GREEN ECONOMY AND SUSTAINABLE DEVELOPMENT

INTRODUCING A MODEL TO UNDERSTAND GREEN CONSUMER'S PURCHASE BEHAVIOR

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Abstract. Due to the relentless growth of environmental problems and complications, humanity is facing more drastic and threatening challenges every day. Issues such as global warming, plastic products recycling, etc. are well-recognized subjects by the public. This research is sought to provide a new model that encompasses different angles and constructs related to the mentioned subject. In this research, the required data was gathered through a survey based on a self-designed questionnaire obtained through bibliographical methods and gathered data was analysed by structured equation modelling. Analysis of 532 valid questionnaires shows that there is a positive correlation between personal traits and the green product's attraction. In addition, results also indicated that social network norms such as social network groups inference is positively correlated to green product attraction, moreover, findings depicted a positive correlation between green advertisement and green product attraction. The result of this research would be beneficial for commercial and industrial proposals related to green marketing and production fields.

Keywords: green marketing, green product, SEM, consumer behavior, TRA, TPB, eWOM.

JEL Classification: Q01, M14, C31, M31.

Introduction

While the globalization phenomenon proceeds in its max throttle over the world, this event has additionally carried a few issues with it. Primarily, one of these issues is an ecological issue that influences all living creatures adversely. The mentioned natural issues have begun to become a priority increasingly more in the ongoing years and individuals have begun to debate these negativities (Zhang & Dong, 2020). Consumers now are aware of the problems more than ever, hence making the markets favourable for green products. Based on the above mentioned facts, huge growth in green marketing advertisements is being witnessed, companies and manufacturers are trying to adopt new strategies and inform their consumers about the environmental friendliness of their products and services.

Considering the economical outcomes of green products utilization, research discoveries are trying to comprehend the elements affecting ecologically friendly practices that have expanded quickly in the course of last ten years, with focus on green purchase practices.

Taking into account, the organizations are socio-economic structures; it would be farfetched to see them being neutral toward the environmental awareness and the attraction created among consumers to green products (Marvi et al., 2020).

Advertising directors now face buyers with a sense of responsibility for natural issues. Since Consumers are showing concerns regarding the fate of the world, therefore consequences of this are a general inclination toward environment-friendly products. Understanding the green purchaser's behaviour remains an interesting field of research and a significant concentration for research. Liobikienė and Bernatonienė (2017), in their research, reveal the multidimensional nature of the green product issue, they mentioned the fact that many factors can be influential in many different ways ranging from consumer's degree of awareness and knowledge about green products, consumer's degree of green consciousness and their commitment to the reduction of impacts human activities cause on nature through using environmentally friendly products &, etc. (Soomro et al., 2020). They also pointed out that, although many indicators and factors

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have been introduced in several kinds of research regarding the mentioned topic, still the absence of a well-structured model showing the relation and effect of those factors on green purchase behavior is felt. They emphasize that based on consumer choice theory, consumers' economic condition and their budget influences their decision on engaging in the green or non-green purchase. On the other hand, Rahnama and Rajabpour (2017) in their research unravelled that consumers' purchases may take place due to multiple consumption values, which can be considerably different in varying situations. They argue that, based on the theory of consumption values (Sheth et al., 2010) consumers' purchase behavior can be a function of different consumption values between multiple interrelated dimensions. In addition to the aforementioned theories, other attempts have been done to create a relevant model which would encompass all the related dimensions of this topic based on the Theory of Reasoned Actions (TRA) and Theory of Planned Behavior (TPB). Fishbein and Ajzen (1975) introduced TRA to explain the social entities' behavioral intention, therefore their theory is very beneficial in explaining consumer purchase decisions and adaptation of green behavior through understanding the cognitive and psychological process of the related topic (Martin, 2017). On the other hand, by assimilating the concept of perceived behavior control into TRA, it is possible to link an individual's beliefs with their behavior (Paul et al., 2016). However, despite the above-mentioned advancements yet there is a gap that requires fully understanding consumer pro-environmental attitudes and sustainable green purchase action. Since all the aforementioned theories and models are focused on economical and value-oriented factors or consumer's psychology and cognitive conditions or social entity's beliefs, therefore the importance of external stimulants such as green ads and existing social media promoting green product usage and adopting a pro-environmental lifestyle has been ignored.

Although understanding components that will increase consumer's eagerness towards Electronic Commerce, and exceptionally vital part that brands' Social Network Sites (SNS) communities empowering consumer's attraction (Alagarsamy et al., 2021), marketers and analysts are amazingly curious about understanding the ways to coordinate social media exchanges (Ogiemwonyi & Harun, 2020). To address this, it is required that the factors affecting consumers' eagerness to buy items or services through firms' Social network pages to be investigated.

To sum up, this paper is seeking to fill the above-mentioned gap by adding external variables such as social network norms and green awareness with a focus on social networks and e-ads influence. The paper arrangement is as follows: at the beginning, several utilized concepts and theories as well as utilized variables will be introduced in the literature review section, then proposed model and research hypothesis will be introduced based on mentioned literature review, in the third

section research method, results, and conclusion will be presented.

1. Literature review

1.1. Social commerce

Social commerce is a new derivative of e-commerce that has emerged recently after the introduction of web2 and other ICT advancements (Hajli et al., 2013). The introduction of weblogs and social networks and online forums is the pivotal point of Social commerce resurfacing (Turban & Mühlhäuser, 2008). Newly advancement of technology and creating of Representational State Transfer (REST) and JavaScript Object Notation (JASON) APIs (Application Programming Interface), online platforms can communicate more flexibly than ever before. All these advancements and additional attributes have led to the reshaping of previously provided business models, bringing new opportunities (Maniatis, 2016). Social commerce alludes to the conveyance of e-commerce through social media, which has risen through Web 2.0. Social media could be a social innovation presented by Web 2.0 that employs SNSs such as Facebook, Twitter, and Linkedin. The ubiquity of SNSs is the main reason for the current change. This marvel is forming modern commerce models based on communities where the objective is to bring highlights of social commerce to e-commerce in arrange to plan customer-oriented businesses. This gives included esteem for clients and will move forward showcasing methodologies (Varah et al., 2021).

1.2. Personal traits

1.2.1. Personal traits and values

Shrum et al. (2013) believed that individuals have values that impact their conduct. Without the existence of a value for environmental perseverance in individuals, it would be highly unlikely to witness eco-friendly products Purchased by them. Paço et al. (2014) in their research pointed out that buyers must feel that, when they buy an eco-friendly item, they bring fundamental changes. Based on Goodman and Malkoc (2012) findings due to consumers' low level of self-involvement in environment protection, it is less likely to witness eco-friendly conduct from individuals. Therefore, as a fraction of rectification, Bailey et al. (2014) in their research proposed that underscoring the significance of environmental issues can spur customers' eco-friendly conduct. In this way, advertisers ought to convey to the intended interest group that purchasing green products could significantly affect environmental wellbeing (Laroche et al., 2009).

1.2.2. Personal traits and beliefs

Although so far the results of research related to the effect of consumer awareness about the environment and their green behavior have been contradicting, it has been broadly contended that customers see most recycled materials as being imperfect compared to non-recycled

materials. Moreover, it is believed that consumers find recycled products with lesser efficiency and performance compared to non-recycled items and as Mishra (2016) in his research unraveled, buyers are either dubious or would not accept if non-polluting items were of less perceived quality.

1.2.3. Personal traits and consumers' requirements

Based on past distributed questionnaires, buyers report that they are eager to go through additional cash for a socially attractive idea like environmentalism, yet purchase information suggests that "green products" matter next to nothing when contrasted with price, quality, and comfort; consequently, organizations have become neglecting about purchasers' reactions to such findings (Panda et al., 2020).

1.2.4. Personal traits and consumer demographics

According to research conducted in the past, the demographic profile of purchasers has been mostly consistent and positively related to their purchase decisions. Based on the findings, there is a positive correlation between purchasers' decision and their education (Govender & Govender, 2016). Moreover, based on the results of past research, social responsibility toward the environment is negatively correlated with age, and most of the green purchasers fall into relatively younger age groups (Cheung & To, 2019). Besides, in many kinds of research, gender plays a significant role in ecologically friendly decisions taken by consumers, therefore it is assumed that females are more prone to buy green products compare to (Chuang & Chiu, 2017). Finally, there are conflicting outcomes regarding the correlation between income and consumer purchase behavior, according to (Sathaye & Murtishaw, 2004) consumer income and their purchase decisions are positively related, on the other hand, research findings in other articles show no significant relationship between income and environmental concerns (Sinobas, 2017).

To sum up based on the above-mentioned reasons utilization of the demographic profile of consumers to categorize them would be insufficient action (Alagarsamy et al., 2021).

Consumers who are environmentally aware are seeking to protect the environment in various ways (Bansal & Gangopadhyay, 2003); thus, there are different groups of eco-concerned consumers. A customer who recycles tins may not be the same customer who takes care of plastic recycling or air pollution; therefore, marketers and policymakers are more vigilant because of these results.

Green practices are without a doubt complex, as bore witness to by the research results giving conflicting proof and discoveries. As effectively expressed, these observations investigate a scope of various impacts on buying; from inner components, (for example, mentalities, concerns, values), social factors through to outer variables. In an ongoing writing survey, Liobikienė and Bernatonienė (2017) feature such complexities; strengthening concerns

around one angle or subject area does not mean concern about other subject areas. Therefore, based on the aforementioned theories and information hypothesis, below are introduced:

H1: Personal Traits (PT) positively correlated to Green Product Attraction (GPA).

1.3. Green advertisement and e-awareness (green awareness)

Manufacturers have historically conveyed the ecologically sustainable features of their goods by ads to customers. Due to information transferred to consumers through above mentioned green advertisements, markets are facing an ever-growing proportion of well-informed green consumers who are imposing a tremendous amount of compulsions to companies regarding the communication channels and their content related to the degree of environmental friendliness of their products and services (Maniatis, 2016). However, the number of green consumers is increasing, unfortunately, the number of those consumers is still too low to represent a market potential and become influential. Bailey et al. (2016), in their research, tried to understand the interconnection between green utilization values and buyer reactions to green Products, the result of their research report a positive correlation between the two constructs, based on their findings, green utilization values do impact customer perceptions of the validity of individuals that are transferring green information. Haq et al. (2019) in their research reveals that understanding most of the information transferred through green advertisements to consumers requires a certain level of scientific knowledge because of the sophistication of subjects to fully comprehend them, hence making those ads. Useless for a great portion of audiences, in addition, Cho et al. (2017) in their paper emphasize that although green marketing ads. Might be influenced by the portion of consumers who already possess the information and insight regarding environmental concerns and hence stimulating them to make green purchases, however, it still requires further investigation on how it is possible to appeal to sceptical consumers who have doubts regarding environmental claims. Moreover, (Hayes & King, 2014) in their research pointed out that consumer's attitude toward a certain advertisement for a particular brand and also their attitude toward the source of these advertisements positively affect consumer's behavior in considering to share those ads with other members of social groups on social media platforms. Based on collective action theory and e-awareness, social media and social network platforms are ideal vehicles for social movements and collaborative efforts. E-ads circulation on different social networks among numerous online users regarding several existing environmental crises usually results in awareness in individuals participating on those platforms, hence people with a common idea related to those issues might cooperate to resolve those issues, for example, information regarding hazardous side effect

of plastic usages in social media platforms creates one of the largest collaborative efforts against plastic utilization (Sander & Teh, 2019). Hence concerning provided information and discussions in this section, the following hypothesis is provided:

H2: Green Awareness. (GA) is positively correlated to GPA.

1.4. Social network norms

The subjective norm is the proportion of social compulsions applied by social groups in society that individuals consider before settling on a behavioural choice (Musso & Risso, 2017). In other words, subjective norms are systematic compliance with rules for individuals within a particular group or society (Balakrishnan & Foroudi, 2019). Fishbein and Ajzen (1975) recommended that social compulsion and social groups are the constructs of subjective norms. Ajzen (1991) further emphasizes that social compulsion and consistent inspiration are the working elements of subjective norms. Payne and Frow (2017), believed that to predict entities' behaviour it should be based on their membership in different social groups. Therefore, they evaluated subjective norms based on entities' reference groups. Besides, aforementioned criteria, (Shan & King, 2015) in their research related to the effect of electronic word of mouth (eWOM) revealed that the strength of interpersonal ties between members of virtual societies positively affects social group member's behaviour regarding certain issues. Many research has been conducted related to the effect of eWOM in the diffusion of an innovative product; they also emphasized the negative impact of the very same construct on newly introduced products. However, all of them agree on the influence of social networks ties on the dissemination of newly introduced product, while some researchers believe that the pace of diffusion rely on strong ties on social network (Chu & Kim, 2011) others believe that weak ties can even be more effective in spreading the message between external networks (Lee et al., 2013). Previous research also has revealed that consumer purchase intention, as well as diffusion of innovations in products, is highly impacted by social influences hence if replacement of green products with normal formerly producing goods by companies is considered as an innovation. Therefore, the role of social networks in influencing society's interest in buying those products cannot be ignored (Balakrishnan & Foroudi, 2019). Based on the above-mentioned discussion, Hypothesis below is presented:

H3: Social Network Norms (SN) is positively correlated to GPA.

1.5. Green product attraction

Researches related to the effect of consumer attitudes and orientations on their purchase behaviour, point out that customers' orientations toward the environment are one

of the most reliable predictors of consumer's pro-environmental purchase behaviour (Mishra & Sarkar, 2018). The key issue is to understand the degree of reliable prediction of real behaviour through predicators such as orientation. Most of the findings from other researchers suggest a positive correlation between environmental awareness and pro-environmental actions (Singh & Tripathi, 2016). For example, Line et al. (2016) in their research found that consumer behaviour toward environmental related issues is positively influenced by their perceived effectiveness of actions done to protect the ecosystem. However, since the consumer orientations toward environmental activities vary based on many factors, therefore it is suggested by many researchers to utilize a combination of different predictors alongside this factor to obtain more viable results (Ogiemwonyi & Harun, 2020).

H4: GPA is positively correlated to Green Product Purchase (GPP).

1.6. Green product purchase

Green purchase action is referred to as a type of conduct that encompasses multiple factors including, ethical, responsible, and sustainable, and eco-friendly purchases. In other words, a green purchase refers to the purchase of recycling able products, those that would be less harmful to the environment, and avoid buying products that are not beneficial for the environment and society (Zhuang et al., 2021). This phenomenon is usually evaluated based on consumer intention or willingness toward buying a green product, which would ultimately result in green product purchase by consumers as a way of protecting their environment. As mentioned in the introduction, many models such as TRA and TPB by Fishbein and Ajzen (1975). Although these models remained the main foundation for further studies, many other Scholars came up with different modifications to evaluate consumer purchase behavior (Laroche et al., 2009; Bailey et al., 2016; Paul et al., 2016). However, the utilization of those models remains ambiguous since their effectiveness in measuring recent scenarios is highly doubtable (Joshi & Rahman, 2015). Different studies suggest several behaviors in green buyers, for example, according to Maichum et al. (2016), the degree to which consumers engage with environmental-related activities or information will affect their green purchase behavior. Nevertheless, consumer involvement in green purchase or green action might be hindered by other factors such as product price or quality and acquisition convenience (Cho et al., 2017).

2. Research method

For many researchers, a consumer behaviour model is a hierarchical cognitive process encompassing several factors such as beliefs, values, norms, and orientations (e.g. Park & Ha, 2014; Paul et al., 2016). In addition, different value orientations affect approach toward different contexts hence affecting behaviours. Therefore, although the

aforementioned conflicting results might have roots in differences within constructs and measurements, however, illustrates the requirement for further research on the process and hierarchy of green consumer behaviour.

Hence based on the above-mentioned literature review and Figure 1 provided below is given to introduce this research new model that is covering different constructs and measures discussed before. Based on the introduced model, a set of personal traits such as beliefs, values, orientations, etc. that discussed before will create a tendency and attraction among consumers toward green products. Furthermore, this green product attraction would ultimately result in consumer green purchase behaviour, In addition to these constructs, social norms such as green virtual societies, and green ads. This would act as a catalyst for the purchase of consumer green products.
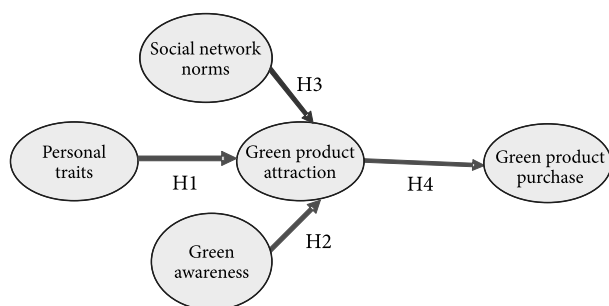

Figure 1. Proposed Model

Based on the depicted model above, the hypothesis below is presented:

H1: personal traits (PT) positively correlated to Green product attraction (GPA).

H2: Subjective norms (SN) are positively correlated to GPA.

H3: Green Awareness. (GA) is positively correlated to GPA.

H4: GPA is positively correlated to Green product purchase (GPP).

In this research, it has been tried to create a self-administered questionnaire based on gathered literature; also, it has been tried to utilize the created questionnaire as a survey method to test the proposed model. Data collected in this research is divided into two separate parts, one related to social traits, and exogenous factors such as subjective norms and green ads calculated Based on a seven-point Likert type scale, and a second questionnaire related to demographic information which was calculated based on a nominal scale. The depicted Table 1 provided below illustrates the measurements and constructs of both questionnaires. Mentioned constructs have been gathered through previously published researches, some of notable researches and their peered constructs are illustrated in Table 1.

Upon data collection, they have been statistically analysed and evaluated using PLS structural equation modelling software.

Table 1. Notable constructs and variables in researches

Construct	Definition	Resource and Scale	
Consumer Beliefs	Consumer knowledge related to the function of products and their effect on the environment	(Biswas, 2017)	Seven-point Likert Scales
Consumer Values	consumers' perceived level of self-involvement toward the protection of the environment	(Laroche et al., 2001)	
Subjective Norms	Social group's influence on consumers	(Fishbein & Ajzen, 1975)	
Green ads.	Green advertisement of products influences purchaser's intention toward green products	(Paul et al., 2016)	
Consumer Requirements	The degree of willingness of consumers to forgo their comfort and quality in return to preserve the environment.	(Qin, 2020)	
Consumer Orientation	Degree of ecological responsibility of consumers	(Singh, 2017)	
Demographics	Consumers' personal information (age, gender,…)		Nominal Scale

A population of 532 adult customers in Iranian municipality markets from all over the country was used with females as a majority with 426 individuals as respondents. A spectrum of 20 to 70 aged have participated in the survey, the largest age group was between 30 to 40 (45.2%) followed by the second largest group 40 to 50 (28.7%), and 72% of the respondents were holding university degrees or some university-level education. The largest age group also had the highest average income of 300USD/month while the second-largest group (42.7%) had an average income of 200USD/month. 90% of the respondents showed interest regarding environmental subjects and were motivated to make green purchases to secure their ecosystem for the future in the case of affordability. Mentioned Data are shown in Table 2 below.

For the constructs, the Cronbach alpha values ranged from 0.866 to 0.944. Since all the values met the 0.7 norms (Lunneborg, 1979), the model's reliability was deemed acceptable. In the factor analysis results, the eigenvalues for all constructs have exceeded 1 (Hämmerlin & Hoffman, 1991), furthermore, cumulative e variance is exceeded 0.5. In addition, factor loadings for all constructs are calculated 0.5 or exceeded that amount, and the item-to-total correlation coefficients were all close to or exceeded 0.5. Thus, all of the utilized constructs had convergent validity (Kerlinger, 1978; Kaiser, 1958) and the questionnaire was deemed suitable for actual surveying.

Table 2. Sample composition

Factor	Percentage	Total
Age	%	–
20–30	15.03%	80
30–40	45.2%	241
40–50	28.7%	153
50–60	8.45%	45
60–70	1.87%	10
Missing	0.56%	3
Gender	%	–
Male	19.54%	104
Female	80.1%	426
Missing	0.36%	2
Education	%	–
High School Or lower	27.25%	145
University Undergraduate	43.23%	230
University Graduate	28.75%	153
Missing	0.75%	4
Income	%	-
Less than 200 USD/Month	10.31%	55
200 – 300 USD/Month	42.73%	227
300 – 400 USD/Month	45.22%	241
More than 400 USD/Month	0.93%	5
Missing	0.75%	4

Discriminant validity was also done, Table 4 shows the cross-loading comparison matrix, according to Fornell and Larcker (1981), Discriminant validity is calculated through two steps, first extracting variable's average variance (AVE) and second the squared intercorrelations between the variables in the contextual framework. Distinctiveness is established when a variable is more closely related to its indicators than to those of any other variable within the contextual framework. Below the mentioned equation is shown (Fornell & Larcker, 1981):

$$AVE = \frac{\sum \lambda_i^2}{n};$$ (1)

$$CR = \frac{\left(\sum \lambda_i\right)}{\left(\sum \lambda_i\right)^2 + \left(\sum \varepsilon_2\right)}.$$ (2)

Therefore, to the measurement model prove to be satisfactory, all factor loadings belonging to the particular item should surpass the other item's factor loadings. Both the CFA and the discriminant validity prove that the model has discriminant validity. Based on yielded results overall SRMR (Standardized root mean square residual) is equal to 0.057 < 0.01 proving that the measurement model is satisfactorily fit. Above mentioned statistical data are provided in Table 3.

In order to test fitness of model's constructs, A T-test and P-test also done, Table 4, followed by Table 3 is

Table 3. Factor Loading for Reliability Test

	Mean	Std. Dev.	Factor Loadings	Composite Reliability	Cronbach's Alpha	Ave.
Personal Traits (PT)				0.894	0.810	0.741
PT1	5.32	1.57	0.894			
PT2	5.21	1.43	0.854			
PT3	5.42	1.58	0.798			
PT4	5.12	1.49	0.843			
PT5	5.54	1.43	0.842			
PT6	5.32	1.52	0.856			
Green Awareness (GA)				0.851	0.805	0.691
GA1	5.22	1.49	0.874			
GA2	5.17	1.44	0.891			
GA3	5.22	1.51	0.799			
GA4	5.67	1.53	0.789			
Subjective Norms (SN)				0.847	0.789	0.751
SN1	5.18	1.57	0.832			
SN2	5.13	1.49	0.854			
SN3	5.21	1.53	0.821			
SN4	5.12	1.55	0.867			
Green Prod. Attrac. (GPA)				0.822	0.752	0.712
GPA1	5.78	1.48	0.791			
GPA2	5.87	1.51	0.689			
GPA3	5.68	1.43	0.812			
GPA4	5.43	1.44	0.867			
Green Prod. Purchase (GPP)				0.844	0.852	0.642
GPP1	5.91	1.51	0.654			
GPP2	5.89	1.49	0.891			
GPP3	5.56	1.59	0.851			
GPP4	5.71	1.56	0.823			
GPP5	5.64	1.55	0.848			

providing data related to P-value and T-values as well as Path Coefficients, based on yielded results the model and all the variables utilized in this research were feet.

3. Research results

As a second stage after the evaluation and validation of constructs of the measurement model, structural model testing was initiated by calculating the R2 value and the statistical significance of the diverse structural coefficients (Haq et al., 2019). The R2 value indicates 60% which explains the variation among all constructs related to purchasing behavior. Table 4 illustrates all the statistical details and path coefficients of the research constructs.
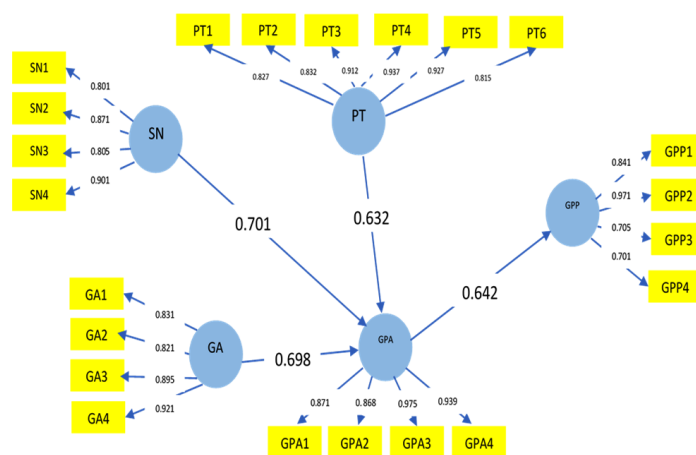
Figure 2. Final Path Model

Table 4. Statistical Values and Path Coefficients

Relation	Path Value	T-value	P-value
PT -> GPA	0.632	25.02	0.01
SN -> GPA	0.701	23.33	0.01
GA -> GPA	0.698	20.01	0.01
GPA -> GPP	0.642	19.87	0.00

Based on Figure 2 shown above, personal traits which encompass several constructs such as consumer demographics, values, and beliefs are positively correlated to GPA, therefore it is possible to conceive that consumer values, beliefs, age, gender, and income would be an influential factor on their decision of considering green products on their basket, H1: personal traits (PT) positively correlated to Green product attraction (GPA), these results confirm findings of Zimmer et al. (1994) but contradicts with Robertson (1989).

Furthermore, with a path value equal to 0.701 it is observed that subjective norms are positively correlated with green product attraction, hence it can be inferred that other exogenous pressures exerted on consumers such as virtual social groups, friends and families are influential in consumer consideration of green products, H2: Subjective norms (SN) are positively correlated to GPA. This supports the findings of Cheng, Lam, and Hsu (2006), Baker, Al-Gahtani, and Hubona (2007), and Cronan and Al-Rafee (2008).

In addition, based on findings presented in Table 4, green ads with a path value equal to 0.698, predispose purchases to be more prone to green products, therefore, H3: Green Ads. (GA) are positively correlated to GPA. These findings are completely aligned with Bailey et al. (2016). Moreover, these finding also supports the results in (Hayes & King, 2014) research.

Finally, based on outcomes with a path coefficient equal to 0.642 green product attraction, would eventually result in green product purchase in consumers, hence confirming H4: GPA is positively correlated with Green product purchase (GPP). These findings are also in line with (Howell & Ratliff, 2019) and (Zhuang et al., 2021).

4. Discussion

The purpose of this research was to analyze and recommend variables affecting Green consumer's purchase behavior, by providing a related model containing variables and constructs existing in the mentioned context. Based on the finding there is a direct meaningful relation between research main constructs namely personal traits, Social network norms and Green awareness, what makes this research different is that prior to this research other conducted researches have assessed only a fraction of the variables for example, Paço et al. (2014) in their research only focused on Personal traits and related variables affecting consumer's purchase decision, or Balakrishnan and Foroudi (2019) only assessed the social networks architecture and norms and variables affecting consumer's purchase intention, ignoring the effect of green advertisements and other channels creating awareness among the consumers regarding green products. Furthermore, based on findings that there is a direct relation between Green product attraction and green product purchase behaviour, findings of this research are aligned with Alagarsamy et al. (2021) and Zhuang et al. (2021).

The contribution of this research incorporates a structural model and a proficient estimation instrument, the two of which fill in as significant research setup. Further, our experiment outcomes offer a reference for industrial and commercial applications. Accordingly, this research suggests that organizations explicitly market the green dimensions of their products and, at the same time, work on incrementing ecological awareness through social media and advertisements. It has been tried to assess the relation between green product advertisements mainly ads providing an inside social-commerce environment and exchange of information within virtual social network platforms, personal traits and subjective norms such as the impact of social media groups, with green product attraction and ultimately with green purchase behavior.

The results and outcomes of this research contribute to theories and literature relevant to the subject of green consumption and products by adding more insight and factors affecting green purchase behavior. Furthermore,

we found that the importance of virtual societies and broadcasting advertisements is influencing green purchase behavior positively.

The findings of this research can give a more comprehensive insight into the nature of green purchase behavior for people conducting business in the mentioned field, especially marketers. Based on outcomes, marketers should also focus on social marketing platforms and initiate more efficient communication with customers by creating green awareness among them, using virtual society members.

Since the data collected in this research is limited to a certain local market and does not represent all the social spectrum of society members, therefore, caution is advised regarding the generalization of the results.

Conclusions

This study tried to both extend our comprehension and to propel the discussion regarding the literature on the different elements affecting green purchasing behavior. The results pointed out the importance of factors such as social media groups and advertisements which add a considerable amount of value to green products in the eye of purchasers.

To begin with, concerning the impact of multidimensional recognition on social norms, consumer value and consumer requirements were found to have a noteworthy impact on social norms, in this way increasing buy intention. Consumer beliefs can also be influenced by the flow. The more submerged the client is within the experience, the more noticeable is their level of green product attraction, hence upgrading the chance of engaging green product purchase from green s-commerce platform. For future research recommendation, one of the limitations of this research was geographical limitation, it would be beneficial if the samples were gathered from different geographical locations in order to compare the results from different geographical locations. It would also be beneficial to simulate yielded the results of this research as scenarios and evaluate the outcome of implemented policies.

Disclosure statement

Authors participating in this research declare that they do not have any competing financial, professional, or personal interests from other parties.

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Alagarsamy, S., Mehrolia, S., & Mathew, S. (2021). How green consumption value affects green consumer behaviour: The mediating role of consumer attitudes towards sustainable food logistics practices. *Vision: The Journal of Business Perspective*, *25*(1), 65–76. https://doi.org/10.1177/0972262920977986

Bailey, A. A., Mishra, A., & Tiamiyu, M. F. (2014). Green advertising receptivity: An initial scale development process. *Journal of Marketing Communications*, *22*(3), 327–345. https://doi.org/10.1080/13527266.2014.904812

Bailey, A. A., Mishra, A., & Tiamiyu, M. F. (2016). GREEN consumption values and Indian consumers' response to marketing communications. *Journal of Consumer Marketing*, *33*(7), 562–573. https://doi.org/10.1108/JCM-12-2015-1632

Baker, E. W., Al-Gahtani, S. S., & Hubona, G. S. (2007). The effects of gender and age on new technology implementation in a developing country. *Information Technology & People*, *20*(4), 352–375. https://doi.org/10.1108/09593840710839798

Balakrishnan, J., & Foroudi, P. (2019). Does corporate reputation matter? Role of social media in consumer intention to purchase innovative food product. *Corporate Reputation Review*, *23*(3), 181–200. https://doi.org/10.1057/s41299-019-00078-w

Bansal, S., & Gangopadhyay, S. (2003). Tax/subsidy policies in the presence of environmentally aware consumers. *Journal of Environmental Economics and Management*, *45*(2), 333–355. https://doi.org/10.1016/S0095-0696(02)00061-X

Biswas, A. (2017). A consumption value-gap analysis for sustainable consumption. *Environmental Science and Pollution Research*, *24*(8), 7714–7725. https://doi.org/10.1007/s11356-016-8355-9

Cheng, S., Lam, T., & Hsu, C. H. (2006). Negative word-of-mouth communication intention: An application of the Theory of Planned Behavior. *Journal of Hospitality & Tourism Research*, *30*(1), 95–116. https://doi.org/10.1177/1096348005284269

Cheung, M. F., & To, W. (2019). An extended model of value-attitude-behaviour to explain Chinese consumers' green purchase behaviour. *Journal of Retailing and Consumer Services*, *50*, 145–153. https://doi.org/10.1016/j.jretconser.2019.04.006

Cho, Y., Soster, R. L., & Burton, S. (2017). Enhancing environmentally conscious consumption through standardized sustainability information. *Journal of Consumer Affairs*, *52*(2), 393–414. https://doi.org/10.1111/joca.12172

Chu, S., & Kim, Y. (2011). Determinants of consumer engagement in electronic word-of-mouth (eWOM) in social networking sites. *International Journal of Advertising*, *30*(1), 47–75. https://doi.org/10.2501/IJA-30-1-047-075

Chuang, L., & Chiu, S. (2017, August). Analysis on consumer repeat purchase behavior of buying green products. In *2017 International Conference on Green Informatics (ICGI)* (pp. 145–148). Fuzhou, China. IEEE. https://doi.org/10.1109/ICGI.2017.48

Cronan, T. P., & Al-Rafee, S. (2008). Factors that influence the intention to pirate software and media. *Journal of Business Ethics*, *78*(4), 527–545. https://doi.org/10.1007/s10551-007-9366-8

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39–50. https://doi.org/10.2307/3151312

Goodman, J. K., & Malkoc, S. A. (2012). Choosing here and now versus there and later: The moderating role of psychological distance on assortment size preferences. *Journal of Consumer Research*, *39*(4), 751–768. https://doi.org/10.1086/665047

Govender, J. P., & Govender, T. L. (2016). The influence of green marketing on consumer purchase behaviour. *Environmental Economics*, *7*(2), 77–85.
https://doi.org/10.21511/ee.07(2).2016.8

Hajli, M., Hajli, M., & Khani, F. (2013, April). Establishing trust in social commerce through social word of mouth. In *7th International Conference on e-Commerce in Developing Countries: with Focus on e-Security* (pp. 1–22). Kish Island, Iran. IEEE. https://doi.org/10.1109/ecdc.2013.6556738

Hämmerlin, G., & Hoffman, K. (1991). Eigenvalues. In *Numerical Mathematics* (pp. 91–117). Springer.
https://doi.org/10.1007/978-1-4612-4442-4_3

Haq, M. A., Ahmed, M. A., & Khalid, S. (2019). Empowering leadership and proactive behaviour: Mediating role of psychological empowerment and moderating role of leader-follower distance. *Abasyn Journal of Social Sciences*, *12*(1).
https://doi.org/10.34091/AJSS.12.1.05

Hayes, J. L., & King, K. W. (2014). The social exchange of viral ads: Referral and coreferral of ads among college students. *Journal of Interactive Advertising*, *14*(2), 98–109.
https://doi.org/10.1080/15252019.2014.942473

Howell, J. L., & Ratliff, K. A. (2019). The social cognition approach to health. *Social Cognition*, *37*(3), 197–205.
https://doi.org/10.1521/soco.2019.37.3.197

Joshi, Y., & Rahman, Z. (2015). Factors affecting green purchase behaviour and future research directions. *International Strategic Management Review*, *3*(1–2), 128–143.
https://doi.org/10.1016/j.ism.2015.04.001

Kaiser, H. F. (1958). The varimax criterion for analytic rotation in factor analysis. *Psychometrika*, *23*(3), 187–200. https://doi.org/10.1007/BF02289233

Kerlinger, F. N. (1978). Similarities and differences in social attitudes in four Western countries. *International Journal of Psychology*, *13*(1), 25–37.
https://doi.org/10.1080/00207597808246612

Laroche, M., Bergeron, J., & Barbaro-Forleo, G. (2001). Targeting consumers who are willing to pay more for environmentally friendly products. *Journal of Consumer Marketing*, *18*(6), 503–520. https://doi.org/10.1108/EUM0000000006155

Laroche, M., Tomiuk, M., Bergeron, J., & Barbaro-Forleo, G. (2009). Cultural differences in environmental knowledge, attitudes, and behaviours of Canadian Consumers. *Canadian Journal of Administrative Sciences / Revue Canadienne Des Sciences De L'Administration*, *19*(3), 267–282.
https://doi.org/10.1111/j.1936-4490.2002.tb00272.x

Lee, J., Ham, C., & Kim, M. (2013). Why people pass along online video advertising: From the perspectives of the Interpersonal Communication Motives scale and the theory of reasoned action. *Journal of Interactive Advertising*, *13*(1), 1–13. https://doi.org/10.1080/15252019.2013.768048

Line, N. D., Hanks, L., & Zhang, L. (2016). Sustainability communication: The effect of message construals on consumers' attitudes towards green restaurants. *International Journal of Hospitality Management*, *57*, 143–151.
https://doi.org/10.1016/j.ijhm.2016.07.001

Liobikienė, G., & Bernatonienė, J. (2017). Why determinants of green purchase cannot be treated equally? The case of green cosmetics: Literature review. *Journal of Cleaner Production*, *162*, 109–120. https://doi.org/10.1016/j.jclepro.2017.05.204

Lunneborg, C. E. (1979). Book review: Psychometric theory: Second Edition Jum C. Nunnally. New York: McGraw-Hill, 1978, 701 pages. *Applied Psychological Measurement*, *3*(2), 279–280. https://doi.org/10.1177/014662167900300216

Maichum, K., Parichatnon, S., & Peng, K. (2016). Application of the extended theory of planned behavior model to investigate purchase intention of green products among Thai Consumers. *Sustainability*, *8*(10), 1077.
https://doi.org/10.3390/su8101077

Maniatis, P. (2016). Investigating factors influencing consumer decision-making while choosing green products. *Journal of Cleaner Production*, *132*, 215–228.
https://doi.org/10.1016/j.jclepro.2015.02.067

Martin, J. J. (2017). Theory of planned behavior and stages of change models. In *Handbook of disability sport and exercise psychology.* Oxford Scholarship Online.
https://doi.org/10.1093/oso/9780190638054.003.0035

Marvi, M. H., Minbashrazgah, M. M., Zarei, A., & Baghini, G. S. (2020). Knowledge foundation in green purchase behaviour: Multidimensional scaling method. *Cogent Business & Management*, *7*(1), 1773676.
https://doi.org/10.1080/23311975.2020.1773676

Mishra, A. A. (2016). The role of customer gratitude in relationship marketing: Moderation and model validation. *Journal of Strategic Marketing*, *24*(6), 529–549.
https://doi.org/10.1080/0965254X.2016.1148762

Mishra, P., & Sarkar, R. (2018). Is customer-centric sustainability an element of marketing strategy? In *Business strategies for sustainability* (pp. 116–130). Routledge.
https://doi.org/10.4324/9780429458859-7

Musso, F., & Risso, M. (2017). Corporate social responsibility in the relationships between large retailers and Italian small and medium food suppliers. In M. Wagner (Ed.), *Entrepreneurship, innovation and sustainability* (pp 216–237). Routledge. https://doi.org/10.4324/9781351277761-11

Ogiemwonyi, O., & Harun, A. B. (2020). Green product awareness has the potential to promote green consumer behaviour: Evidence from Kuala-Lumpur. *Israel Journal of Ecology and Evolution*, *67*(1–2), 39–50.
https://doi.org/10.1163/22244662-bja10010

Paço, A. D., Alves, H., Shiel, C., & Filho, W. L. (2014). An analysis of the measurement of the construct "buying behaviour" in green marketing. *Journal of Integrative Environmental Sciences*, *11*(1), 55–69.
https://doi.org/10.1080/1943815X.2014.894082

Panda, T. K., Kumar, A., Jakhar, S., Luthra, S., Garza-Reyes, J. A., Kazancoglu, I., & Nayak, S. S. (2020). Social and environmental sustainability model on consumers' altruism, green purchase intention, green brand loyalty and evangelism. *Journal of Cleaner Production*, *243*, 118575.
https://doi.org/10.1016/j.jclepro.2019.118575

Park, J., & Ha, S. (2014). Understanding consumer recycling behavior: Combining the theory of planned behavior and the norm activation model. *Family and Consumer Sciences Research Journal*, *42*(3), 278–291.
https://doi.org/10.1111/fcsr.12061

Paul, J., Modi, A., & Patel, J. (2016). Predicting green product consumption using theory of planned behavior and reasoned action. *Journal of Retailing and Consumer Services*, *29*, 123–134. https://doi.org/10.1016/j.jretconser.2015.11.006

Payne, A., & Frow, P. (2017). Relationship marketing: Looking backwards towards the future. *Journal of Services Marketing*, *31*(1), 11–15. https://doi.org/10.1108/JSM-11-2016-0380

Qin, L. (2020). A cross-cultural study of Interpersonal Trust in Social Commerce. *Journal of Computer Information Systems*, *60*(1), 26–33.
https://doi.org/10.1080/08874417.2017.1383865

Rahnama, H., & Rajabpour, S. (2017). Factors for consumer choice of dairy products in Iran. *Appetite*, *111*, 46–55. https://doi.org/10.1016/j.appet.2016.12.004

Robertson, K. (1989). Strategically desirable brand name characteristics. *Journal of Consumer Marketing*, *6*(4), 61–71. https://doi.org/10.1108/EUM0000000002563

Sander, T., & Teh, P. L. (2019). Is social media changing the awareness of individuals? *Proceedings of The International Conference on New Trends in Social Sciences* (pp. 16–25). https://doi.org/10.33422/ntss.2019.08.488

Sathaye, J., & Murtishaw, S. (2004). *Market failures, consumer preferences, and transaction costs in energy efficiency purchase decisions*. https://doi.org/10.2172/919919

Shan, Y., & King, K. W. (2015). The effects of interpersonal tie strength and subjective norms on consumers' brand-related eWOM referral intentions. *Journal of Interactive Advertising*, *15*(1), 16–27. https://doi.org/10.1080/15252019.2015.1016636

Sheth, J. N., Sethia, N. K., & Srinivas, S. (2010). Mindful consumption: A customer-centric approach to sustainability. *Journal of the Academy of Marketing Science*, *39*(1), 21–39. https://doi.org/10.1007/s11747-010-0216-3

Shrum, L. J., McCarty, J. A., & Lowrey, T. M. (2013). Buyer characteristics of the green consumer and their implications for advertising strategy. *Journal of Advertising*, *24*(2), 71–82. https://doi.org/10.1080/00913367.1995.10673477

Singh, M. P., & Tripathi, A. (2016). Determinants of sustainable/green consumption: A review. *International Journal of Environmental Technology and Management*, *19*(3/4), 316–358. https://doi.org/10.1504/IJETM.2016.10003118

Singh, R. (2017). Ecological marketing: An obligation or responsibility. *International Journal of Contemporary Research and Review*. https://doi.org/10.15520/ijcrr/2017/8/07/272

Sinobas, L. R. (2017). *Environmental benefits and concerns of center-pivot irrigation*. Oxford Research Encyclopedia. Environmental Science. https://doi.org/10.1093/acrefore/9780199389414.013.251

Soomro, R. B., Mirani, I. A., Sajid Ali, M., & Marvi, S. (2020). Exploring the green purchasing behavior of young generation in Pakistan: Opportunities for green entrepreneurship. *Asia Pacific Journal of Innovation and Entrepreneurship*, *14*(3), 289–302. https://doi.org/10.1108/APJIE-12-2019-0093

Turban, G., & Mühlhäuser, M. (2008, December). A layer-based concept for Presentation Systems. In *2008 Tenth IEEE International Symposium on Multimedia* (pp. 708–713). Berkeley, CA, USA. IEEE. https://doi.org/10.1109/ISM.2008.49

Varah, F., Mahongnao, M., Pani, B., & Khamrang, S. (2021). Exploring young consumers' intention toward green products: Applying an extended theory of planned behavior. *Environment, Development and Sustainability*, *23*, 9181–9195. https://doi.org/10.1007/s10668-020-01018-z

Zhang, X., & Dong, F. (2020). Why do consumers make green purchase decisions? Insights from a systematic review. *International Journal of Environmental Research and Public Health*, *17*(18), 6607. https://doi.org/10.3390/ijerph17186607

Zhuang, W., Luo, X., & Riaz, M. (2021). On the factors influencing green purchase intention: A meta-analysis approach. *Frontiers in Psychology*, *12*, 644020. https://doi.org/10.3389/fpsyg.2021.644020

Zimmer, M. R., Stafford, T. F., & Stafford, M. R. (1994). Green issues: Dimensions of environmental concern. *Journal of Business Research*, *30*(1), 63–74. https://doi.org/10.1016/0148-2963(94)90069-8