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The impact of eco-innovation on green buying behaviour: the moderating effect of emotional loyalty and generation

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Abstract

Purpose – This study intends to contribute to the literature of eco-innovation by examining the pro-environmental intentions and behaviour among consumers through their understanding of eco-innovation. Thus, the relationship among eco-innovation, general pro-social attitude, generativity, environmental concern, purchasing intentions and buying environmentally friendly products and the differences of the relationship between high and low emotional loyalty and Generation Y and Z were investigated via structural equation modelling (SEM).

Design/methodology/approach – Data were collected through an online questionnaire directed to Indian consumers, and analysis was done through partial least square structural equation modelling (PLS-SEM) in two stages, i.e. measurement model and structural model.

Findings – Results confirm the relationships established in the proposed model, and some differences were found between the levels of emotional loyalty and the Generations Y and Z. The research shows that individualistic norms and perceived marketplace influence play a purposeful role in transforming environmental concerns into buying behaviour towards eco-innovation-driven products.

Practical implications – From a policy and management perspective, the results not only imply the importance of continuous performance and environmental improvement but also those policies hindering diffusion and adoption need to be addressed. Green buying is an elusive task but can be opportunely attained by marketers by adding elements of eco-innovations and understanding mindsets of consumers to create win–win situations for themselves and consumers.

Originality/value – The results reinforced that emotional loyalty and Generations Y and Z vitally impact consumers' green buying decision within the framework of eco-innovation and cognitive factors.

Keywords Eco-innovation, Environmental concern, Generativity, Buying behaviour, Generation, Emotional loyalty, Structural equation modelling

Paper type Research paper

1. Introduction

Across the globe, natural environment has not always been a matter of concern for human beings, which has led to environmental deterioration in a big way (Tang *et al.*, 2020). The ubiquitous attention on environmental protection is borne out of the desire to curtail climate changes in the form of global warming, pollution of seas and rivers, and desertification, which adversely affects human health, a deep-rooted and abiding concern (Dwidienawati *et al.*,

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2021). Individuals' environmental interests, values and behavioural characteristics contribute to highlighting the need of having a population that is educated, motivated and prepared to take care of the environment for future generations (Sharma *et al.*, 2020). Similarly, many firms are strategizing their operations from an environmental perspective by altering the production process and manufacturing technologies to incorporate green via eco-innovation. The demarcation of eco-innovation is not only limited by ecological motivated innovations but also serendipitous environmental innovations, like recycling of unconsumed material in factory or saving water and electricity in firms through sustainable ways (Kautish *et al.*, 2019; Ofori and Mensah, 2022).

The literature attempted to define eco-innovation as "*the production, assimilation or exploitation of a product, production process, service or management or business method that is novel to the organisation (developing or adopting it) and which results, throughout its life cycle, in a reduction of environmental risk, pollution and other negative impacts of resources use (including energy use) compared to relevant alternatives*" as per the European Commission (Horbach and Rennings, 2007, p. 7). Unequivocally, eco-innovation positively impacts the environment (Bossle *et al.*, 2016) and is a pre-eminent approach to retain and allure the customer, particularly the consumers with green orientation (Paparoidamis *et al.*, 2019). Therefore, many past studies have examined why and how firms adopt eco-innovation in practices (e.g. Bitencourt *et al.*, 2020; Arranz *et al.*, 2019). However, how consumers perceive eco-innovation and its impact on pro-environmental behaviour have been scantly researched and empirically studied.

It is significant to examine consumer orientation towards eco-innovation, and how and to what extent consumers induce green behaviour via an understanding of eco-innovation firms are going. First, consumers' knowledge and understanding of eco-innovation provide a platform for policymakers to understand the expectations of green consumers (Paparoidamis *et al.*, 2019; Yang *et al.*, 2022). Second, environmental aspects, like concern and attitude, notably impact the intentions and behaviour of consumers (Sharma *et al.*, 2020). Therefore, it is quite possible that understanding the eco-innovation done by the firms might impact the intentions to buy green products. Third, consumers are opting for greener options, and this opportunity can ameliorate policymakers' green strategies and functions (Sharma and Paço, 2021). Fourth, consumers are cynical regarding green products (Sarabia-Andreu *et al.*, 2019), and apprehension regarding greenwashing is intensifying (Kautish and Sharma, 2020). These critical issues can be resolved when firms are engaged in environmental modernization and consumers are aware of these innovations. However, how the knowledge and cognition related to eco-innovation sway green buying behaviour of consumers is at a very nascent stage.

Hence, with the above argument, the present study aims to contribute to the literature of eco-innovation in threefold ways. Academically, this article addresses the gap in the literature, which primarily emphasizes the organizational facets of eco-innovations rather than focusing on the integration of individual behavioural and marketplace influences about eco-innovations. Also, the present study holistically examines the pro-environmental behaviour of consumers, via norm activation and marketplace-driven influences, towards eco-innovation adoption by the firms. The cognitive perspective of consumers, via general pro-social attitude, norms and concern for futuristic market, is also examined to have a comprehensive understanding of pro-environmental intentions (Kautish *et al.*, 2021). In addition, how intentions direct the behaviour of consumers via norm activation *inter alia* perceived marketplace influence. The theoretical framework presented in the next section shows that the conception of psychological perspective has been operationalized at an individual level by using norm activation model (NAM) and at the collective level with help of the theory of perceived marketplace influence (TPMI). Empirically, the model proposed in the present study examines the relationship of pro-environmental intentions and behaviour among consumers through their understanding of eco-innovation by using partial least

square structural equation modelling (PLS-SEM). Additionally, mediation effects will be investigated to provide efficacious insights to the marketers. In parallel, the present study examines the moderating effect of emotional loyalty of consumers on the whole model, as loyalty is one of the foremost aspects of green marketing (Pahlevi and Suhartanto, 2020). Therefore, unearthing of general pro-social attitude and concern through eco-innovation by firms provides the contextual and conceptual awareness to the marketers that how to strategize the eco-products, eco-activities and eco-functions in the organizations among high and low emotionally loyal green consumers.

1.1 Theoretical framework

1.1.1 Norm activation model (NAM). The NAM was developed by Schwartz (1977) to explore the altruistic intentions and behavioural disposition in a pro-social context. According to Harland *et al.* (2007), the norm activation denotes to a process in which individuals' construct self-expectations regarding pro-social behaviour. The NAM embraces three underlying dimensions which explain the formation of pro-social intentions and behaviour and are closely linked to the present study: first, the individuals' level of awareness about the consequences of their actions; second, it ascribes to the responsibility of consequences and third, the personal norm (Schwartz, 1977). The personal norm is considered a pivotal construct to understand and operationalize the norm activation process (De Groot and Steg, 2009). Personal norm is described as "internalized rules of conduct that are socially learned vary among individuals within the same society and direct behaviour in a particular situation" (Berenguer, 2010, p. 112). Although originally, the NAM was designed to predict individuals' altruistic intentions and behaviour, still the applicability of NAM to a range of innovation oriented eco-friendly behaviour and pro-environmental aspects has been constantly acknowledged in previous research (Kautish *et al.*, 2020), as, for example, morality (De Groot and Steg, 2009), public transportation adoption (Goel *et al.*, 2021) and electricity saving behaviour (Zhang *et al.*, 2013).

1.1.2 Theory of perceived marketplace influence (TPMI). The TPMI is related to the individuals' opinion pertinent to the decision-making towards innovative eco-friendly products, which could determine and encourage other consumers' behaviour as well (Groening *et al.*, 2018; Joshi and Rahman, 2017). The TPMI validates eco-conscious buyer behaviour as a distinctive quality associated with consumers who contribute to selecting innovative products that are less destructive to the environment than generic products (Groening *et al.*, 2018). As personal costs associated with pro-environmental behaviour are typically much more conspicuous than its benefits (Harland *et al.*, 2007), this phenomenon epitomizes a perception geared towards instigating an attitudinal and behavioural shift from traditional consumer decision-making based on exploiting meagre functional utility without much thinking of the future generational concerns (Thøgersen, 2009). Therefore, the present research incorporates generativity as an extension of the ideology of TPMI, which enrich the pro-social attitudes and self-sufficient concerns towards validating individual preferences for eco-innovations (Ding *et al.*, 2017). It has been presented as a significant variable in determining the pro-social attitude towards eco-innovation oriented products and an important antecedent of environmentally conscious consumer behaviour. As Paparoidamis and Tran (2019) pronounce that the doctrine of eco-innovations is still in its nascent stage in emerging countries (i.e. India) in comparison to the developed world, thus, an individual who embraces "acceptance for eco-innovative product" in an emerging country can be considered an "social innovator", who may exhibit leadership ability and social influence (Rogers, 1995). Studies show that eco-innovations can work well if those specific generational cohorts with pro-social attitudes can be targeted (Long *et al.*, 2015).

2. Model proposal and research hypotheses

According to Hojnik *et al.* (2018), the concept of eco-innovation is related to some type of innovation with a focus on environmental sustainability, as could be the case of an innovative new product that was made and uses an environmentally friendly source of energy; it can also be a product that does not damage the environment by being less polluting, that can be recycled, biodegradable and so son (Severo *et al.*, 2018). Thus, it is possible to find some studies dedicated to the topic of eco-innovation (e.g. Bossle *et al.*, 2016), but there is a lack of evidence about the factors that contribute to the diffusion of green innovation and about its consequences and/or effects. What is more or less evident is that the environmental awareness of managers positively impacts eco-innovation (Peng and Liu, 2016). From the point of view of Severo *et al.* (2018), and according to their study, a positive perception of the individuals regarding eco-innovation has a positive impact on the socio-environmental consciousness. This way, we can also assume that eco-innovation has a positive effect on pro-social attitudes, which refer to attitudes that will result in voluntary behaviours being valuable for other individuals (e.g. peer sharing and volunteering) and contexts (natural environment) (Brouwer and Engels, 2021). Given the above, the first hypothesis is formulated as follows:

H1. Eco-innovation has a positive effect on general pro-social attitudes.

Consumers' lifestyles and their buying patterns have a substantial impact on the environmental damage bringing severe problems for future generations (Shiel *et al.*, 2020). At this point, it could be useful to introduce the generativity concept, which was first presented by Erikson (1950) and has to do with the concern for establishing and orienting the next generation, leaving, if possible, a social legacy. This can be perceived in personal or professional life, volunteering activities and belonging and being an activist in certain organizations. All individuals have the capacity for generativity; nevertheless, parents tend to present a higher sense of generativity, which lead us to the idea that this concept depends on intergenerational continuity (McAdams and de St. Aubin, 1992).

According to Liobikiene and Bernatoniene (2017), the way to safeguard a sustainable future for all will be less production/consumption of products that are harmful to the environment while promoting environmentally friendly goods and services. Thus, innovative solutions incorporating the principles of sustainable production are needed and can have a positive effect, mostly on the consumers more concerned with the future of next generations. In fact, as individuals become more conscious about the way their consumption affects the environment, they can change their habits for the benefit of future generations (Paço *et al.*, 2019). This way, the second hypothesis is presented:

H2. Eco-innovation has a positive effect on generativity.

Social factors affect sustainable consumer behaviour. Pro-social behaviour, being about collaboration and activities to protect the welfare of others, include obviously environmental protection attitudes and behaviours (Weinstein and Ryan, 2010). Antonides and Van Raaij (1998) define this concern as an attitude that, in turn, is linked to environmental consequences. Note that the attitude can be influenced by own or other experiences, by the information received, by the media communication or by other factors (Paço *et al.*, 2019). In turn, Žabkar and Hosta (2013) consider that the concern is part of the system of beliefs and attitudes towards the environment, influencing the individual's intentions but not necessarily influencing his/her behaviour. Additionally, pro-social attitudes influence green consumption values, considered as the value of environmental protection translated to individual choices and purchases (Kautish and Sharma, 2021; Paço *et al.*, 2019). Nevertheless, Osgood and Muraven (2015) pointed some contradiction between pro-social effects and corresponding green attitudes and behaviours. Thus, the following hypothesis is formulated:

H3. General pro-social attitudes have a positive effect on environmental concerns.

Some activities, such as taking care of children/older people, preserving traditions, and conserving the environment, are intrinsically linked with generativity, which is different from altruism or pro-social attitudes (McAdams *et al.*, 1998). Given this, it is possible that older adults might convert their generative concern into pro-environmental attitudes as a way of leaving a long-term legacy for future generations (Warburton and Gooch, 2007). According to Wells *et al.* (2016), several studies explore the relationship between generativity and environmental concern. For instance, Chan (2009) investigated the relationship between generativity and environmental concern and, in the end, assumed that generativity performed a relevant role in environmental commitment. The author considers the commitment to environmental sustainability as a generative concern. In their study, Wells *et al.* (2016) also emphasized the link between generativity and environmental attitudes. Given the stated above, the fourth hypothesis was formulated as follows:

H4. Generativity has a positive effect on environmental concerns.

Environmental concern directly and significantly impacts attitude towards green products, which further influences the purchase intention for such products. The idea of consumers having high environmental concern is directly associated with their positive attitude toward green products, which, in turn, is related to their high level of purchasing intention for such products (Mostafa, 2006). According to Paço *et al.* (2019), previous research evidence that even when individuals are really concerned for the environment, such attitudes do not always influence their intention or their purchasing behaviour. For instance, Laroche *et al.* (2002) refer that a significant part of the consumers just acts according to their environmental concern when they feel that it does not imply personal costs (economic and lifestyle). However, there are studies in which it is possible to verify the linking between environmental concerns and intention to buy green (e.g. Hartmann and Apaolaza-Ibáñez, 2012). In Jaiswal and Kant (2018) study involving Indian consumers, the results showed that green buying intention was significantly and directly pushed by environmental concern. Other studies with Indian consumers reported that young consumers were concerned about environmental problems and have a positive attitude toward buying green products in future (Yadav and Pathak, 2016). Lastly, Chaudhary and Bisai (2018) found that nevertheless, the direct effect of environmental concern on purchase intention was insignificant, and it influenced the intention indirectly through its effect on the attitude of young Indian Millennials. Given the contradictory results from the studies presented above, the fifth hypothesis is presented:

H5. Environmental concern has a positive effect on purchase intentions.

As already noticed, there are inconsistent results regarding the intention–behaviour relation concerning green issues. For instance, in Chan (2001) research, the high levels of eco-friendly purchase intentions reported by consumers had no influence on their buying behaviour. However, the Akehurst *et al.* (2012) study proved the existence of a relationship between intentions and the buying of green products. In fact, most of the existing literature showed that intention is a major predictor of certain behaviour, and this relation has been proved for green products by some current studies in the local context, including India (Jaiswal and Kant, 2018; Kautish *et al.*, 2020). Note that here the green buying behaviour is understood as "the purchasing in a responsible, ethical, sustainable and environmentally friendly way includes buying energy efficient products, avoiding over packaged goods, exhibiting a preference for biodegradable and recycled articles, buying fairtrade and locally sourced products" (Paço *et al.*, 2019, p. 1,001). This type of behaviour benefits both society and the planet (Straughan and Roberts, 1999). Given the above, the sixth hypothesis was formulated as follows:

H6. Purchase intentions have a positive effect on buying behaviour.

Emotional loyalty involves both affective loyalty and affective commitment; furthermore, the emotional benefits associated with the brands can be used as an encouragement to the consumers to alter their consumption patterns (Kim *et al.*, 2014). It can be said that commitment is a crucial mediating factor regarding customer loyalty (Morgan and Hunt, 1994). According to previous studies, emotional loyalty is not only about feelings but also about rationality; the affective connection will drive a continuity of the relationship with a brand or object by repeating the buying (Kim *et al.*, 2014). Han *et al.* (2011) enforce that affective loyalty can be theorized in terms of both positive emotions and negative emotions about a product or a service. Following the same line of research from Kim *et al.* (2014), in order to analyse differences in the constructs (eco-innovation, general pro-social attitudes, generativity, environmental concern, purchase intentions and buying behaviour) between the high and low emotional loyalty groups of consumers, which meanwhile will be established, we formulated several hypotheses regarding the moderating role of emotional loyalty:

H7a. The relationship between eco-innovation and general pro-social attitude is stronger in the high emotional loyalty group than in the low emotional group.

H7b. The relationship between eco-innovation and generations is stronger in the high emotional group than in the low emotional group.

H7c. The relationship between general pro-social attitude and environmental concern is stronger in the high emotional group than in the low emotional group.

H7d. The relationship between generations and environmental concern is stronger in the high emotional group than in the low emotional group.

H7e. The relationship between environmental concern and purchase intentions is stronger in the high emotional group than in the low emotional group.

H7f. The relationship between purchase intentions and buying behaviour is stronger in the high emotional group than in the low emotional group.

Generation Y (born between 1982 and 1994) is also designated as the generation of Millennials, known for being "revolutionary", having been a pioneer in the use of social networks and digital platforms. The social impact of their choices has been studied by some authors (e.g. Gurtner and Soyez, 2016), proving that the consumption experience is closely associated with social and cultural factors. To these consumers, it is just as important to protect the environment through their purchase options as to enjoy the product, making them a relevant actor in creating new trends and presenting a lifestyle based on innovation and ecology. In Joshi and Rahman (2017) study, Generation Y evidences the predisposition to implement in society great changes regarding the responsible consumption levels; nevertheless, the research revealed a gap between pro-environmental attitudes and ecological purchasing behaviour, being this generation more influenced by environmental knowledge, attitudes, participation in recycling activities, labelling and by the messages from media. In turn, Generation Z (born between 1995 and 2010), also called the post-millennial generation, is prone to be socially involved in society, demonstrating a great interest in participating actively in social issues. These young adults reveal a high level of environmental consciousness, concern for the environment and favourable attitudes regarding green products (Jain and Kaur, 2006). Some authors like Leonidou *et al.* (2011) reported other findings, disclosing that these individuals do not endorse environmental regulations and pay less attention to eco-labelling than the older consumers. Nevertheless, this generation is more educated on sustainable living than preceding generations, tending to be more environmentally friendly and community oriented. Given the lack of studies

comparing these two generations (Y and Z) regarding several environment related constructs, a set of hypotheses was formulated as follows:

H8a. There is a statistical difference in the relationship between eco-innovation and general pro-social attitude in Generations Y and Z.

H8b. There is a statistical difference in the relationship between eco-innovation and Generations Y and Z.

H8c. There is a statistical difference in the relationship between general pro-social attitude and environmental concern in Generations Y and Z.

H8d. There is a statistical difference in the relationship between generations and environmental concern in Generations Y and Z.

H8e. There is a statistical difference in the relationship between environmental concern and purchase intentions in Generations Y and Z.

H8f. There is a statistical difference in the relationship between purchase intentions and buying behaviour in Generations Y and Z.

The hypotheses formulated, as well as the model representation, can be seen in Figure 1.

3. Methods

3.1 Data collection

To examine the relationship among eco-innovation, general pro-social attitude, generativity, environmental concern, purchasing intentions and buying environmentally friendly products and to investigate the differences of the relationship between high and lowemotional loyalty

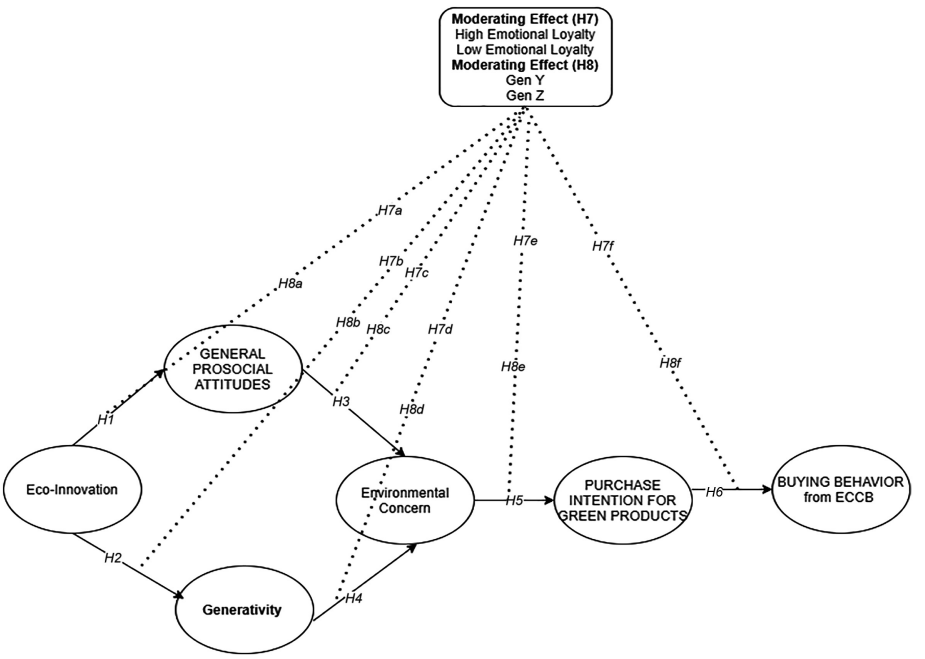

Figure 1.
Proposed model and research hypotheses

and Generation Y and Z, a questionnaire was administered. Also, a pre-test test was conducted, using 30 samples to scale down the idiomatic and blurry terminologies in the questionnaire. Finally, the data collection was done through an online questionnaire, which was distributed via emails to respondents in India. In total, 332 were returned, and after scrutiny the questionnaire based on its completeness, we selected 314 responses to analyse the data.

We calculated G*Power for *a priori* and post-hoc power analyses to check the sample size adequacy. To analyse our study, we used 314 samples which is much more than the recommendation and hence justify the adequacy of the sample size. In order to ascertain to which generation the respondents belonged (Generation Y or Z), we asked about their year of birth. Other additional demographic information (gender, age and education) was also requested to understand the diversity of the sample. In total, 57.8% female and 42.2% male respondents participated in the survey. Of the respondents, 47% were post-graduates; 41.5% were under-graduates; 33% were from Generation Y and 64% were from Generation Z.

3.2 Variables

In order to test the hypothesized relationships, several constructs were investigated and adapted for the present research. Thus, the eco-innovation scale was adapted from Severo *et al.* (2018), the general pro-social attitude scale was based on Osgood and Muraven (2015), generativity construct has been widely used, but we adapted from McAdams and de St. Aubin (1992) scale, purchasing intentions were measured by using Mostafa's (2006) scale and to measure buying behaviour, the ecologically conscious consumer behaviour scale from Straughan and Roberts (1999) was used being also used in other related studies in the past (e.g. Paço *et al.*, 2019). Kim *et al.*'s (2014) study served as a base for analysing emotional loyalty. In this case, we considered two levels of emotional loyalty "high emotional loyalty" the "low emotional loyalty". Regarding all these scale items, the individuals were asked to provide their opinion according to a seven-point scale varying from 7 = totally agree to 1 = totally disagree; regarding the buying behaviour, respondents were asked about their level of frequency according to a seven-points scaler (7 = always to 1 = never).

4. Results

The data were analysed using PLS-SEM via SmartPLS (3.3.9 version). PLS-SEM assessed the model in two parts (Hair *et al.*, 2020): the measurement and the structure of the model.

4.1 Measurement model

Initially, to examine the internal consistency and reliability of the model, PLS-SEM assessed the composite reliability and Cronbach's alpha. As per Table 1, all the composite reliability and Cronbach's alpha values are more than 0.70. To determine the convergent validity, PLS-SEM estimated the outer loadings and average variance extracted (AVE). Hair *et al.* (2017) recommend the outer loadings should be greater than 0.70, and AVE should be greater than 0.50. Table 1 reveals that reliability is good and supports convergent validity.

Also, the discriminant validity among the constructs was assessed using the Fornell–Larcker criterion (Fornell and Larcker, 1981) (Table 2).

The present study also assesses the variance inflation factor (VIF) to examine the issues of common method bias (CMB) and multicollinearity. After testing, we concluded that the present study has no trouble related to CMB and multicollinearity.

Items	Outer loadings	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
Environmental concern (EC)		*0.96*	*0.971*	*0.894*
EC1	0.937			
EC2	0.939			
EC3	0.958			
EC4	0.947			
Buying behaviour (BB)		*0.972*	*0.975*	*0.799*
BB1	0.903			
BB2	0.864			
BB3	0.884			
BB4	0.892			
BB5	0.904			
BB6	0.913			
BB7	0.86			
BB8	0.89			
BB9	0.912			
BB10	0.914			
Eco-innovation (EI)		*0.954*	*0.964*	*0.845*
EI1	0.932			
EI2	0.939			
EI3	0.888			
EI4	0.934			
EI5	0.901			
Generativity (GEN)		*0.961*	*0.965*	*0.699*
GEN1	0.751			
GEN2	0.839			
GEN3	0.851			
GEN4	0.834			
GEN5	0.89			
GEN6	0.874			
GEN7	0.792			
GEN8	0.871			
GEN9	0.785			
GEN10	0.857			
GEN11	0.869			
GEN12	0.812			
General pro-social attitudes (GPA)		*0.974*	*0.979*	*0.886*
GPA1	0.92			
GPA2	0.932			
GPA3	0.954			
GPA4	0.956			
GPA5	0.947			
GPA6	0.939			
Purchase intention (PI)		*0.968*	*0.975*	*0.887*
PI1	0.937			
PI2	0.947			
PI3	0.929			
PI4	0.95			
PI5	0.946			

Table 1.
Indicators' loading, composite reliability, Cronbach's alpha and AVE

4.2 Structural model

Prior to studying the moderation impact of high and low emotional loyalty and generation on the model, the proposed fundamental model was tested to verify the relationship among the

variables. Also, the predictive classification of the model was assessed through Stone-Geisser's Q^2 and R^2 (Table 3). According to Table 3, the Q^2 values of all the variables are large.

Also, the prediction of the structural model can be made by assessing the R^2. In the model, the R^2 value of buying behaviour = 0.777 and general pro-social attitude = 0.820, which substantially explain the variance of these constructs in the model. The values of environmental concern, generativity and purchase intentions show the moderate variance explained of these constructs in the model.

The graphic representation of the results is shown in Figure 2.

4.3 Hypothesis testing of the model

Subsequently, hypotheses were tested through the bootstrapping technique, which assesses the sample using the re-sampling procedure of 5,000 sub-samples to determine the path coefficient, *t*-values standard errors and *p*-values (Hair *et al.*, 2020) (Table 4).

As posited in H1, the relationship between eco-innovation and general pro-social attitude is positive and significant with $\beta = 0.906$, *t*-value = 60.212, *p*-value < 0.05 among the consumers; thus, H1 is accepted. Also, H2 displayed a positive relationship with generations, which suggests that through eco-innovation, consumers engage in acts that help in well-being and prosperity of future generation as the results demonstrate the significant relationship between both with $\beta = 0.748$, *t*-value = 25.423, *p*-value < 0.05 among students. Hence, H2 is accepted. H3 propound that general pro-social attitude leads towards concern for the environment and is accepted as $\beta = 0.489$, *t*-value = 7.529, *p*-value < 0.05. H4 is also accepted, which infers that generativity begets adaptive shifts to address the environmental issues and creates strong environmental concern as $\beta = 0.388$, *t*-value = 5.966, *p*-value < 0.05. The results show that H5 is accepted as $\beta = 0.763$, *t*-value = 21.169, *p*-value < 0.05, which implies that concern for the prevailing environmental issues intends the consumers to purchase eco-friendly products. Lastly, the H6 shows the strong relationship between intentions to purchase leads to buying eco-friendly products as $\beta = 0.882$, *t*-value = 46.158, *p*-value < 0.05.

4.4 Moderation effects of emotional loyalty and generation

In order to enumerate the relationship in the model, we examined the moderation effects of emotional loyalty and generation (Y and Z) through multi-group analysis (MGA). To examine

Constructs	EC	BB	EI	GEN	GPA	PI
EC	*0.945*					
BB	0.683	*0.894*				
EI	0.760	0.776	*0.919*			
GEN	0.745	0.757	0.748	*0.836*		
GPA	0.772	0.737	0.906	0.730	*0.941*	
PI	0.763	0.882	0.804	0.680	0.787	*0.942*

Table 2. Discriminant validity

Constructs	*R*-square	*R*-square adjusted	Q^2
EC	0.667	0.665	0.590
BB	0.777	0.777	0.611
GEN	0.559	0.558	0.372
GPA	0.820	0.819	0.719
PI	0.583	0.581	0.512

Table 3. Values of *R*-square, *R*-squared adjusted and Q^2

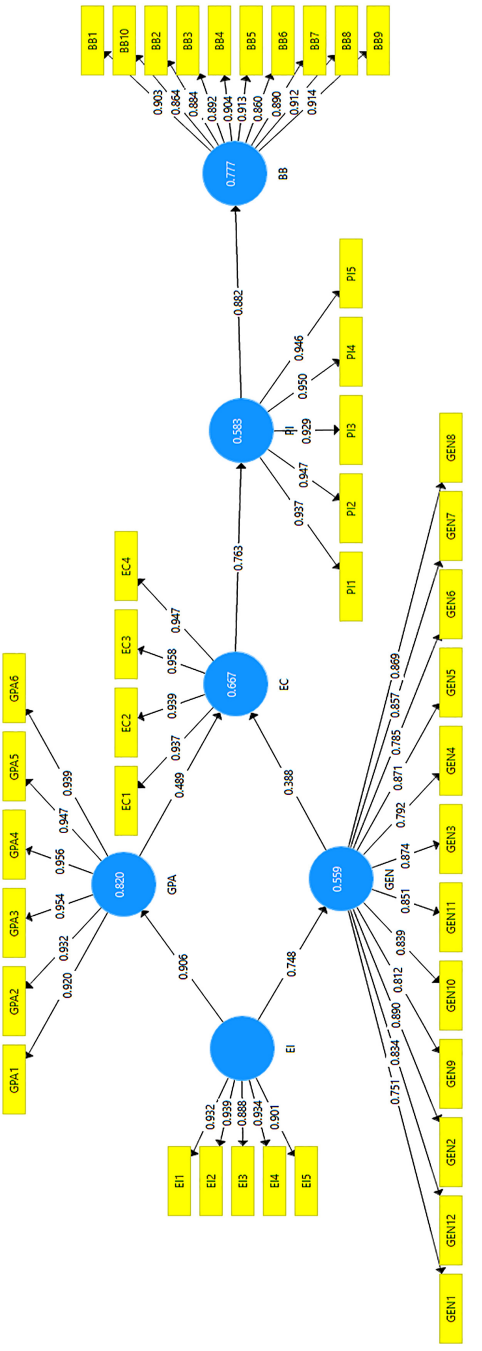

Figure 2.
Results of the proposed model

the contingent impact of emotional loyalty on our model, the data were categorized into two groups', namely high emotional loyalty and lowemotional loyalty. As suggested by Yi and La (2004), the group was created through median split score in our case, and it was 4.00 as the present employed seven-point Likert scale (1 = strongly disagree and 7 = strongly agree). Accordingly, the group was divided into high emotional loyalty = 181 and low emotional loyalty = 124. Therefore, to verify the H7 series hypothesis, a new estimation of the model was done. The estimation of MGA model was done using three techniques, namely Henseler's MGA-test, parametric-test and Welch–Satterthwaite approach (Sarstedt *et al.*, 2017). As endorsed in the present study, emotions have great consequences in marketing, and emotional loyalty begets positive feelings towards the products (Härtel and Russell-Bennett, 2010). Hence, to have an insightful illustration of the implication of the proposed model, MGA was conducted using emotional loyalty (Table 5).

Table 5 reveals that H7a, H7b, H7e and H7f are supported as their $p < 0.05$. However, H7c and H7d are rejected as the significance value is more than 0.05. It implies a significant difference in the model between high and low emotional loyalties among consumers. In addition, the present study examines the moderation effect of generation on the model to exhaustively understand how Generation Y (n = 104) and Z (n = 210) impacts the eco-innovation model. Also, Generations Y and Z shape the future of society, and examining its impact would be vital for the implication. Table 6 reveals that H8a, H8b, H8e and H8f have a significance value of more than 5%, which infers that there is no difference between Generation Y and Z. However, H8c and H8d have significance value less than 0.05, which implies that Generations Y and Z have significant differences. Moreover, it is noteworthy to assert that generativity impacts environmental concern more among Generation Y as compared to Generation Z, whereas general pro-social attitude impacts environmental concern more among Generation Z compared to Generation Y (see Table 6).

5. Discussion

It has been demonstrated that eco-innovation positively influences the current social behaviour and concerns for the future generation, which finally leads to green buying

Table 4. Hypothesis testing of structural model (H1–H6)

Hypothesis	Relationships	Path coefficient	*t*-values	*p*-values	Results
H1	EI→GPA	0.906	60.212	0.000	Accepted
H2	EI→GEN	0.748	25.423	0.000	Accepted
H3	GPA→EC	0.489	7.529	0.000	Accepted
H4	GEN→EC	0.388	5.966	0.000	Accepted
H5	EC→PI	0.763	21.169	0.000	Accepted
H6	PI→BB	0.882	46.158	0.000	Accepted

Table 5. Hypothesis testing using high and low emotional loyalty among consumers (H7)

Hypothesis	Variables	Path coef.-diff (hEL)-(lEL)	*t*-value	Parametric test	PLS-MGA	Welch–Satterthwaite Test	Support
H7a	EI→GPA	0.220	3.061	0.002	0.000	0.000	Yes
H7b	EI→GEN	0.327	3.468	0.001	0.000	0.000	Yes
H7c	GPA→EC	0.123	0.781	0.436	0.466	0.465	No
H7d	GEN→EC	0.125	0.842	0.401	0.440	0.435	No
H7e	EC→PI	0.360	2.826	0.005	0.000	0.000	Yes
H7f	PI→BB	0.139	2.324	0.021	0.003	0.003	Yes

behaviour. Literature has tacitly examined green consumption model using eco-innovation, and latterly scholars have investigated the association of eco-innovation with sustainable consumptions (Severo *et al.*, 2018). However, the direct and detailed relationship between eco-innovation and green buying behaviour is scant in the literature. Hence, the present framework attempts to enrich the literature with new-fangled model of green consumption through eco-innovation and how eco-innovation attributes the environment by testing the relationship among general pro-social attitudes, generations, environmental concern, purchase intentions and buying behaviour. Also, the moderation effect of emotional loyalty and generation (Y and Z) was investigated to understand the eclectic approach of buying behaviour of consumers through eco-innovations.

Based on the norms activation theory, the study initially examines the relationship of eco-innovation with general pro-social attitude and generations, and it was found to be positively significant. It infers that eco-innovation positively influences the attitudes of consumers towards concerning the well-being of others. Hence, innovation with an eco-friendly approach is key to sustainable development, as the present study discloses that through the path of eco-innovation, social consciousness and concern for future generations induce. Albeit both general pro-social attitudes and generations were found to be positive and significant, the relationship between eco-innovation and general pro-social attitude is weighed up than eco-innovation and generations. It is possible that innovation has more impact on present circumstances than in the future. Through eco-innovation, consumers might anticipate social attitude and concern for others more at present as compared to having concern and plan of action for the future as the current environmental situation is extremely perilous and precarious (Coffey, 2021). Hence, it is likely that eco-innovation impacts more current social attitudes than generativity. Also, we examined the relationship by categorizing the sample on the basis of emotional loyalty and generation. It has been recognized that consumers with high emotional loyalty have a high impact of eco-innovation on general pro-social attitudes and generations. It infers those consumers who are emotionally engaged with the environment and innovation-related activities tend to exhibit greater social concern for the present and future as compared to consumers with less emotional loyalty. However, the role generation is indifferent in the relationship as it has been revealed that Generations Y and Z have an insignificant impact. For both generations, it is possible that eco-innovation impacts general pro-social attitudes and generations as both Generations Y and Z acknowledge the importance of eco-innovation, which influences their onus towards society and concern for the future (Severo *et al.*, 2018).

Also, we investigated the relationship of general pro-social attitude and generations on environmental concerns, which resulted in being positive and significant. It infers that both attitude towards the well-being of others and concern for the future influence the anthropocentric perspective of the consumers, which increases the discretion and ministration of the consumers towards the environment as the current environmental

Table 6.
Hypothesis testing using Generation Y and Z consumers (H8)

Hypothesis	Variables	Path coef.-diff (Y)-(Z)	*t*-value	Parametric test	PLS-MGA	Welch-Satterthwaite test	Results
H8a	EI→GPA	−0.034	0.451	0.470	0.744	0.655	Rejected
H8b	EI→GEN	−0.251	1.278	0.063	0.137	0.211	Rejected
H8c	GPA→EC	−0.363	2.455	0.020	0.037	0.019	Accepted
H8d	GEN→EC	0.331	2.378	0.031	0.044	0.023	Accepted
H8e	EC→PI	−0.253	1.498	0.097	0.140	0.145	Rejected
H8f	PI→BB	−0.069	0.965	0.238	0.359	0.342	Rejected

circumstances are a threat to others and the future (Coffey, 2021). Also, presently, the environmental situation is extremely hazardous (Sharma and Paço, 2021), which might be the reason for the high impact of general pro-social attitude, which assists in exhibiting the concerns for society and others at present, which leads to caring for the environment, through environmental concern as compared to the influence of generations, and which is a concern for future on environmental concern. However, while assessing the impact of emotional loyalty, it has been found that high and low emotional loyalty has no impact on general pro-social attitude to environmental concern and generations to environmental concern, which indicates that attitude towards others and concern for future which remain the same, irrespective of high or low emotional engagement. It might be owing to the current situation, which is alarming and agitating due to plastic waste (Chau *et al.*, 2020) and other wastes (Gebremariam *et al.*, 2020). However, in the case of generation, the difference is clearly visible as it has been demonstrated that Generation Y's generativity has more impact on environmental concern as compared to Generation Z. Doerwald *et al.* (2021), in their meta-analysis, affirmed that older age individuals have more sense of generativity, tending to guide the younger generation. Also, Shiel *et al.* (2020) asserted that generativity among older groups leads to environmental orientation. Among Generation Z, the relationship between general pro-social attitude and environmental concern has more impact than Generation Y. Our results support the meta-analysis of Chen *et al.* (2019) that Generation Z significantly impacts the pro-social attitudes.

Additionally, the present study examined the relationship between environmental concern and purchase intentions as environmental concern has been considered one of the influential constructs. Past studies have cogently revealed that concern for the environment leads to the intention to buy green products (Goel *et al.*, 2021; Waris and Hameed, 2020). Likewise, the present study demonstrated the homogenous effect and infers that a consumer who acknowledges the environmental issues exhibits the intentions towards green. Correspondingly, this concern is akin in both generations (Y and Z) and among high and low emotionally loyal consumers. It is possible that current environmental challenges galvanized the willingness of consumers to act for the environment's benefit irrespective of age and engagement (Mhatre and Srivatsa, 2019). We also examined the relationship between purchase intentions and buying behaviour, which was found to be positively significant, as in other previous studies (e.g. Sharma *et al.*, 2020). Furthermore, it has been found that the purchase intentions of consumers with high emotional loyalty have more impact on buying behaviour as compared to consumers with low emotional loyalty. It implies that consumers who have more trust, belief and association with the environment would cogently buy green products. This is supported by past studies, in which loyalty moderates the relationship between green buying intentions and behaviour (Shapoval *et al.*, 2018).

5.1 Implications

Theoretically, the present study contributes to the growing literature on sustainability by confirming the significance of eco-innovations on general pro-social attitude and generativity to trigger environmental concern, purchase intentions and buying behaviour towards sustainable products (Li *et al.*, 2021). The research shows that individualistic norms and perceived marketplace influence play a purposeful role in transforming environmental concerns into buying behaviour towards eco-innovation driven products. Thus, marketers may use appealing messages like "go green innovation, feel healthy life", which focus on individualistic characteristics instead of just emphasizing "go green" or "go eco-innovation" slogans. Additionally, the research added understanding to the importance of differentiating between generational cohorts to drive eco-innovation acceptance, thereby emphasizing the significance of well meticulous approaches when it comes to driving general pro-social

attitudes and environmental concerns for eco-innovations in an emerging market, like India. From a policy and management perspective, the results not only imply the importance of continuous performance and environmental improvement but also those policies hindering diffusion and adoption need to be addressed. There is a pressing need for a global action-oriented, aspirational, communicable, integrated and universally acceptable eco-innovation-driven ecosystem for businesses. In the modern market-led emerging market economies, like India, the likelihood of a successful transition toward sustainable consumption depends on the policy framework in terms of renewable energy (Sharma *et al.*, 2021) and consumer attractiveness for eco-innovation oriented products. From the eco-innovation-driven firms' perspective, the present study can provide useful insights for practice in several ways. First, for firms' pursuing eco-innovations, caution should be employed when considering self-reported pro-social attitudes, environmental concerns and buying behaviour, especially if different generation cohorts are not taken into account to estimate market potential. Second, identifying which efficacy-related attitude and purchase intentions are relevant to a particular generation should be a key step for market research as it may function as a barrier or enabler to eco-innovation adoption. Third, for eco-innovation-driven products and services positioned as "sustainable consumption" market opportunities, a blend of norms and perceived marketplace influence would be a panacea to investigate variations in generational target market segment.

6. Conclusion

This study intended to investigate the relationship among eco-innovation, general pro-social attitude, generativity, environmental concern, purchasing intentions and buying environmentally friendly products as well as the differences of the relationship between high and low emotional loyalty and Generation Y and Z. Special attention was given to the moderating effect of emotional loyalty of consumers on the whole model.

Most of the results were in line with previous studies. For example, the relationship between eco-innovation and pro-social attitudes is positive and significant, as well as between eco-innovation and generativity. In turn, pro-social attitudes guide concern for the environment, and a strong sense of generativity increases environmental concern. Concern for environmental issues leads consumers to the intention of purchasing green, and this intention leads to the effective buying of eco-friendly products. Regarding emotional loyalty, there are significant differences in the model between high and low emotional loyalties among consumers, except for relationships between generativity and environmental concern and pro-social attitudes and generativity. Regarding the generations, generativity impacts environmental concern more among Generation Y than Generation Z, whereas pro-social attitudes impact environmental concern more among Generation Z than Generation Y.

Regarding the limitations of this research, as was possible to see, this is a convenience sample lacking some representativeness of the whole population that in India is very dispersed and differentiated in all senses. Although the sample was not completely random, it was not devoid of randomness. A reasonable degree of randomness was assumed because of the absence of a systematic effort in selecting respondents. The convenience bias cannot be ruled out entirely and could adversely affect the generalizability of the results. However, the limitation is acceptable, given the study's exploratory nature. Another risk that we assume is that in this type of survey, individuals occasionally tend to answer accurately. As a suggestion for future research, Generation X could be added to the sample. Additional/substitute constructs (e.g. values and environmental knowledge) could be analysed in this model, focusing on eco-innovation. A comparative study could be of interest by using an occidental sample of consumers.

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