the first hypothesis explored by the study has been supported indicating that understanding aspects of culture will explain environmental attitudes held by a community. This study suggests that future research may identify cultural characteristics or learning ecologies that identify or predict more precisely environmental attitudes.

This study has also shown that environmental knowledge is important in the development of environmental attitudes particularly if it is acquired in context as part of every day life experiences. It was found, in the case of the Australian community, that environmental enquiry processes that critically evaluate information to inform views and search for solutions to problems were also influential in developing attitudes towards environments. The contexts and processes associated with environmentalism were as influential as environmental knowledge. These findings substantiate the study's second hypothesis.
Affirming the third study hypothesis it was found that formal education influenced environmental attitudes and that it was a possible explanation for differences in environmental knowledge and attitudes. It was found that the transfer of pro-NEP views was more effective when combined with the contexts and processes that underpin those of environmentalism. Consequently, although not a proven outcome of this study, it has emerged that there may be an argument to suggest that a student-active pedagogy in formal schooling may be more effective in promoting pro-NEP views. However, this argument would need to be developed in conjunction with further research.

Overall, this study has contributed to the research on environmentalism by confirming that culture has a marked influence on how people perceive environmental situations. More precisely, it has shown that when research is being conducted about environmental issues it cannot be taken for granted that fundamental issues, ideas and concepts, such as the term ‘environment’, are viewed similarly by different people. The complexity of views held is further amplified by the finding that as well as communities holding views across more than one paradigm, individuals also hold views across competing environmental paradigms. The study has shown that selected aspects of culture can be used to predict orientations to environmental situations. The implication is that future research might identify a greater range of specific cultural characteristics that help make predictions of environmental actions possible. Consequently, instruments developed to measure attitudes and actions towards environments will need to take into account cultural characteristics and ensure that the language and concepts embedded in the instrument are interpreted in the way intended by researchers. If this does not occur research findings will be less reliable, context bound and therefore limited when focussed at a global level.

Importantly, this study has shown that it is not just environmental knowledge that influences environmental attitudes and decision making but the nature of that knowledge – its sources and the processes involved in obtaining it. The implication is that future research might suggest an effective pedagogy for environmental education and that this pedagogy may promote
the development of a society more aware of the need to factor concern for environments into its human systems. Consequently, this study has broadened our understanding of environmental education and of the importance of taking a more holistic approach to environmental education curriculum development.

This study has identified that one way forward for environmental education is to conduct research on the many borders of environmentalism. Such research will need to be underpinned by a global perspective that acknowledges all living systems, including human systems, as part of an ecological, interrelated and interconnected construct or conceptual framework for environmentalism. However, such a construct will need to be accurate and acknowledge and accommodate the unique role of humans and their diversity of cultures in a globalised world.
REFERENCES


Walsh, E., Dall’Alba, G., Bowden, J., Martin, E., Marton, F., Masters, G., Ramsden, P., & Stephanou, A. (1993). Physics students' understanding of


Dear Colleague,

My name is Kevin Watson and I am a lecturer in the Faculty of Education at the University of Western Sydney, Australia. This survey is being conducted in three countries (Australia, Republic of Maldives, and Indonesia). The work is supported by the University of Western Sydney, Nepean and is part of the requirements for my PhD.

The survey seeks your perceptions of the extent to which certain views about the world are held in your country. It also seeks your opinion about some environmental issues and the extent of the information you have about the environment. The findings will be used to draw implications for curriculum design and delivery methods, and for professional development of teachers within and across cultures.

Your involvement in this study is voluntary and there is no obligation on you to participate. All questionnaires are anonymous. Your willingness to participate is greatly appreciated. Your involvement is greatly valued and will be a significant contribution to the study.

Completed questionnaires should be placed in the large box outside the lecture theatre.

As is the case with cross-cultural surveys, you may find some questions difficult to answer. If there are some questions you feel you cannot answer because you do not have sufficient information or knowledge, a column is provided headed Don’t Know, for you to indicate this. If you feel it is culturally or otherwise inappropriate to answer some questions, you may wish to leave them blank.

There is a second part to the data gathering involving an interview. If you would like to participate in the interview, please put your name contact details at the top of this page. The interview is completely voluntary. It will be used to gain some understandings of the study findings. If you choose to take part in the interview but change your mind, you may do so at any stage even after the interview has started.

This study has been approved by the University of Western Sydney Nepean’s Human Ethics Review Committee. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Human Ethics Officer (047) 360 169. Any issue you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

If you have any questions or wish to talk about any of the questions asked, please feel free to contact me at the address shown below. Thank you for your time.

Yours sincerely

Kevin Watson
BACKGROUND

Please tick the correct box or provide the information in the space provided.

1. What is the number of years between your leaving school and attending university? (If you went straight from school to university show this as 0 years.)
   □ □ years

2. What is your gender?
   female  □ 1   male  □ 2

3. What is your nationality?

4. What is your country of birth?

5. Write down the country of origin for your:
   mother

6. Write down the country of origin for your:
   father

7. What is your age in years? □ □

8. To which religious group do you belong?
   Buddhist  □ 1
   Christian  □ 2
   Hindu  □ 3
   Islam  □ 4
   other (please specify)

9. How strong is your religious commitment?
   no commitment  □ 1
   little commitment  □ 2
   fair commitment  □ 3
   strong commitment  □ 4
   very strong commitment  □ 5
III. Which category best describes your family's income level?

- well above average
- above average
- average
- below average
- well below average

IV. Which best describes the community in which you grew up?

- regional or national city
- small town or village
- rural area

V. Write down the language you speak at home.

VI. Write down any other languages you speak.

VII. Have you visited other countries?

- yes
- no

VIII. Have you visited any of the following countries?

- Australia
- The Republic of Maldives
- Indonesia
- other Asian country (please specify)

IX. Do you know people living in:

- Australia
- The Republic of Maldives
- Indonesia
- another Asian country

X. What group of children are you training to teach?

- secondary
- primary

XI. From the following list, tick one teaching subject you like most.

- your native language
- foreign language
- mathematics
- science
- social science (history, geography, economics etc)
- the arts (music, art, dance craft etc)
- physical education (personal development and health)
- religious studies
- other (please specify)
In Part B please indicate your view of the perceptions of people in your country. Do not indicate your personal opinions.

Circle the number which best represents the view of people in your country.

If you don’t think a question applies to your country or doesn’t make sense, leave it out.

If you don’t have enough information to answer a question please use the don’t know box.

<table>
<thead>
<tr>
<th>Statement</th>
<th>rarely</th>
<th>sometimes</th>
<th>fairly often</th>
<th>often</th>
<th>very often</th>
<th>don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. people look to the future rather than the past.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>2. people want change to build on past traditions and values.</td>
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<td>2</td>
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<tr>
<td>3. people feel they determine their own future through their own actions.</td>
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<td>2</td>
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</tr>
<tr>
<td>4. a high value is placed on people as members of a community.</td>
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<td>6</td>
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<tr>
<td>5. people believe change should occur in harmony with the environment.</td>
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<td>2</td>
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<td>6</td>
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<tr>
<td>6. people are valued if they are prepared to be critical or express ideas opposing what has been done in the past.</td>
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<td>7. people believe modern technology can achieve a better future.</td>
<td>1</td>
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<td>8. people believe the society and environment must be controlled and used to serve human needs.</td>
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<td>9. in social relationships, people maintain respect of others through traditional ways.</td>
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<tr>
<td>10. people believe technology brings material change but not inner harmony and peace of mind for people.</td>
<td>1</td>
<td>2</td>
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<td>6</td>
</tr>
<tr>
<td>11. people feel their choices are restricted by many factors beyond their control.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>12. people believe human action is necessary to bring change.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>13. people look to technology to bring about a significant change in society.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>14. people put a high priority on materialism.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>15. people believe it is important to live according to their spiritual and religious values.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>16. people live for the present.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<td></td>
</tr>
<tr>
<td>1</td>
<td>means rarely</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>means sometimes</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>means fairly often</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>means often</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>means very often</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>means don't know</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

1. inner peace and harmony bring feelings of high self-worth more than recognition by others. | 1 | 2 | 3 | 4 | 5 | 6 |
2. what people do is more important than what they possess. | 1 | 2 | 3 | 4 | 5 | 6 |
3. a major purpose for students to gain knowledge is so they can find their place in society. | 1 | 2 | 3 | 4 | 5 | 6 |
4. in social situations, people value someone who reacts immediately and takes action. | 1 | 2 | 3 | 4 | 5 | 6 |
5. there is an essential core of knowledge which all students should learn. | 1 | 2 | 3 | 4 | 5 | 6 |
6. people value the learning of facts. | 1 | 2 | 3 | 4 | 5 | 6 |
7. knowledge develops through a unity of body, mind and spirit. | 1 | 2 | 3 | 4 | 5 | 6 |
8. students are encouraged to develop their own ideas on how things work. | 1 | 2 | 3 | 4 | 5 | 6 |
9. people observe the world around them and look for symbolic or inner meaning. | 1 | 2 | 3 | 4 | 5 | 6 |
10. individuals rather than group achievements attract most attention and praise. | 1 | 2 | 3 | 4 | 5 | 6 |
11. people who act from the heart rather than the head are seen as foolhardy. | 1 | 2 | 3 | 4 | 5 | 6 |
12. people speak directly and say what they think and feel. | 1 | 2 | 3 | 4 | 5 | 6 |
13. people mainly feel good about themselves when they are valued by others. | 1 | 2 | 3 | 4 | 5 | 6 |
14. people emphasise knowledge built from experiences. | 1 | 2 | 3 | 4 | 5 | 6 |
15. people value social relationships with those of higher status. | 1 | 2 | 3 | 4 | 5 | 6 |
16. a major role of education is to preserve the cultural heritage and values. | 1 | 2 | 3 | 4 | 5 | 6 |
17. people believe any problem has several possible solutions. | 1 | 2 | 3 | 4 | 5 | 6 |
18. in social relationships, everyone is treated equally. | 1 | 2 | 3 | 4 | 5 | 6 |
19. students are encouraged to question what is taught and to understand the world for themselves. | 1 | 2 | 3 | 4 | 5 | 6 |
20. people believe most problems have a single solution. | 1 | 2 | 3 | 4 | 5 | 6 |
21. it is usual to look beyond people's words and actions for their hidden meaning. | 1 | 2 | 3 | 4 | 5 | 6 |
**PART C**

Please circle the number to indicate your opinion on each of the following statements. This is your personal opinion.

1. means strongly disagree  
2. means disagree  
3. means neutral  
4. means agree  
5. means strongly agree

<table>
<thead>
<tr>
<th>Statement</th>
<th>strongly disagree</th>
<th>disagree</th>
<th>neutral</th>
<th>agree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. We are approaching the limits of people the earth can support.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. The balance of nature is very delicate and easily upset.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. Humans have the right to modify the environment to suit their needs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. The earth is like a spaceship with only limited room and resources.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. When humans interfere with nature it often produces disastrous consequences.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. Humans were created to rule over the rest of nature.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. There are limits to growth beyond which our industrialised society cannot expand.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. To maintain a healthy economy industrial growth should be controlled.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. Plants and animals exist primarily to be used by humans.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. Humans are severely abusing the environment.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. Humans must live in harmony with nature in order to survive.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12. Humans need not adapt to the natural environment because they can remake it to suit their needs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**PART D**

Please circle the number to indicate your beliefs about the importance of the needs of people and the needs of the environment.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>The welfare of people should be the single highest priority.</td>
<td>When people's needs and the needs of the environment are to be met, people are more important.</td>
<td>People's needs and the needs of the environment are both to be met.</td>
<td>When people's needs and the needs of the environment are to be met, the environment is more important.</td>
<td>The welfare of the environment should be the single highest priority.</td>
</tr>
</tbody>
</table>
**PART E**

Please circle the number to indicate what you know about each of the following topics.

1. means I have no knowledge of this topic.
2. means I have a little knowledge of this topic.
3. means I have a fair knowledge of this topic.
4. means I have a good knowledge of this topic.
5. means I have a very good knowledge of this topic.

<table>
<thead>
<tr>
<th>Statement</th>
<th>no</th>
<th>little</th>
<th>fair</th>
<th>good</th>
<th>very good</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. acid rain?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. strategies for recycling household wastes?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. conservation?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. pollution?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. the effect of the ozone layer on sea level?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. ecosystems?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. the applications for solar energy?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. deforestation?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. the greenhouse effect?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. strategies for conserving endangered species?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. natural resources?</td>
<td>1</td>
<td>2</td>
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<td>5</td>
</tr>
<tr>
<td>12. the effects of acid rain on plants?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13. nuclear wastes?</td>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14. over population?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15. ways of reducing greenhouse gases?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>16. the ozone layer?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>17. strategies for reducing industrial pollution?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>18. soil conservation?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>19. solar energy?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>20. the safe storage of nuclear wastes?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>21. recycling?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>22. resource management?</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
</tr>
</tbody>
</table>
APPENDIX 2

UNIVERSITY OF WESTERN SYDNEY NEPEAN

Pengantar

Juni, 1997

Mahasiswa yang terhormat,

Perkenalkan saya adalah Kevin Watson, dosen di the Faculty of Education at the University of Western Sydney, Australia. Dalam rangka penelitian untuk melengkapi program Ph.D yang sedang saya tempuh, dengan ini saya mengajak Anda untuk ikut serta mengisi koesioner yang disediakan. Koesioner ini disebarkan di tiga negara yaitu Australia, Maladeva, dan Indonesia.

Koiesioner ini digunakan untuk menjaring persepsi Anda terhadap beberapa aspek kehidupan yang terdapat di negara Anda. Koiesioner ini juga dimaksudkan untuk menjaring pendapat dan seberapa jauh informasi yang Anda peroleh mengenai hal-hal yang berkaitan dengan lingkungan. Hasil yang diperoleh dari koiesioner ini akan digunakan untuk merancang kurikulum, metodologi pendidikan, dan pengembangan profesional guru atas dasar perbedaan budaya.


Koiesioner yang telah Anda isi bisa diserahkan pada dosen yang membingbing pelaksanaan pengumpulan data ini.


Selain melalui koiesioner ini, pengumpulan data juga kami lakukan melalui wawancara. Wawancara ini akan sangat berguna bagi kami untuk mendapatkan beberapa informasi dari Anda yang boleh jadi tidak kami peroleh dalam koiesioner ini. Jika Anda berminat untuk berpartisipasi dalam wawancara tersebut, sila mencantumkan nama lengkap pada secakik kertas lalu berikan pada dosen yang membingbing pengumpulan data ini. Untuk memudahkan komunikasi jangan lupa sertakan juga alamat lengkap. Sekali lagi, sekalipun Anda telah memberikan alamat, kerahasiaan Anda akan kami jaga
dengan baik. Jika setelah memberikan nama dan alamat temyata Anda berubah pikiran untuk tidak mengikuti wawancara ini, jangan ragu-ragu untuk membatalkannya.

Penelitian ini telah disetujui oleh the University of Western Sydney Nepean’s Human Ethics Review Committee. Jika ada keluhan ataupun keberatan pada beberapa pertanyaan yang terdapat dalam koesioner ataupun wawancara yang kami lakukan, jangan sungkan-sungkan untuk memberitahukan kepada the Ethics Committee through the Human Ethics Officer (047) 360 169. Keluhan dan keberatan tersebut akan sangat kami perhatikan.

Jika ada pertanyaan ataupun Anda ingin membahas tentang beberapa pertanyaan pada koesioner ini, dengan senang hati kami akan menanggapi. Untuk itu alamatkan pada the Ethics Committee through the Human Ethics Officer (047) 360 169. Terima kasih atas kerjasama dan waktu yang telah Anda luangkan.

Salam kami

Kevin Watson
STUDY INTERNASIONAL
TENTANG PEMAHAMAN INTER-CULTURAL

BAGIAN A

TAR BELAKANG

'ilah tanda silang (x) pada salah satu kolom yang disediakan untuk setiap informasi yang disediakan

Sudah berapa tahun Anda meninggalkan bangku SMA? (Jika Anda langsung dari SMA masuk ke perguruan tinggi pada tahun ini, isikan angka nol pada kolom yang disediakan).

☐ ☐ tahun

Jenis Kelamin

Perempuan ☐ 1
Laki-laki ☐

Kewarganegaraan

Negara tempat Anda lahir

Ibu Anda berasal dari negara

Ayah Anda berasal dari negara

Berapa tahun umur Anda sekarang?

☐ ☐

Agama yang Anda anut adalah:

Budha ☐
Kristen ☐
Hindu ☐
Islam ☐
Lainnya (silahkan Anda tulis)

☐ 1
☐ 2
☐ 3
☐ 4

Sejahterana ketaatan Anda terhadap agama yang Anda anut?

Sangat tidak taat ☐
Agak taat ☐
Cukup taat ☐
Taat ☐
Sangat taat ☐

289
10. Dibandingkan dengan pendapatan nasional umumnya, termasuk kedalam kategori manakah pendapatan keluarga anda?
   jauh di atas rata-rata ☐ 1
   di atas rata-rata ☐ 2
   rata-rata ☐ 3
   di bawah rata-rata ☐ 4
   jauh di bawah rata-rata ☐ 5

11. Dalam lingkungan bagaimanakah Anda dibesarkan?
   Ibu kota negara/propinsi ☐ 1
   kota kabupaten ☐ 2
   pedesaan ☐ 3

12. Bahasa yang Anda gunakan di rumah adalah

13. Bahasa lainnya selain yang Anda gunakan selain bahasa pada pertanyaan nomor 12 adalah

14. Pernahkah Anda pergi ke luar negeri?
   ya ☐ 1
didak ☐ 2

15. Pernahkah Anda mengunjungi negara-negara berikut ini?
   Australia ☐ 1
tidak ☐ 2
   Maladeva ☐ 1
tidak ☐ 2
   Indonesia ☐ 1
tidak ☐ 2
   Negara Asia lainnya (silahkan Anda tulis)

16. Apakah Anda punya kenalan dengan orang-orang yang tinggal di:
   Australia ☐ 1
tidak ☐ 2
   Maladeva ☐ 1
tidak ☐ 2
   Indonesia ☐ 1
tidak ☐ 2
   Negara Asia lainnya ☐ 1
tidak ☐ 2

17. Siswa di sekolah manakah tempat Anda latihan mengajar?
   sekolah menengah ☐ 1
   sekolah dasar ☐ 2

18. Dari daftar mata pelajaran berikut ini, pilih salah satu yang merupakan mata pelajaran yang paling Anda suka untuk diajarkan
   Bahasa Indonesia ☐ 1
   Bahasa asing ☐ 2
   Matematika ☐ 3
   Ilmu pengetahuan alam ☐ 4
   Ilmu pengetahuan sosial (sejarah, geografi, ekonomi, dsb) ☐ 5
   Kesenian (musik, menggambar, tari, kerajian tangan, dsb) ☐ 6
   Pendidikan olah raga (pengembangan kepribadian dan kesehatan) ☐ 7
   Pendidikan agama ☐ 8
   Mata pelajaran lainnya (tuliskan)
Pada bagian B ini isilah nomor-nomor yang menggambarkan persepsi orang di negara anda. Tetapi jangan sekali-kali Anda mengisinya berdasarkan pendapat Anda sendiri.

Lingkari nomor yang menggambarkan persepsi orang di negara Anda tersebut.

Jika menurut Anda ternyata pernyataan-pernyataan pada daftar tersebut tidak cocok untuk negara anda, Anda tidak perlu mengisinya.

Jika Anda tidak memiliki informasi yang cukup untuk menjawab pertanyaan tersebut, silahkan Anda mengisi kotak "tidak tahu".

| 1 | berarti jarang |
| 2 | berarti kadang-kadang |
| 3 | berarti agak sering |
| 4 | berarti sering |
| 5 | berarti sangat sering |
| 6 | berarti tidak tahu |

<table>
<thead>
<tr>
<th>Pernyataan</th>
<th>jarang</th>
<th>kadang</th>
<th>agak</th>
<th>sering</th>
<th>sangat</th>
<th>sering</th>
<th>tidak</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. orang lebih memandang ke masa yang akan datang daripada merenungi masa yang lalu.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>2. orang berkeinginan mengubah tradisi dan budaya dan nilai-nilai tradisi lama.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>3. orang merasa dapat mengubah masa depan mereka melalui kegiatan mereka.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>4. orang hanya dihargai manakala mereka hidup ber-masyarakat.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>5. orang percaya bahwa perubahan yang terjadi akan berpengaruh pada lingkungan</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>6. orang hanya dinilai jika mereka kritis atau ber-pandangan berbeda dengan masa lalu.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7. orang percaya bahwa teknologi modern dapat mempengaruhi kehidupan masa yang akan datang lebih baik</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>8. orang berkeyakinan bahwa kehidupan sosial dan lingkungan harus dikendalikan dan digunakan untuk kepentingan manusia.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>9. dalam hubungan sosial, orang menghargai sesamanya karena nilai-nilai budaya tradisional/ leluhur</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>10. orang percaya bahwa teknologi membawa perubahan material, tetapi dapat menimbulkan ketidak harmonisan dan ketidakdamaian bagi manusia.</td>
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<tr>
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<tr>
<td>13. orang memandang teknologi membawa pengaruh yang signifikan terhadap masyarakat.</td>
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<td>6. orang hanya memikirkan hidup untuk hari ini saja</td>
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<td>7. kedamaian dan keserasian memberi penghargaan yang lebih tinggi terhadap diri sendiri dibandingkan dengan perlakuan dari orang lain.</td>
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<tr>
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<td>14. siswa diajak untuk mengembangkan ide-idenya sendiri</td>
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<td>15. orang mengamati dunia mereka secara simbolik.</td>
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<tr>
<td>16. keberhasilan individu lebih dianggap lebih bermakna dibandingkan dengan keberhasilan kelompok.</td>
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<tr>
<td>17. orang yang berperilaku berdasarkan perasaan lebih memabli atau dibandingkan dengan yang orang yang berperilaku berdasarkan logika.</td>
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<tr>
<td>18. orang berbicara berdasarkan apa yang mereka kehendaki apa yang berdasarkan mereka pikirkan.</td>
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<tr>
<td>19. pada umumnya orang merasa lebih yakin terhadap dirinya sendiri pada saat mereka dinilai oleh orang lain.</td>
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<td>22. hal utama dalam pendidikan adalah melestarikan budaya dan nilai-nilai tradisional.</td>
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<tr>
<td>23. orang percaya bahwa setiap permasalahan mesti ada jalan keluarnya.</td>
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</tr>
<tr>
<td>24. dalam hubungan sosial, setiap orang diperlakukan sama.</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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</tr>
<tr>
<td>25. siswa dirangsang dengan diberikan pertanyaan sesuai dengan yang diajarkan dan disesuaikan dengan dunia mereka.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>6</td>
<td></td>
</tr>
<tr>
<td>26. orang percaya bahwa setiap masalah memiliki satu jalan pemecahan.</td>
<td>1</td>
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</tr>
<tr>
<td>27. adalah hal yang lumrah untuk melihat lebih dalam atas perkataan dan tindakan orang untuk melihat maksud dari perkataan dan tindakan orang tersebut.</td>
<td>1</td>
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</tbody>
</table>
**BAGIAN C**

Lingkarilah salah satu nomor yang sesuai dengan pendapat Anda pada masing-masing nomor pernyataan. Bagian ini berkaitan dengan pendapat Anda sendiri.

1. berarti sangat tidak setuju
2. berarti tidak setuju
3. berarti netral
4. berarti setuju
5. berarti sangat setuju

<table>
<thead>
<tr>
<th>Statement</th>
<th>Sangat tidak setuju</th>
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<th>netral</th>
<th>setuju</th>
<th>sangat setuju</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Jumlah manusia yang bisa ditampung bumi kita ini sudah mendekati ambang batas.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. Keseimbangan alam sangat rapuh dan mudah rusak atau mudah terganggu.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. Manusia berhak untuk mengubah lingkungan hidup sesuai dengan kebutuhan.</td>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. Bumi bagaikan sebuah kapal ruang angkasa yang memiliki ruang dan sumber daya yang sangat terbatas.</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
</tr>
<tr>
<td>5. Manakala manusia mengganggu alam, akibatnya adalah kerugian bagi manusia itu sendiri.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. Manusia telah membuat aturan yang tidak sesuai dengan keadaan alam.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</tr>
<tr>
<td>7. Ada batas pengembangan dimana masyarakat kita yang industrialis tidak dapat mengembangkan industri lebih lanjut.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. Untuk menjaga pertumbuhan ekonomi yang sehat, perkembangan industri harus dikendalikan.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. Hewan dan tumbuhan yang telah ada sejak dulunya kala terutama untuk digunakan oleh manusia.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. Segelintir orang menyalahgunakan kelestarian lingkungan hidup...</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>11. Untuk dapat bertahan hidup manusia harus hidup sesuai dengan lingkungan.</td>
<td>1</td>
<td>2</td>
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<td>5</td>
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<tr>
<td>12. Manusia tidak perlu beradaptasi terhadap lingkungan hidup karena mereka dapat mendaul ulang sendiri sesuai dengan kebutuhan.</td>
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<td>2</td>
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<td>5</td>
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</tbody>
</table>

**BAGIAN D**

Lingkarilah salah satu nomor yang menunjukkan keyakinan Anda tentang sejauhmana kebutuhan manusia dan kebutuhan lingkungan.

<table>
<thead>
<tr>
<th>Kesejahteraan manusia harus menjadi prioritas utama.</th>
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<th>2</th>
<th>3</th>
<th>4</th>
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<tr>
<td>Jika kebutuhan manusia sama dengan kebutuhan pelestarian lingkungan hidup, maka kebutuhan manusia harus didahulukan.</td>
<td></td>
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<tr>
<td>Kebutuhan manusia dan kebutuhan pelestarian lingkungan harus seimbang.</td>
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<td>Jika kebutuhan manusia sama dengan kebutuhan pelestarian lingkungan hidup, maka kebutuhan pelestarian lingkungan hidup harus didahulukan.</td>
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<tr>
<td>Kesejahteraan pelestarian lingkungan hidup harus menjadi prioritas utama.</td>
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**BAGIAN E**

*Ingkarilah nomor yang menunjukkan tentang apa yang Anda ketahui dari masing-masing topik berikut ini.*

1. berarti saya tidak punya pengetahuan tentang topik ini.
2. berarti pengetahuan saya sangat sedikit tentang topik ini
3. berarti pengetahuan saya sedang-sedang saja tentang topik ini
4. berarti pengetahuan saya cukup tentang topik ini.
5. berarti pengetahuan saya sangat baik tentang topik ini

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<th>agak tahu</th>
<th>cukup tahu</th>
<th>sangat tahu</th>
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<td>1. hujan asam?</td>
<td>1</td>
<td>2</td>
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</tr>
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<td>2. strategi untuk daur ulang sampah rumah tangga?</td>
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<td>3. konservasi?</td>
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<td>5. pengaruh lapisan ozon terhadap tinggi permukaan air laut?</td>
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APPENDIX 3

SEMI-STRUCTURED INTERVIEW QUESTIONS

Q1 Briefly tell me about yourself your background and your culture.

- This is an introductory question which allows the participant to identify how they see themselves particularly their cultural context. When students talk about their culture, the dialogue is structured so participants talk about the views of their cultural rather than their own.

Q2 The word environment means different things to different people. Tell me what the word environment means to you.

- This question is designed to see how the participant views environments.

Q3 Where did you get your information about environments from?

- This question is designed to find out the influences on how the participant formed their views on environments – sources of environmental knowledge.

Q4 At present there are environmental issues that some people think are a threat to the Earth. Tell me what you know about environmental issues, for example the greenhouse effect, acid rain and the ozone layer.

- This question is to find out what respondents know about at least one high profile environmental issue – that is, their environmental awareness and knowledge.
Q5 Sometimes human interests and the needs of environments come into conflict. When these situations arise which do you think should have priority?

- This question is designed to triangulate the data collected about environmental views.

Q6 As technology advances and communication improves some people say the world is changing. Do (insert country eg Indonesians) think the world is changing? Why do (insert country eg Indonesians) have this view?

- This question is designed to find out how people from the country in which people are being interviewed think about interventions.

Q7 What action do you and other people in (insert country eg Indonesia) take to reduce the impact of humans on environments?

- This question is designed to further triangulate the participant’s environmental views.

- It also serves to gain information about the people in (insert country eg Indonesia’s) independence of thought and action.

Q8 People view different aspects of the world in different ways. Some aspects of a person’s world are very important and influence their view of the world. What are some aspects of your and (insert country eg Indonesia’s) views of the world that influence people greatly?

- This question is designed to find out the respondent’s and people in their country’s inner feelings about the world in which they live. The question attempts to gain an insight into aspects of worldview.

- Religion and aspects of people’s inner self, symbolism and other beliefs, in the country in which people are being interviewed, should come through from answers to this question.
Environmental Attitudes:

The Influence of Culture

by

Kevin Watson

Self-concept and Learning Facilitation
Research Centre
College of Arts, Education and Social Sciences
University of Western Sydney

2002
PLEASE NOTE

The greatest amount of care has been taken while scanning this thesis,

and the best possible result has been obtained.
DECLARATION OF ORIGINALITY

This thesis has been presented in fulfilment of the requirements of a PhD at the University of Western Sydney.

I certify that the substance of the thesis has not already been submitted for any degree and is not currently being submitted for any other degree.

I certify that any help received in preparing this thesis, and all sources used, have been acknowledged.

Kevin Watson
ACKNOWLEDGEMENTS

I would like to sincerely thank my supervisor Associate Professor Christine Halse for her guidance, assistance, patience, support and encouragement in making this thesis a reality. Without her continued effort and expertise the challenge of conducting research that enriched my personal worldview would not have been possible. I am also grateful to Dr Peter Aubusson for his collegial support throughout the writing of this thesis and in his capacity as second supervisor towards the end of the process.

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Finally, I would like to thank my family (Kay, Skye, Niamh, Amber and Aidan) for their support, patience and understanding throughout this study.
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SUMMARY

The impact of humans on environments is a major problem. Human generated environmental problems are now of such significance that environmental issues have been the focus of international conferences for over two decades. Such conferences and events, along with international and local initiatives, have heightened public awareness of environmental problems and the need to work towards their solution. Knowledge of the range of environmental perspectives and attitudes, and an understanding of the reasons for them, are important requirements for decision-making when dealing with global environmental issues. It is argued that culture may impact on environmental views and attitudes and may shape worldviews that give rise to them.

Australian, Maldivian and Indonesian trainee teacher communities served as sources of data to examine the influence of culture on environmental attitudes. Survey techniques, in the form of a questionnaire and individual interviews were used to collect data that were analysed using a combination of statistics and phenomenography.

It was found that the three communities surveyed exhibited different environmental attitudes and that these differences could not easily be determined using an established questionnaire instrument. The interview data showed the differences in environmental attitudes between the three communities. A questionnaire instrument, based on western worldviews and interpreted in terms of western beliefs and values, failed to accommodate alternative cultural perspectives. It was found that the different communities viewed the term environment differently and that this was one reason for communities exhibiting different environmental attitudes. It was also found that the different communities obtained their knowledge about environments from different sources, which also influenced environmental attitudes and that some individuals and communities exhibited both pro-New Environmental
Paradigm and pro-Human Exemptionalist Paradigm views simultaneously. This is inconsistent with a western view of environmentalism. The findings have implications for environmental education curricula and the negotiation of global environmental issues.