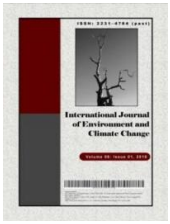

International Journal of Environment and Climate Change

9(2): 120-127, 2019; Article no.IJECC.2019.009
ISSN: 2581-8627
(Past name: British Journal of Environment & Climate Change, Past ISSN: 2231–4784)

Towards an Integrative Psychological Model for Climate Change Mitigation Behavior among Managers in the Tourism Industry

D. N. Kinyanjui[1*]

[1]Department of Environmental Studies and Resources Development, Chuka University, Kenya.

Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

Article Information

DOI: 10.9734/IJECC/2019/v9i230101
Editor(s):
(1) Dr. Abdel Razik Ahmed, Zidan Professor, Department of Hydraulics and Water Resources, Mansoura University, Egypt.
Reviewers:
(1) Antipas T. S. Massawe, University of Dar Es Salaam, Tanzania.
(2) Dr. Michael Adejare Adegboye, Federal College of Land Resources Technology, Nigeria.
Complete Peer review History: http://www.sdiarticle3.com/review-history/48590

Review Article

Received 29 January 2019
Accepted 15 April 2019
Published 24 April 2019

ABSTRACT

The aims of the current paper are to provide an extensive review of the theoretical and empirical evidence on which current climate change mitigation efforts are based and to advance a new model of the determinants of mitigation behavior. The study was based on the review of relevant literature. The model specifically demonstrates the interplay between human values, attitude, knowledge, emotions and social norms as determinants of broad and greater levels of mitigation behaviours. The model is complemented by adding age and sex as confounders. It indicates the possible interrelationships between these factors with their joint effects being emphasized.

The model addresses a concern that most business-level climate change policies ought to be integrative, but are unfortunately, not. Detailed knowledge of psychological determinants is useful for policy makers to provide favorable conditions in support of business level climate change mitigation measures and how it can be used to measure and compare the impacts of the determinants so as to generate more applicable mitigation measures in optimizing climate change policies now and in the future.

Keywords: Integrative psychological model; climate change mitigation behavior; tourism industry.

**Corresponding author: E-mail: danielngochi@gmail.com;*

1. INTRODUCTION

The tourism industry is a significant contributor to the global economy that is adversely threatened by climate change [1]. Climate change refers to the slow variations of climatic characteristics over time at a given place, which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is, in addition to natural climate variability, observed over comparable periods [2]. It has potentially severe and far reaching consequences on among others: water security, ecosystems, food security, coastal regions, human settlements and health for human and natural systems [3]. The tourism is estimated to contribute 5% of the global greenhouse gas (GHG) emissions with accommodation sector accounting for about 21% of emissions [4]. In addition, the sector is not only a major user of energy, land and water resources but is a contributor to water, food and other waste [5,6]. The negative effects of climate change in the industry need therefore to be contained as a matter of urgency.

Climate change mitigation behaviour refers to efforts that seek to prevent or slow down the increase of atmospheric greenhouse gas concentrations by limiting current or future emissions and enhancing potential sinks for greenhouse gases [7]. It is complex, non-linear and affected by numerous factors. While mitigation strategies in response to climate change have been characterized, the determinants of mitigation behaviour have not been comprehensively analyzed particularly at the tourism enterprise level.

Several behavioural theories have been advanced to explain human behaviour in relation to climate change. A large group of climate change behaviour theories either focus on the individuals, behaviour itself, or the relationships between behaviour, individuals and the environment [8]. The most prevalent approach in climate change literature focuses directly on the individual [9]. Theories in this tradition hold that behaviour is an outcome of competing influences that are decided upon by the individual [10]. Such theories therefore place significant emphasis on individual agency.

Further, innovation theories (such as diffusion of innovation, and disruptive innovation theories) focus on technologies themselves as agents of change. Additionally, research in social practice theory and socio technical systems tends to focus on behaviour as an outcome of complex inter-relationships and shared social practice. From these perspectives individuals perform behaviours that are a product of relationships between people, their environment and the technology. In this sense objects and environments become active in the production of climate change mitigation behaviour.

Climate change has traditionally been framed as an environmental or health issue rather than an economic issue [2,11]. The major theories explaining mitigation actions are summarized in Table 1.

Generally, existing climate change literature makes a fundamental distinction between knowledge, attitude and behaviour (KAB) and offers a linear linkage among these three concepts [11]. Other concepts such as human values have been added, intuitively elaborated upon and their indirect and direct temporal influences on mitigation behaviours have been proposed in the domain-context typology [1]. Unfortunately, the recursive linkages among the determinants have largely been neglected.

The theory of planned behaviour (TPB) is one of the most widely cited behaviour theories and has considerable application in climate change [12]. It is one of a closely inter-related family of theories which adopt a cognitive approach to explaining behaviour which centres on individuals' attitudes and beliefs. The TPB posits that intention to act

Table 1. Summary of behavioural theories

Key element	Knowledge, attitude and behaviour model	Theory of planned bahaviour	Health belief model
Attitude	√	√	√
Knowledge	√	√	√
Norms	×	√	×
Values	×	×	×
Self efficacy	×	√	√

is the best predictor of behaviour. The TPB is considered useful or effective in identifying cognitive targets for change than in offering suggestions on how these cognitions might be changed.

The health belief model (HBM) [12] is another cognitive model with applications in climate change. Briefly the theory posits that behaviour is determined by a number of beliefs about threats to an individual's well-being and the effectiveness and outcomes of particular actions or behaviours. The model however, has generally weak predictive power due to its failure to include social or economic or unconscious (for example, habits) determinants of behaviour.

2. DETERMINATION OF CLIMATE CHANGE MITIGATION BEHAVIOUR

2.1 Values

Values have also been defined as things that are meant to help facilitate adaptation to our environment [13]. Values are basic motivations. Motivation is usually described as the driving force of behaviour [14] or the reason why a given behaviour occurs [15]. Motives can be primary (general) motives for a whole class of behaviours e.g., acting in environmentally responsible ways and selective (domain-specific) motives for particular actions, such as recycling or reducing car use [16,17]. The primary/general environmental motivations (for mitigating climate change) are of the assessment of aggregate, self-reported pro-environmental actions i.e., people's breath and level of behavioural engagement in climate change mitigation at a comparable level of generality [8].

People may be concerned about environmental issues for several reasons. Owing to the prominence of Schwartz's norm-activation model, most studies have differentiated between self-transcendent (altruistic) and self-enhancement (egoistic) values. A distinction between ecocentric and anthropocentric motives and values has also been Ecocentric individuals attach importance to the environment for itself and will engage in pro-environmental behaviour, even if it involves some sort of sacrifice on their part; this behaviour pattern is largely rooted in biospheric values [17]. Anthropocentrics' actions are more deeply grounded in social-altruistic and egoistic values; that is, these individuals will engage in pro-environmental behaviour, such as climate change mitigation behaviour, only if it has positive consequences for mankind and does not diminish their quality of life or wealth.

2.2 Attitude

Attitude is defined as the positive or negative feeling that an individual holds about a psychological object such as a physical entity, a person or a group of people, an abstract concept or issue, or a behaviour [19]. It is a learnt behaviour and a function of the individual's perception and assessment of the key attributes or beliefs towards a particular object [1]. Evaluation is thus the main component of attitudinal responses.

In the environmental literature, attitude is acknowledged as a major proximal factor for ecological intention and behaviour. A meta-analysis confirmed a significant, moderate association between attitude and pro-environmental behaviour [19]. The empirical evidence has been mixed for attitudinal associations with climate change behaviour in line with the widely reported attitude–action gap [20]. The controversy has been explained through the observation that the link is contingent upon role of mediators such as omission of intention, situational constraints and uncertainty and ambivalence [17] and differences in measurement of concepts [12].

2.3 Knowledge

Literature suggests a close association between environmental knowledge and pro-environmental behaviour [19]. Literature distinguishes between declarative knowledge and procedural knowledge [21]. Declarative knowledge refers to an understanding of the principles behind phenomena such as the causes, characteristics or consequences of climate change. The assumed importance of environmental knowledge (and information) as a key precondition for ecological action has long been debated [19,12]. Basic information provision is necessary for people to recognize environmental problems and consciously engage in mitigation behaviour. In contrast, excessive amount of environmental information or very detailed technical data, concerning complex and far-reaching environmental issues such as climate change can lead to public confusion and frustration [13].

On the other hand, procedural knowledge for addressing climate change effects is a scheme for remedial action, implying a culturally learned and well-established repertoire of actions which provides guidance about what to do and when to do it. The relationship between procedural knowledge on climate change is largely neglected in behavioural studies.

Without such knowledge, individuals are less capable of taking advantage of emerging opportunities. Consequently individuals with higher levels of procedural knowledge will be expected to have superior performance. In climate change, we should expect that hoteliers with superior knowledge will utilize effective remedial options.

2.4 Emotions

Emotion is usually associated with the notion of value [22]. Measurement of emotions is biased towards positive emotions, such as enjoyment, excitement and happiness 24]. A few notable exceptions exist, such as Jarvis and Ortega [22] who include both positive and negative emotions. Literal work on felt emotions in climate change is daunting and thus it is not surprising that studies investigating factors that trigger emotional states remain scarce.

Some recent studies attempt to examine what influences emotional responses, notably the attributes (or environmental factors) that might explain emotions [12]. Gössling, et al. [1] instead examined the extent to which selected cognitive appraisals (pleasantness, goal congruence, self-compatibility and novelty) influence joy, love and positive surprise relate to climate change issues. As different emotional states are likely to have varying causes, studying the triggers of emotions requires a focused analysis of individual emotions. Yet, few studies in tourism go beyond examining the causes of emotions at an aggregate level.

2.5 Social Norms

Social capital is broadly defined as “the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition” [23].

These ties are beneficial in that they offer a wide range of opportunities and access to broad knowledge because of the heterogeneity of the respective network’s members [21]. Alternatively, bonding social capital indicates strong ties usually between family members and close friends [24]. Ecological action may thus be shaped by a wide range of social influences. Research that explores the effect of social influences on environmental behaviour is pervasive [2,8]. This literature suggests that it is through social comparison with referent others that people validate the correctness of their opinions and decisions.

Usually a distinction is made between descriptive and prescriptive social norms. While prescriptive norms contain information about how others think how someone ought to behave, descriptive norms merely describe how others are behaving [25]. When communicating social information it is important to understand the relation between these two concepts. People derive both types of norms from observing others [26], applying a logic of appropriateness in unfamiliar situations [13] and unsurprisingly, tend to behave as their friends and peers [27]. People thus tend to alter their ecological behaviour more generally to conform to the group-norm [28].

2.6 Gender

Theoretical explanations have been offered for gender distinctions in general environmentalism and climate change behaviour [17]. The first rationale is that traditional gender roles and socialization patterns largely underlie women’s greater environmental involvement. Traditional female socialization has been linked to pro-environmental behaviour, owing to women’s other and eco- centric value orientations [29] and caretaker role. Women tend to be more attentive to the interconnections between the natural environment and things they value as a result, women will be more sensitive than men to the environmental consequences of their actions [17]. The second rationale lies in the fact that, overall, women tend to judge the world as more risky, perceive higher levels of environmental risk, and thus are likely to take more pro-environmental actions than men [28]. Finally, women appear to perceive fewer (subjective and objective) constraints on personal engagement with climate change mitigation, relative to men.

2.7 Age

There is much controversy surrounding age relations to environmental behaviour.

Researchers have studied the linkage between age and pro-environmental behaviour with differing results-that is, age has been reported to be negatively, positively, or non-significantly related to environmentally-significant behaviour [30]. A non-linear (inverted U-shaped) relationship between age and climate change concern has been proposed [17]. Middle age managers are more likely to report pro-environmental actions.

3. DEVELOPMENT OF THE PROPOSED INTEGRATIVE FREUDIAN PSYCHOANALYTIC THEORY AND ITS IMPLICATIONS

Freud's psychoanalytic theory served as a cornerstone of psychology and the analysis of the structure of human personality [31]. Freud believed that personality has three structures: the id, the ego and the super-ego. The id is the structure of personality that consists of instincts. It is totally unconscious and has no contact with reality. It influences human behaviour even if the person does not realize the significance of certain fundamental influences. The ego is the structure that concerns with reality and is considered as the "reasoning" and "decision making" part of personality. Both the id and the ego have no morality, an aspect of the personality taken care of by the superego. The superego is often referred to as the conscience.

Starting from Freud's perspective, a model is therefore proposed to better understand the dynamic interaction between broad social-psychological factors that modify business-level mitigation behaviours in general (Fig. 1). The model specifically demonstrates the interplay between human values (motives), cognitive constructions (attitude and knowledge), psychological responses (emotions) and social influences (norms) as determinants of broad and greater levels of mitigation behaviours. The model is complemented by adding trait factors (age and sex) to better understand how mitigation behaviours develop.

The proposed model argues therefore that policymakers should with foresight from empirical evidence and in integration (a) appeal to intrinsically valued long-term environmental goals; (b) facilitate more cognitive engagement with climate change (both rationally and emotionally) and; (c) leverage relevant social norms. They can thus frame policy solutions in terms of what can be gained from immediate action with available resources while taking care of age and gender differences.

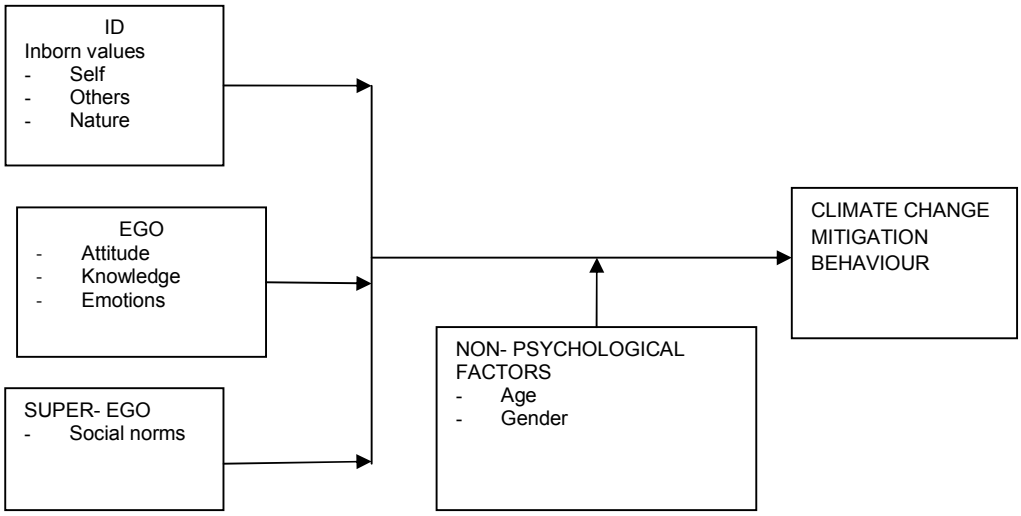

Fig. 1. The integrative model
(Source: Author 2019)

4. CONCLUSION

The proposed model demonstrates the compounded influence of psychographics both the conscious and unconscious on mind on human behaviour. Age and gender moderate this relationship. The model conveys two important ideas. First, due to its anchorage in psychological science, it highlights the set of factors that have been proposed variously in literature as relevant to important pro-environmental responses. Second, it indicates the possible inter-relationships between these factors with their joint effects being emphasized. The model thus, closely mirrors human behaviour which is often the result of a complex integrated behavioural process.

Detailed knowledge of these determinants is particularly useful for policy makers to provide favorable conditions in support of business level climate change mitigation measures. This article has illustrated how key psychological principles can be applied to support business engagement and climate change policy-making. The proposed model therefore addresses a concern that most business-level climate change policies ought to be integrative, but are unfortunately not.

This proposed integrative psychological model can provide a framework for undertaking scientific research that can be used to measure and compare the impacts of the determinants and also assist in the generation of the mitigation measures optimizing climate change policies now and in the future through Structural Equation Modeling approaches.

ACKNOWLEDGEMENTS

I wish to acknowledge Dr. David G. Turuthi for his assistance during the editing of the manuscript.

COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. Gössling S, Scott D, Hall CM, Ceron JP, Dubois G. Consumer behaviour and demand response of tourists to climate change. Annals of Tourism Research. 2012b;39(1):36–58. Available:https://doi.org/10.1016/j.annals.2011.11.002
2. Belle N, Bramwell B. Climate change and small island tourism: Policy maker and industry perspectives in Barbados. Journal of Travel Research. 2005;44(1):32–41. Available:https://doi.org/10.1177/0047287505276589
3. Parry ML. Intergovernmental panel on climate change. Climate change 2007: Impacts, adaptation and vulnerability: contribution of Working Group II to the fourth assessment report of the Intergovernmental Panel on Climate Change. Cambridge, U.K.; New York: Cambridge University Press; 2007.
4. Scott D, Peeters P, Gössling S. Can tourism deliver its "Aspirational" greenhouse gas emission reduction targets? Journal of Sustainable Tourism. 2010;18(3):393–408. Available:https://doi.org/10.1080/09669581003653542
5. Gössling S, Peeters P, Hall CM, Ceron JP, Dubois G, Lehmann LV, Scott D. Tourism and water use: Supply, demand, and security. An international review. Tourism Management. 2012a;33(1):1–15. Available:https://doi.org/10.1016/j.tourman.2011.03.015
6. Hsiao TY, Chuang CM, Kuo NW, Yu SMF. Establishing attributes of an environmental management system for green hotel evaluation. International Journal of Hospitality Management. 2014b;36:197–208. Available:https://doi.org/10.1016/j.ijhm.2013.09.005
7. Smith P, Davis SJ, Creutzig F, Fuss S, Minx J, Gabrielle B, Yongsung C. Biophysical and economic limits to negative CO2 emissions. Nature Climate Change. 2015;6:42.
8. Miao L, Wei W. Consumers' pro-environmental behaviour and its determinants in the lodging segment. Journal of Hospitality & Tourism Research. 2016;40(3):319–338. Available:https://doi.org/10.1177/1096348013495699
9. Grothmann T, Patt A. Adaptive capacity and human cognition: The process of individual adaptation to climate change. Global Environmental Change. 2005;15(3):199–213. Available:https://doi.org/10.1016/j.gloenvcha.2005.01.002

10. Hall C, Dayal N, Majstorović D, Mills H, Paul-Andrews L, Wallace C, Truong V. Accommodation consumers and providers' attitudes, behaviours and practices for sustainability: A systematic review. Sustainability. 2016;8(7):625. DOI: https://doi.org/10.3390/su8070625
11. Brouder P, Lundmark L. Climate change in Northern Sweden: Intra-regional perceptions of vulnerability among winter-oriented tourism businesses. Journal of Sustainable Tourism. 2011;19(8):919–933. Available:https://doi.org/10.1080/09669582.2011.573073
12. Kollmuss A, Agyeman J. Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behaviour? Environmental Education Research. 2002;8(3):239–260. Available:https://doi.org/10.1080/13504620220145401
13. Mensah I. Different shades of green: Environmental management in hotels in Accra: Environmental Management in Hotels in Accra. International Journal of Tourism Research. 2014;16(5):450–461. Available:https://doi.org/10.1002/jtr.1939
14. Chi MTH. Knowledge development and memory performance. In Friedman MP, Das JP, O'Connor N (Eds.). Intelligence and Learning. Boston, MA: Springer US. 1981;221–229. Available:http://link.springer.com/10.1007/978-1-4684-1083-9_20
15. Moisander J. Motivational complexity of green consumerism. International Journal of Consumer Studies. 2007;31:404–409. DOI: 10.1111/j.1470-6431.2007.00586.x
16. Halpenny EA. Pro-environmental behaviours and park visitors: The effect of place attachment. Journal of Environmental Psychology. 2010;30(4):409–421. Available:https://doi.org/10.1016/j.jenvp.2010.04.006
17. Ortega-Egea JM, García-de-Frutos N, Antolín-López R. Why do some people do "More" to mitigate climate change than others? Exploring Heterogeneity in Psycho-Social Associations. PLoS One. 2014;9(9):e106645. Available:https://doi.org/10.1371/journal.pone.0106645
18. Ajzen I. Attitudes, personality and behaviour. Maidenhead: McGraw-Hill International (UK) Ltd.; 2007. Available:http://public.eblib.com/choice/publicfullrecord.aspx?p=287791
19. Bamberg S, Möser G. Twenty years after Hines, Hungerford, Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour. Journal of Environmental Psychology. 2007;27(1):14–25.
20. Lorenzoni I, Nicholson-Cole S, Whitmarsh L. Barriers perceived to engaging with climate change among the UK public and their policy implications. Global Environmental Change. 2007;17(3–4):445–459.
21. Bereiter C. Principled practical knowledge: Not a bridge but a ladder. Journal of the Learning Sciences. 2014;23(1):4–17. Available:https://doi.org/10.1080/10508406.2013.812533
22. Jarvis N, Ortega AP. The impact of climate change on small hotels in Granada, Spain. Tourism and Hospitality Planning & Development. 2010;7(3):283–299. Available:https://doi.org/10.1080/1479053X.2010.502389
23. De Grosbois D. Corporate social responsibility reporting by the global hotel industry: Commitment, initiatives and performance. International Journal of Hospitality Management. 2012;31(3):896–905. Available:https://doi.org/10.1016/j.ijhm.2011.10.008
24. Mobley C, Vagias WM, DeWard SL. Exploring additional determinants of environmentally responsible behaviour: The influence of environmental literature and environmental attitudes. Environment and Behaviour. 2010;42(4):420–447. Available:https://doi.org/10.1177/0013916508325002
25. Doolin B, Lowe A. To reveal is to critique: Actor–network theory and critical information systems research. Journal of Information Technology. 2002;17(2):69–78. Available:https://doi.org/10.1080/02683960210145986
26. Darker CD, French DP, Eves FF, Sniehotta FF. An intervention to promote walking amongst the general population based on an "extended" theory of planned behaviour: A waiting list randomised controlled trial. Psychology & Health. 2010;25(1):71–88. Available:https://doi.org/10.1080/08870440902893716
27. Berkhout F, Hertin J, Gann DM. Learning to adapt: Organisational adaptation to climate change impacts. Climatic Change. 2006;78(1):135–156.

Available:https://doi.org/10.1007/s10584-006-9089-3
28. Harris CR, Jenkins M. Gender differences in risk assessment: Why do women take fewer risks than men; 2006.
29. Gifford R, Nilsson A. Personal and social factors that influence pro-environmental concern and behaviour: A review: Personal and Social Factors that Influence Pro-environmental Behaviour. International Journal of Psychology; 2014.
Available:https://doi.org/10.1002/ijop.12034
30. Diamantopoulos A, Schlegelmilch BB, Sinkovics RR, Bohlen GM. Can socio-demographics still play a role in profiling green consumers? A review of the evidence and an empirical investigation. Journal of Business Research. 2003;56: 465–480.
DOI: 10.1016/S0148-2963(01)00241-7
31. Cherry Kendra. The conscious and unconscious mind (The Structure of the Mind According to Freud); 2013.
Available:http://psychology.about.com/od/theoriesofpersonality/a/consciousuncon.htm

Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sdiarticle3.com/review-history/ 48590