Towards a Greener Tomorrow?

Environmental Attitudes Among Young Generation – State of the Research

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Abstract: Understanding the social and economic consequences of environmental change represents a critical challenge for contemporary researchers. As highly educated individuals with access to information, young people will play a key role in decision-making on environmental issues. The article aims to review and systematise existing knowledge while presenting recent findings on young people's environmental attitudes. A total of 225 English-language scientific and popular science publications were analysed. The article also provides a comprehensive literature review on the concepts of environmental attitudes, measurement scales, and interpretative theories, including the New Environmental Paradigm, the Theory of Planned Behaviour, the Value-Belief-Norm Theory, and cultural frameworks. Young people are politically and socially active, advocating for causes aligned with their beliefs, which are shaped by formal education and information from social media. They emphasise ecological practices and demonstrate proactive engagement in addressing environmental challenges. Their future-oriented perspective reflects a strong sense of responsibility towards nature. However, environmental attitudes do not always translate into pro-environmental behaviours. The study also highlights cultural differences in environmental perceptions among young people. Future studies should include developing regions, particularly Central Asia and Africa, where research remains scarce despite growing environmental concerns. Understanding young people's environmental attitudes will enable better adaptation of educational programmes, policies, and approaches to nature perception, ensuring alignment with specific cultural contexts.

Key words: *environmental attitudes, young generation, national culture, environmental values, measurement*

1.Introduction

The social and economic implications of environmental changes constitute one of the most pressing contemporary research challenges. These issues present significant difficulties for governments and societies worldwide (Matczak, 2000; Lundholm, 2011; Rising et al., 2022). The study of attitudes towards the natural environment emerged as a significant area of academic inquiry in the 1960s, reflecting a growing recognition of its importance within the scientific community (Oppenheim, 1966). Systematic research began in the 1970s, leading to the formalisation and conceptualisation of this area of study (Dunlap and Van Liere, 1978; Gray, 1985; Kaiser, Woelfing, and Fuhrer, 1999; Schultz, 2001; Stern et all., 1999; Stern and Dietz, 1994; Thompson and Barton, 1994; Wiegel and Wiegel, 1978, among others).

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Public understanding and perception of environmental changes, as well as the resulting responses (choices and behaviours) of individuals and entire social groups, are crucial for shaping environmental policy and educational programmes. Understanding and assessing attitudes towards the natural environment are essential for effectively addressing a wide range of environmental challenges – from local issues such as water and air pollution or the depletion of natural resources to global threats such as the impacts of climate change (Jorgenson and Dunlap, 2012).

Particular attention should be given to research exploring environmental attitudes among young people. This generation represents a distinct social category defined by their developmental stage (early adulthood), level of formal education, and direct access to scientific information. Understanding their attitudes is essential for informing environmental policymaking, educational strategies, decision-making processes, and the development of interventions aimed at mitigating the adverse effects of environmental degradation and climate change (Stern et al., 1999).

The analysis of attitudes towards the natural environment necessitates a precise delineation of key concepts. This entails defining the environment, a multifaceted subject of inquiry spanning multiple disciplines, as well as the concept of social attitudes, a central construct within the domain of social psychology.

Every individual operates within a specific environmental context, implying that all attitudes—except those pertaining to the self—are, by definition, attitudes towards the surrounding environment (Heberlein, 1981). Consequently, attitudes towards the environment may be conceptualised as attitudes towards all external entities constituting an individual's perceptual reality (Milfont, 2012). To mitigate undue generalisation and conceptual ambiguity, the term "attitudes towards the environment" is herein employed exclusively to denote attitudes directed towards the natural (biophysical) environment.

Social attitudes constitute a complex, multidimensional construct shaped by an individual's cognitive representations, values, affective responses, and experiential background (including learning processes) in relation to a given attitude object. Social attitudes are inherently linked to evaluative judgements, decision-making processes, and behavioural tendencies at both the individual and collective levels. They represent acquired predispositions that structure perceptual and evaluative processes concerning attitude objects (Faris, 1925; Thomas & Znaniecki, 1918). These objects may encompass a diverse array of entities, including individuals, abstract issues, physical objects, policies, and socio-political events. Attitudes are broad psychological constructs integrating cognitive appraisals, affective responses, perceptual schemas, beliefs, normative expectations, and intentionality. They exhibit variability along multiple dimensions, including content, intensity, valence, and temporal stability. Attitudes may be categorised as either positive or negative and as possessing varying degrees of strength. Furthermore, attitudes differ in their level of conscious accessibility: explicit attitudes are consciously retrievable and exert direct influence on affective and behavioural responses, whereas implicit attitudes operate at a subconscious level yet nonetheless shape emotions and behaviours (Allport, 1935; Thurstone, 1928).

Attitudinal constructs are conventionally delineated as comprising three interrelated components: cognitive, affective, and behavioural. The cognitive component encapsulates the belief system associated with the attitude object, encompassing the scope and structure of knowledge pertaining to it. The affective component pertains to the evaluative emotional reactions elicited by the attitude object, conceptualised as a spectrum of positive or negative

affective responses. These affective evaluations exert a consequential influence on subsequent behavioural tendencies. The behavioural component encompasses both the motivational dispositions to engage with the attitude object and the resultant behavioural intentions and actions undertaken by individuals (Marciniak, 2016; Marody, 1976; Mądrzycki, 1977). Nowak (1973) attributes primacy to the affective component, positing it as the definitive, constitutive element of an attitude.

There has been a limited comprehensive discourse on the understanding of young people's environmental attitudes. This article aims to review and systematise existing knowledge while presenting current findings related to research on young people's attitudes towards the natural environment. Additionally, it seeks to synthesise knowledge concerning the definition of environmental attitudes, the factors influencing their formation, and the scales utilised for measurement. Furthermore, the article endeavours to outline the theoretical foundations and interpretative frameworks essential for comprehending environmental attitudes.

No comprehensive synthesis of this field of knowledge has been undertaken, particularly with regard to the influence of knowledge acquisition, formal education, and digital media on environmental cognition, attitudinal development, and behavioural intentions. Furthermore, the interplay between cultural values, normative structures, and the formation of environmental attitudes among young adults remains a critically underexamined domain of scholarly inquiry.

2. Methodology

A comprehensive systematic review of the literature was undertaken to explore young people's attitudes towards the natural environment. This review encompassed a total of 225 publications, comprising 217 peer-reviewed research articles and 8 popular science articles. All selected publications were sourced from online digital repositories and academic databases, ensuring accessibility and reliability. The search criteria were deliberately restricted to publications available in the English language, thereby ensuring that only sources published in this language were included in the analysis. This approach aimed to maintain consistency in the review and facilitate comparative evaluation across studies.

3. The concept of Environmental Attitudes – backgrounds and measurements

As a theoretical and analytical construct, environmental attitudes can be linked to all the aforementioned components of attitudes. Although defined in multiple ways (Gifford & Sussman, 2012), the most widely accepted definition, proposed by Schultz et al. (2004), conceptualises environmental attitudes as "a collection of beliefs, feelings, and behavioural intentions regarding the natural environment or environmental problems." The construct of environmental attitudes enables the examination of various specific dimensions, including behavioural intentions, actions, valuations, opinions, knowledge, and socially constructed beliefs in relation to the natural environment (McMillan et al., 1997).

A review of the existing literature indicates that attitudes towards the natural environment are shaped by the values embedded within a given culture, particularly those transmitted through socialisation and upbringing (Foller & Granfelt, 1999; Milfont, 2007; Ogechi, 2019; Schultz, 2002a; Zwiebel & King, 2014). Within this context, an individual's ethnic background emerges as a significant determinant (Ghazali et al., 2019; Johnson et al., 2004; Kerr et al., 2016; Lazri & Konisky, 2019). Additionally, social values, including religious beliefs, play a crucial role in shaping environmental attitudes (Arsiwibo & Ghazali, 2017; Crowe, 2012; De Groot & Steg, 2008; Eckberg & Clocker, 1996; Hayes & Marangudakis, 2000; Pettus & Gilles, 1987; Stern et al., 1999).

Ecological knowledge and environmental education are recognised as key determinants in the development of such attitudes (Bergman, 2015; Liefländer & Bogner, 2016; Thompson & Gasteiger, 1985; Tikka et al., 2000).

The determinants of attitudes towards the natural environment are not solely confined to individual value systems and knowledge acquisition; they are also influenced by ongoing transformations in the natural world driven by global climate change, socio-economic development, and demographic expansion.

Environmental attitudes have become a central focus of interdisciplinary research spanning environmental psychology, sociology, and ecology. Scholarship in this area explores the extent to which socio-demographic variables - such as gender, age, place of residence, socio-economic status, and educational attainment - shape environmental attitudes (Shankar, 2023). More recent studies have examined the structural dimensions of attitudes in greater detail, including their hierarchical organisation (Milfont & Duckitt, 2010). While initial research primarily employed comparative group analyses, contemporary investigations increasingly consider diverse cultural contexts (Hofstede, 1980, 2003; Kluckhohn & Strodtbeck, 1961; Trompenaars & Hampden-Turner, 1997; Schwartz, 1999).

Current research addresses critical themes such as individuals' beliefs regarding the intrinsic value of nature, societal awareness and concern for environmental preservation, public support for regulatory policies governing resource utilisation and waste reduction, endorsement of environmental initiatives, advocacy for scientific and technological solutions, promotion of social interventionism and environmental activism, and individual willingness to adopt environmentally responsible behaviours. These include forgoing certain material conveniences, accepting environmental levies, engaging in responsible tourism, and addressing broader societal concerns such as overpopulation (Dunlap et al., 2000; Milfont & Duckitt, 2010).

Environmental attitudes were conceptualised as a unidimensional construct (e.g. Dunlap et al., 2000; Maloney et al., 1975). However, contemporary research acknowledges their multidimensional nature (Schultz, 2001; Stern & Dietz, 1994; Milfont, 2007; Milfont & Duckitt, 2010). Some studies classify environmental attitudes according to whether they are driven by biocentric or ecocentric concern for all living organisms, or by anthropocentric concern for human welfare (Thompson & Barton, 1994).

Stern and Dietz (1994) has been particularly influential in this domain, framing environmental concern as a value-based construct operationalised through a tripartite classification. Their model suggests that value orientations underpinning environmental attitudes are shaped by socialisation processes and differ across social groups, structures, and cultures. They identified three key value orientations that influence pro-environmental behaviour, each dependent on the activation of personal norms linked to beliefs about the adverse consequences of environmental degradation for: oneself (egoistic orientation), other people (altruistic orientation), or other species and ecological systems (biospheric orientation) (Schultz, 2001).

Furthermore, numerous studies have identified two higher-order factors underlying the multidimensionality of environmental attitudes: "Preservation" and "Utilisation" (Milfont & Duckitt, 2004, 2006; Milfont & Gouveia, 2006; Wiseman & Bogner, 2003). "Preservation" reflects a prioritisation of conserving nature and biodiversity, whereas "Utilisation" emphasises the necessity of exploiting and modifying nature for human benefit. These factors correspond to spiritual and instrumental worldviews in the human-environment relationship (Stokols, 1990) and align with the distinction between altruistic (moral) and utilitarian (pragmatic) values (Kaiser & Scheuthle, 2003). They also resonate with cultural frameworks proposed by Schwartz

(1999, 2006, 2008), Hofstede (1980, 2003), Trompenaars and Hampden-Turner (1997), as well as Kluckhohn and Strodtbeck (1961).

Given the complexity of this issue and the necessity for rigorous empirical investigation, the study of environmental attitudes presents considerable methodological challenges. Consequently, a range of measurement scales, theoretical models, and interpretative frameworks have been developed to facilitate the systematic analysis, evaluation, and comprehension of environmental attitudes.

3.1. Measurement scales

Among the various instruments developed to assess attitudes towards the natural environment, survey research employing closed-ended questionnaire items based on the Likert scale remains the most widely utilised methodology (DeVellis, 1991; Morales, Urosa, & Blanco, 2003; Spector, 1992).

A diverse array of questionnaires have been developed to explore attitudes, beliefs, and values regarding the natural environment. One of the earliest objective scales for assessing ecological attitudes and knowledge was the Ecology Scale, developed by Maloney and Ward (1975). This instrument measured the cognitive, affective, and behavioural components of environmental attitudes. Despite its widespread application, the scale primarily focused on local environmental issues, thereby limiting its relevance in the context of emerging global environmental challenges.

Most measurement scales have been designed for broad applicability across diverse populations, concentrating on general environmental concerns. Notable examples include the Environmental Concern Scale, developed by Weigel and Weigel (1978), and the Ecocentric, Anthropocentric, and Environmental Apathy Scale by Thompson and Barton (1994), both of which investigate the underlying motivations of environmental attitudes. These motivations encompass ecocentrism, which emphasises the intrinsic value of nature, and anthropocentrism, which views nature's value primarily through its material or physical benefits to humanity.

The literature contains a wide range of measurement scales addressing attitudes towards specific environmental issues, such as water conservation, recycling, energy efficiency, and resource preservation (Fernandez-Manzanal et al., 2007). Certain measurement tools have been specifically designed to assess environmental attitudes among students at various educational levels (primary, secondary, higher, and tertiary education) (Leeming, Dwyer, & Bracken, 1995; Smith-Sebasto & D'Costa, 1995; Fernandez-Manzanal et al., 2007). Other studies investigate the correlation between academic disciplines and environmental attitudes (Orion & Hofstein, 1991; Shankar, 2023).

A substantial body of research has also been dedicated to latent constructs and dimensions of human-environment interactions, particularly focusing on emotional bonds with nature. These constructs measure beliefs, such as the preference for spending time in natural environments over urban settings (Enjoyment of Nature). Associated measurement tools include scales assessing stimulus-seeking, pastoralism versus urbanism (Bunting & Cousins, 1985), ecocentric orientations (Thompson & Barton, 1994), and naturalistic, aesthetic, and humanistic dimensions (Kellert, 1996). Scales such as the Connectedness to Nature Scale (Mayer & Frantz, 2004), the Inclusion of Nature in Self Scale (Schult, 2002), and the Nature Relatedness Scale (Nisbet & Zelenski, 2011) have explored various conceptualisations of "connectedness to nature." These instruments assess constructs ranging from emotional attachment to environmental identity, offering nuanced insights into the human-nature relationship.

A second category of latent constructs pertains to actions aimed at environmental conservation, encompassing support for proactive environmental protection measures. Exemplars include scales that measure support for environmental reforms (Buttel & Flinn, 1976), regulatory measures concerning natural resources (Van Liere & Dunlap, 1981), and commitment to environmental sustainability (Blaikie, 1992). Studies on ecological activism and engagement with environmental movements have also gained prominence, examining individual readiness to support or participate in organised environmental protection efforts (Maloney & Ward, 1975; Lounsbury & Tornatzky, 1977).

A third category pertains to constructs related to human dominance over nature, reflecting the belief that economic growth and development should take precedence over environmental protection. Notable examples include scales measuring support for economic growth (Buttel & Flinn, 1976), economic compromise (Guagnano & Markee, 1995), and rejection of human exceptionalism (Dunlap et al., 2000).

Finally, anthropocentrically motivated environmental protection, which prioritises human welfare and needs as the primary drivers of environmental concern, represents a distinct area of investigation. Relevant measurement tools in this area include the Anthropocentric Scale (Thompson & Barton, 1994), the symbolic dimensions of nature and scales addressing recreation and human well-being (Kellert, 1996).

Recognising the diversity of measurement instruments within this domain, Milfont and Duckitt (2010) introduced the Environmental Attitude Inventory (EAI), a comprehensive scale designed to capture the multidimensional and hierarchical nature of environmental attitudes, incorporating both first-order and second-order factors.

However, one of the most widely recognised scales for assessing environmental beliefs is the New Environmental Paradigm Scale (NEP) (Cruz & Manata, 2000). Initially published in 1978 by Dunlap and Van Liere, the scale emerged in response to the escalating ecological crisis of the 1960s and 1970s, alongside a growing recognition of its anthropogenic and cultural origins.

The conceptualisation of the New Environmental Paradigm (NEP) centres on situating humans alongside other species within the Earth's ecosystem. It is based on the premise that humanity acts in contradiction to the laws of nature and that surpassing the limits of progress will inevitably lead to ecological catastrophe (Dunlap & Van Liere, 1978). This perspective stood in contrast to the Dominant Social Paradigm (DSP) proposed by Pirages and Ehrlich (1974), which promoted support for free enterprise, faith in unlimited economic growth, and confidence in science and technology as solutions to human challenges, including environmental degradation.

An evolving perspective on the relationship between humans and the natural environment has emerged in Western societies. Within the DSP framework, humans are perceived as separate from nature, whereas the NEP conceptualises them as an integral part of it (Schultz & Zelezny, 1999). The NEP framework, together with its methodological foundations and analytical tools (e.g., measurement scales), enables the identification and assessment of attitudes within social groups, distinguishing between biocentric (ecocentric) and anthropocentric viewpoints (Shafer, 2006). Empirical research investigating the extent to which the divergence between biocentric and anthropocentric perspectives is reflected in societal declarations is particularly valuable. Such studies have inspired scholars worldwide, who continue to employ, adapt, and refine the NEP scale in their own research.

The NEP scale has garnered interest not only among sociologists but also among researchers from other disciplines, including social psychology, environmental psychology, and the ecological humanities. This underscores its recognised utility for conducting research across various

scientific fields. The foundational assumptions of the NEP and the design of its scale facilitate broad applicability, including the interpretation of environmental attitudes across diverse cultural contexts (Amerigo & Gonzalez, 2008; Schultz & Zelezny, 1999), different national settings (Pahl et al., 2005; Kortenkamp & Moore, 2001; Blaikie, 1992; Schultz et al., 2005), as well as among non-Western populations (Ogunbode, 2013; Schultz, 2001; Vikan et al., 2007) and various social categories such as farmers, ethnic minorities, and students (Johnson et al., 2004)

The NEP primarily emphasises the cognitive aspects of attitudes, such as beliefs, while placing less focus on their affective components, such as values (Schultz & Zelezny, 1999). Research on environmental attitudes has gradually shifted from examining general environmental concern towards more nuanced conceptualisations of attitude formation. Environmental attitudes are shaped by an individual's broader value system. Values are understood as fundamental life goals or standards that serve as guiding principles in an individual's life. Unlike attitudes or beliefs, values function as an organised system and are generally regarded as determinants of attitudes and behaviours (Rokeach, 1973).

To interpret the motivations underlying individuals' engagement in pro-environmental behaviours, altruistic, biospheric, and egoistic values are employed as predictors. These values are grounded in Schwartz's theory of basic human values (Schwartz, 1999; De Groot & Steg, 2008; Steg et al., 2005; Stern et al., 1999).

The NEP Scale assesses five hypothetical dimensions of ecological worldview: limits to growth, anti-anthropocentrism, fragility of natural balance, rejection of human exceptionalism, and the possibility of an ecological crisis (Dunlap et al., 2000; Marcineková et al., 2024). The scale consists of individual responses to fifteen statements measuring levels of agreement or disagreement (Table 1). The seven even-numbered items, when agreed with, are designed to represent statements aligned with the Dominant Social Paradigm (DSP), whereas the eight odd-numbered items, when endorsed, reflect support for the New Environmental Paradigm (NEP).

Table 1. Nev Environmental Paradigm Statements

1. We are approaching the limit of the number of people the Earth can support.
2. Humans have the right to modify the natural environment to suit their needs.
3. When humans interfere with nature it often produces disastrous consequences.
4. Human ingenuity will insure that we do not make the Earth unlivable.
5. Humans are seriously abusing the environment.
6. Th e Earth has plenty of natural resources if we just learn how to develop them.
7. Plants and animals have as much right as humans to exist.
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations.
9. Despite our special abilities, humans are still subject to the laws of nature.
10. Th e so-called "ecological crisis" facing humankind has been greatly exaggerated.
11. Th e Earth is like a spaceship with very limited room and resources.
12. Humans were meant to rule over the rest of nature.
13. Th e balance of nature is very delicate and easily upset.
14. Humans will eventually learn enough about how nature works to be able to control it.
15. If things continue on their present course, we will soon experience a major ecological catastrophe

Source: Dunlap et al. (2000).

While the NEP Scale is widely recognised as a reliable and valid measure, some researchers have questioned the relationship between NEP scores and pro-environmental behaviours (Gansser, 2023). Nevertheless, proponents argue that high NEP scores should correlate with

environmentally friendly attitudes, although various barriers, contextual factors, and cultural influences may weaken the link between attitudes and behaviours in specific contexts (Halkos & Matsiori, 2017).

4. Interpretations

4.1. Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB), proposed by Fishbein and Ajzen (1975), is recognised as one of the most robust frameworks for identifying predictors of human behaviour and has been extensively applied to the prediction of individual decision-making processes. According to this theory, an individual's behaviour is shaped by their attitudes and beliefs. It is also widely employed in interpreting the relationship between attitudes towards the natural environment and individuals' behavioural intentions and actions. It is essential to distinguish between the concepts of "environmental behaviour" and "pro-environmental behaviour" (Barr, 2007; Krajhanzl, 2010; Li et al., 2019; Kurisu, 2015).

Environmental behaviour refers to actions that have a discernible impact on the environment - whether positive or negative, significant or negligible. Humans are almost constantly interacting with their environment, nearly every human action can be classified as environmental behaviour. This broad definition implies that any activity, regardless of how minimal its environmental impact may be, would fall within this category. Environmental behaviour encompasses actions with a significant environmental impact. The term "environmentally relevant behaviours" is sometimes used within this context (Bechtel & Churchman, 2002; Stern, 2000).

In contrast, pro-environmental behaviour is characterised as behaviour that, within the context of a given society and from the perspective of environmental science, is generally assessed as ecological, protective, or environmentally friendly. Interchangeable terms for pro-environmental behaviour include "environment-protective behaviour," "environment-preserving behaviour," "environmentally responsible behaviour", "ecological behaviour" (Kaiser et al., 1999), and "sustainable behaviour" (Clayton & Myers, 2009). Opposing terms include "environment-destructive behaviour" and "environmentally unfriendly behaviour" (Kurisu, 2015).

However, in the context of environmental issues, individuals' decisions regarding environmentally friendly actions are often influenced by external factors. In such cases, situational or motivational factors are considered significant variables affecting individual pro-environmental behaviours (Gansser, 2023).

4.2. Value-Belief-Norm Theory

Research indicates that pro-environmental behaviours are associated with individual factors such as socio-demographic characteristics, values, beliefs, and norms (Stern, 2000). It is pertinent to mention the Norm Activation Model (NAM) developed by Schwartz (1977) which is a grounded model in altruistic values and explains behaviour arising from social and personal norms, awareness of consequences, and the attribution of responsibility to oneself (Schwartz & Howard, 1981). It describes how personal norms influence behaviour and suggests that individuals are more likely to take action when they are aware of a problem and feel personally responsible for addressing it.

Building on this framework, subsequent models have emerged, including the Value-Belief-Norm Theory (VBN) proposed by Stern, Dietz, and Kalof (1993). This theory integrates all the aforementioned factors (Stern & Dietz, 1994) and posits that pro-environmental behaviour is

more likely to occur when a causal chain of these variables is present. In this model, instead of awareness of consequences, the authors incorporate beliefs about adverse consequences. They also include all three value orientations - egoistic, altruistic, and biospheric - derived from Schwartz's theory, which, in this model, serve as the foundation for environmental concern (Stern, 2000).

The interpretation of findings suggests that individuals are inclined to engage in environmental actions if they hold pro-environmental values, believe in the negative consequences of environmental problems, feel a sense of personal responsibility for nature, and are convinced of their ability to mitigate these effects through their actions, provided these actions align with their personal norms (Snelgar, 2006; Stern, 2000).

4.3. Cultural theory of values and cultural frameworks

Another interpretative framework is the theory of cultural dimensions, as outlined in the seminal works of Hofstede (1980), Schwartz (1999), and Trompenaars and Hampden-Turner (1997). These theories were developed to enhance the understanding of fundamental cultural characteristics and their influence on behaviour.

The literature introduces concepts such as cultural dimensions and cultural value orientations. Cultural dimensions were first proposed by Hofstede and later employed by Trompenaars and Hampden-Turner, who identified a set of shared cultural values that shape human behaviour. An alternative theory of cultural value orientations was proposed by Kluckhohn and Strodtbeck and later empirically examined by Schwartz.

The key distinction between these theories lies in their analytical focus. The value orientation approach centres on the individual, suggesting that each person assigns different values to specific phenomena based on personal preferences and orientations, which are rooted in cultural norms and beliefs. This approach adopts a bottom-up perspective in analysing the role of national culture in behaviour.

The theories proposed by Hofstede and Trompenaars and Hampden-Turner use independently developed cultural dimensions as the starting point for analysis, suggesting that these dimensions are common among individuals within specific cultures. Thus, their approach adopts a top-down perspective. Empirical studies, however, have demonstrated that cultural dimensions and value orientations often overlap, indicating that all cultural frameworks share commonalities (Taras et al., 2009).

The least visible - and therefore most challenging to study - layer of culture comprises values. These values constitute the essence of a culture, giving it its distinctive character and determining how its members interact both within and outside the group. National culture has long been considered a potential factor influencing consumer attitudes and subsequent behaviours across various contexts (Craig & Douglas, 2006).

In the context of environmental attitudes, three primary dimensions of national cultures or cultural value orientations have been identified. These dimensions help measure specific cultural aspects (values) and position a given culture relative to others. Employing cultural frameworks in studies on environmental attitudes facilitates interpretations that promote more responsible and environmentally friendly behaviours. Such research investigates how specific environmental dimensions or value orientations influence pro-environmental attitudes and how these attitudes can foster more responsible behavioural intentions and actions.

Some universal categories of dimensions have been found to align with specific environmental dimensions and value orientations in human-environment relations, as discussed in other

scholarly works (Filimonau et al., 2018; De Groot & Steg, 2008; Hofstede, 1980, 2003; Schwartz, 1999, 2008). These include dimensions such as individualism-collectivism (Hofstede, 1980, and the similar individualism-communitarianism dimension of Trompenaars and Hampden-Turner, 1997), harmony-mastery (Schwartz, 1999 and the similar internal-external dimension of Trompenaars and Hampden-Turner, 1997), and short-term versus long-term orientation (Hofstede 1980, and Kluckhohn & Strodtbeck, 1961).

It has been suggested that collectivist cultures are more likely to exhibit pro-environmental attitudes and behavioural intentions due to their perception of the environment as a "common good" requiring care and being accessible to all members of the culture. Pro-environmental values are thus most strongly reflected within collectivist cultural spheres. Similarly, long-term-oriented cultures are hypothesised to develop stronger pro-environmental attitudes, given that the consequences of human actions on the environment, such as climate change, will manifest in the future (Rosselló-Nadal, 2014). Harmony-mastery dimension offers insights into how national cultures perceive environmental management (Schwartz, 1999). Cultures oriented towards harmony tend to view the environment as an integral part of daily life, whereas mastery-oriented cultures exhibit egocentric tendencies, treating the environment as a tool to achieve individual goals. Subjugation to nature, often attributed to developing nations, arises from perceiving oneself as dependent on the forces of nature and, in many cases, subject to the will of a higher power (Hedlund-de Witt et al., 2014).

5. Attitudes toward the natural environment among young people – state of research

As highlighted by Salguero (2024), young generation is the most digitally integrated, formally educated, and globally engaged generation in history. It is expected that young generation will experience the most profound impacts of climate change and environmental degradation. They have been uniquely shaped by exposure to significant societal transformations and global events, including the consequences of climate change, economic uncertainty, the COVID-19 pandemic, and geopolitical instability. These formative experiences have contributed to the emergence of distinctive worldviews and behavioural patterns within this generation.

Recent studies on young people's environmental attitudes primarily focus on their influence on pro-environmental behavioural intentions and actions. Furthermore, these investigations examine the concepts of environmental care and responsibility (Amerigo et al., 2017; Cruz & Manata, 2020).

A review of the literature on attitudes towards the natural environment reveals that research on young people's attitudes focuses on several key areas of concern. These include issues related to climate change, eco-anxiety, attitudes and their influence on behavioural intentions and pro-environmental behaviours, value systems and beliefs about nature, as well as cross-cultural comparisons incorporating cultural frameworks.

The definition of young generation, though somewhat ambiguous (Nielsen, 2018; Priporas et al., 2017), most commonly refers to individuals born between 1995 and 2010 (Seemiller & Grace, 2016). Nevertheless, regardless of the temporal framework adopted, members of this group are currently in a transitional phase towards adulthood, often continuing their education at the higher education level. Researchers are increasingly focusing on this generation, as they now constitute the largest segment of the global population (32%, or 2.5 billion people; Nguyen et al., 2018).

As citizens and consumers, they are characterised by greater pragmatism, heightened self-focus, and increased awareness of environmental threats and issues (Francis & Hoefel, 2018; Saavedra & Bautista, 2020).

5.1.Social-demographic determinants of attitudes

Gender is frequently serves as a predictor of attitudes towards the natural environment. This is equally true for young people. Women consistently report greater concern for environmental issues and exhibit a higher frequency of pro-environmental behaviours, including political activism (Casey & Scott, 2006; Mueller & Mullenbach, 2018; Wodika & Middleton, 2020; Schultz, 2002; Fernandez-Manzanal et al., 2007). However, it is important to emphasise that, in the context of environmental awareness, several studies have found no gender differences in anthropocentric or ecocentric approaches among students regarding environmental issues (Alagoz & Akman, 2016; Kopnina & Cocis, 2017).

Various academic disciplines shape students' perspectives on the relationship between humans and the environment, highlighting the impact of education on the development of environmental attitudes. A significant majority of studies, primarily from Europe, the United States, and Indonesia, confirm that young people whose education is oriented towards the natural and physical sciences exhibit greater ecological knowledge, stronger emotional connections to nature, and a higher propensity for pro-environmental behaviours (Juma-Michilena et al., 2024; Suminar & Hanum, 2024). The field of study and the year of study significantly influenced responses on the NEP scale, particularly with regard to anthropocentric perspectives (Loverino et al., 2022; Auya-Dica et al., 2022; Estrada-Araoz et al., 2023). However, studies conducted in India reported no differences between fields of study, suggesting that the academic profile may not significantly affect overall environmental attitudes (Shankar, 2023). These differences could stem from varying cultural contexts. Better access to information about the natural environment and ecological issues and increased environmental awareness, positively influences pro-environmental behaviours among young people (Andruszkiewicz et al., 2023).

When comparing young generation to other generations, a study conducted by the Pew Research Center found that 52% of young people aged 18–29 consider environmental change to be an urgent issue, in contrast to only 38% of adults aged 50 and older who expressed the same concern (Pew Research Center, 2021). Young generation is often described as a "less selfish" generation in comparison to their parents or grandparents. However, despite the strong interest in environmental issues among this younger generation, their heightened sense of responsibility for nature, desire for social change, inclination towards rational consumption habits, and increased sensitivity to nature, some studies indicate that young generation is less engaged in pro-environmental behaviours than older age groups (Parzonko et al., 2021) or highlight low levels of activism within Generation Z among university students (Walker, 2021; Wodika & Middleton, 2020).

5.2.Climate change factor and eco-anxiety

Young generation overwhelmingly believe that climate change is anthropogenic. For instance, 96% of young Australians attribute climate change to human activity (Salguero et al., 2024).

The proportion of young people expressing no concern about issues such as climate change, biodiversity loss, pollution, population growth, or waste is minimal, reflecting young generation

awareness of the challenges they face. Climate change is recognised by young people as the most pressing environmental issue (Barbiroglio, 2024; Bogueva & Marinova, 2020; Hess, 2021; Reyes et al., 2021; Ross & Rouse, 2020). A 2021 study revealed that 62% of German youth expressed significant concern about environmental pollution (Moser, 2021), compared to 71% in 2020, when 65% also reported concern about climate change (Hurrelmann & Albrecht, 2021). Similarly, research by the American Psychological Association (2018) found that 68% of young people reported stress about their future, driven by imminent climate change threats.

Climate anxiety, or eco-anxiety, may be a defining characteristic of young generation, with increasing academic attention on this phenomenon (Becht et al., 2024; Cunsolo et al., 2020; Moser, 2021; Souza, 2024; Romano et al., 2024). While climate anxiety can motivate climate activism, it also raises concerns for the mental health and well-being of young people. It represents both a potential vulnerability and a source of strength for this generation, depending on the paths individuals choose (Salguero et al., 2024; Clayton, 2020).

According to Pew Research Center (2021), Generation Z is the only generational group where the majority identifies climate change as one of the "top five" political issues, with over 50% ranking it as their number one concern. Nearly 37% of Generation Z members reported participating in some form of climate activism, including attending physical protest marches, signing digital petitions, and boycotting products or companies that do not support climate policies. Young generation is also more likely to vote for political candidates who share their views on climate issues. Approximately 45% of young people stated that they reviewed a candidate's stance on climate change before casting their vote (Novak, 2024).

Researches conducted among young people in Somalia revealed that knowledge of climate change and a biocentric value orientation have a direct and significant positive impact on the intentions to adopt afforestation as a strategy for mitigating climate change. The practice of burning trees for charcoal is common in Somalia and contributes significantly to both deforestation and climate change. This suggests that knowledge of climate change plays a crucial role in decisions regarding afforestation and forest management, as awareness of the causes of climate change can lead individuals to better understand behaviours that have a greater environmental impact, potentially making them more inclined to engage in mitigating actions. Furthermore, research conducted in developing countries has shown that people perceive the risks of climate change more acutely than those in developed countries (Kim & Wolinsky-Nahmias, 2014).

5.3. Value-oriented and cultural factors

Research has revealed significant differences in the attitudes and behaviours of students from different nationalities (Phuphisith et al., 2020). In countries with stringent measures against environmentally harmful activities, pro-environmental behaviours tend to align with the cultural values of the country. In contrast, in countries with more lenient policies, the diversity of cultural beliefs within society leads to varied pro-environmental behaviours (Thompson & Brouthers, 2021).

Individuals who share the same language, history, and socio-political and economic environment exhibit a common mental framework, particularly among young people. Linguistic differences and political strategies may shape attitudes and explain behavioural disparities. Another factor is the rapid industrialisation of certain countries, which struggle to cope with the pressures of accelerated development - an issue that appears particularly evident in the case of young generation (Vicente-Molina et al., 2013).

Studies among Latin American students have shown that the relationship between anthropocentric environmental concern, perceptions of connection to nature, and emotional bonds with the natural world tends to align in one direction - pro-environmental behaviours are positively associated with anthropocentric beliefs (Amerigo et al., 2017). These findings contrast with research conducted among Spanish students (Corral-Verdugo & Armendariz, 2000).

It is valuable to compare the specific historical, social, and cultural contexts of Latin America, Europe, and the United States. Studies in Latin America suggest that economic development, human well-being, and environmental protection may be interlinked and mutually reinforcing. In these countries, nature is treated as a resource conducive to economic growth. This perspective contrasts with that observed in Europe and the United States (Bechtel et al., 1999; Hernández et al., 2012), where reconciling these aspects seems impossible due to deeply ingrained opposing positions between anthropocentric and biocentric paradigms. This divergence has also been examined in the Asian cultural context, characterised by a dialectical approach. Asian cultures exhibit a more tolerant attitude towards contradictions, unlike Western cultures, which have inherited Aristotelian logic aimed at avoiding contradictions. Collectivist cultures, as exemplified by Latin American countries - such as Brazil, Argentina, Chile, Peru, and Mexico - and Asian countries, particularly those in East Asia - such as China and Japan, where relevant studies have been conducted, reject a dualistic approach. These cultures embrace the belief that humans and nature coexist within a holistic perspective that integrates a sense of connectedness (ecocentrism) with environmental conservation to enhance human quality of life (anthropocentrism) (Amerigo et al., 2017; Qiao, 2021).

In contrast, individualistic cultures, as represented by the United States, Spain, Portugal, Eastern European countries, and Canada, tend to display a divergence between these two approaches, which often appear to conflict with one another. A negative correlation has been observed between the ecocentric approach (NEP) and the anthropocentric approach (DSP). It is also important to consider socio-economic conditions alongside cultural values (Hernández et al., 2012; Bechtel et al., 1999).

In Latin American countries, significant income inequality and a lack of quality public services mean that young people perceive economic growth as a means to improve living standards, while still recognising environmental concerns. There is a strong tendency to integrate economic growth with environmental protection in a holistic manner. Conversely, in Portugal and Spain, higher incomes and better-quality public services correlate with a more favourable attitude towards limiting economic growth in favour of environmental preservation. In Netherlands, the UK, and the United States, compared to East Asian nations, environmental values are linked to altruistic values in Western cultures. In East Asia, environmental values are associated with both traditional and altruistic values, suggesting that cultural variables are more significant than those dependent on economic development (Aoyagi-Usui et al., 2003; Liu et al., 2024).

However, another study highlights differences among young people in China, Indonesia, Thailand, and Vietnam. While youth in Thailand and Vietnam exhibit high environmental awareness and a willingness to pay more for eco-friendly solutions, those in China and Indonesia express interest but lack willingness to incur additional costs. The stark difference between China and Vietnam - despite their similar political systems - could stem from Vietnam's government actively promoting the purchase of eco-friendly products (Qiao, 2021).

Nonetheless, some research indicates that national culture may not exert a significant influence. This could be attributed to globalisation and the integration of diverse cultures within societies. Young generation having grown up in the era of social media, with extensive access to

various sources of information, inclusive development, and the concept of a global village, may share similar worldviews regarding global issues and challenges.

5.4. Young people's travel choices

Within the tourism research, many studies primarily focus on tourists' pro-environmental behaviours, often based on frameworks such as the Value-Belief-Norm (VBN) theory (Han & Kiatkawsin, 2018). These studies frequently overlook the potential that different generations may exhibit varying environmental values, which in turn influence travel-related beliefs and lead to diverse eco-friendly travel behaviours. Notable studies on young generation have produced conflicting results (Salinero, 2022; D'Arco et al., 2022), reported that young people demonstrate environmental concern even during the travel planning phase, preferring accommodations labelled as "eco-friendly" and avoiding transportation options with the greatest negative environmental impact. In line with earlier studies, factors such as awareness of consequences, a sense of responsibility, and personal and social norms were identified as predictors of behaviour in young people. Importantly, personal norms - pre-existing cognitive frameworks - were found to exert a stronger influence than social norms (Han & Kiatkawsin, 2018).

Conversely, D'Arco found that only a small subset of young respondents were sufficiently motivated to choose travel options with less environmental impact. Most justified their choices by prioritising personal desires (e.g., fulfilling dreams and seeking happiness) and new experiences. This suggests that tourism, particularly among younger generations, plays a significant role in self-development and identity formation. It may also indicate that, at an individual level, members of young generation sometimes adopt self-centred approaches (Ribeiro et al., 2023), focusing on personal interests and potentially influenced by economic factors. This trait may partly be due to the fact that the youngest members of this group remain financially dependent on their parents (Djafarova & Foots, 2022).

5.5.Technology and social media

The mobilisation of youth movements and the shaping of political discourse are increasingly influenced by technology and social media (McKinsey, 2022). For young people, the future of the natural environment is considered equally important to their social media presence (Schenarts, 2020). Individuals actively engaged with social media platforms, anxiety about the future, driven by emotional responses to climate change, is particularly pronounced, with approximately 69% of this demographic expressing such concerns. Young generation is highly receptive to novel stimuli and ideas. Moreover, young people exhibits an increased sensitivity to environmental and social issues (Tyson et al., 2021).

Exposure to content related to environmental degradation on social media not only influences eco-friendly behaviours but also shapes consumer choices. Members of young generation are inclined to publicly demonstrate their environmentally conscious actions through social media platforms, emphasizing ecological considerations in their decision-making processes. A discernible trend towards greater environmental awareness has been observed in tandem with advancements in information technologies. Baldassare and Katz (1992) have argued that this trend weakens the correlation between socio-demographic factors and pro-environmental attitudes. Young generation, immersed in a digital environment from a young age, exemplifies this dynamic.

Table 2. Attitudes toward the natural environment among young people – what we know so far

Age	Young people tend to possess greater knowledge and emotional investment in environmental issues, perceiving environmental changes as a matter of urgent concern in comparison to older generations. However, some studies suggest that they may be less actively engaged in environmentally conscious behaviours.
Gender	Women consistently exhibit a higher level of concern for environmental issues and participate more frequently in pro-environmental behaviours, including political activism.
Field of study	The field of study exerts a significant influence on responses to the New Ecological Paradigm (NEP) scale, particularly in relation to an anthropocentric perspective.
Knowledge	Nature-oriented educational programmes, particularly in Europe, the United States, and Indonesia, have demonstrated that the majority of students develop greater knowledge and a stronger emotional connection to nature.
Intentions and behavior	Research comparing countries in Latin America, Europe, the United States, and East Asia indicates that liberal environmental policies foster a diversity of pro-environmental behaviours (as observed in Latin America and Asia), whereas strict policy measures lead to behaviours that align with the prevailing values of the respective country (as seen in the United States and Europe).
Climate Change	The climate change factor is regarded by young people as anthropogenic in origin. Climate change is perceived by young people as the most pressing environmental issue.
Eco-anxiety	A defining characteristic of Generation Z is its heightened concern for mental health and well-being, which serves as a key driver of climate activism.
National culture	This study examines a comparative analysis of Latin American, European, U.S., and East Asian countries, exploring how economic development, human well-being, and environmental conservation can be closely interconnected and mutually reinforcing—particularly within collectivist cultures, as observed in Latin American and Asian contexts. In contrast, in the United States and Europe, these dimensions are often perceived as conflicting, reflecting a dualistic and opposition-oriented approach. This divide is evident in the contrast between anthropocentric and biocentric perspectives, which are deeply embedded in Western cultures characterised by individualism.
Environmental values	In European countries and the United States, environmental values are predominantly associated with altruistic values, whereas in East Asia, they are linked to both traditional and altruistic values.
Travel choices	Young individuals demonstrate environmental awareness in travel planning, frequently seeking eco-friendly certifications. However, some studies suggest that their decisions are often influenced by personal preferences, which may be shaped by economic factors, such as financial dependence on parents and the higher costs associated with environmentally sustainable choices.
Technology and social media	Active engagement with social media is correlated with heightened anxiety about the future, influences consumer behaviour, and reflects the broader impact of globalisation and increased access to information.

Source: a synthesis by the author based on a literature review

6. Conclusions and future research

Representatives of the younger generation are politically and socially active, advocating for causes aligned with their beliefs, which they base on knowledge acquired through education and information available on social media. They focus on sustainable development practices and an ecological approach, demonstrating proactive engagement in addressing environmental challenges. Their forward-looking perspective prioritises a sense of responsibility towards the natural environment.

Attitudes towards the natural environment are influenced not only by socio-demographic factors and personal value systems but, crucially in contemporary times, also by knowledge and the transformations occurring in the natural world, the political orientation of young people, and

the political discourse in which they are immersed, as well as the role of religion and religiosity. These elements can directly influence, moderate, and mediate environmental attitudes among young people.

Research on environmental attitudes among young people has primarily focused on Western cultures, with a notable lack of in-depth regional studies examining youth perspectives on nature in developing regions such as Central Asia and Africa. In these areas, young people face a dual challenge - coping with the impacts of climate change while navigating rapid economic development. The paradox between the instrumental use of nature and the sense of being an integral part of it has yet to be explored in relation to these cultures. Analysing and assessing these attitudes could provide valuable insights, forming a foundation for further research. Similarly, there is a significant gap in knowledge on this topic concerning religiosity, particularly within the context of Islamic cultural settings.

An additional aspect would involve a comprehensive interpretation of young people's attitudes within theoretical frameworks, addressing specific environmental issues related to the human-nature relationship. Furthermore, subsequent research could contribute to verifying the universality of applied research tools, such as theories, measurement scales, and methodologies, by adapting them to the specific cultural context of developing countries. Research on attitudes towards the natural environment should employ multidimensional scales for attitude measurement, as the use of unidimensional scales may be insufficient, particularly when analysing these issues across diverse socio-cultural contexts. Empirical studies from generational and cross-cultural perspectives remain relatively limited. Future studies might explore the role of cultural dimensions in shaping pro-environmental attitudes and behavioural intentions, address various social groups, or examine how environmental perspectives could facilitate reconciling economic development with environmental protection.

It is important to acknowledge the challenges in interpreting presented concepts and cultural frameworks within specific cultural contexts. These difficulties may arise from several factors, including variations in cultural value systems that influence attitudes towards the environment. The lack of a universal perspective on these issues poses a significant challenge, as translating specific concepts into the language of diverse cultures is complex. Values are often expressed through language, and the language employed in constructs such as the New Environmental Paradigm (NEP) or cultural frameworks tends to be overly general. Moreover, diverse socio-economic conditions across countries must be considered when analysing attitudes towards the natural environment.

Future research should focus on identifying and distinguishing the cultural elements that unify or divide young people's attitudes towards the environment. Every culture possesses both shared characteristics and distinctive features that shape environmental attitudes among youth. It is crucial to seek out and understand the values that underpin beliefs and norms, as these are deeply embedded in cultural contexts.

However, it is also essential to recognise that variations in cultural value systems influencing young people's environmental attitudes are not solely rooted in traditional cultural frameworks. Universal patterns, such as those shaped by increased access to information and the processes of globalisation, also play a significant role. Globalisation facilitates the blending of cultures, standardisation of behaviours, and homogenisation of values, lifestyles, and elements of mass culture.

Research is essential to better tailor educational programmes and approaches to the perception of nature in ways that align with specific cultural contexts. This is particularly relevant

for developing countries, where the level of education, the teaching methods, and access to education often pose significant challenges for both young people and educators in these regions.

Attitudes evolve over the course of an individual's life; therefore, further research is necessary to address the key question of whether the concerns and positive attitudes towards environmental action observed among young people persist into adulthood and what factors contribute to the formation of these attitudes. As young people mature and undergo various life experiences, their beliefs, values, and priorities may undergo transformation. It is essential to identify and assess attitudes within such a dynamically changing, diverse society that rapidly absorbs external influences. Given that, many young people are still in adolescence and have yet to experience significant life events that could shape their perspectives, understanding the durability of their proactive stance and attitudes towards the natural environment is crucial. Consequently, in-depth longitudinal studies examining the evolution of concerns, perceptions, and attitudes towards environmental action as individuals transition into adulthood could provide highly valuable insights.

Limitations

A potential limitation of this literature review is its exclusive reliance on English-language sources. However, the review offers a comprehensive and reliable synthesis of existing research on young people's attitudes towards the natural environment within the framework of the concept of environmental attitudes.

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