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An Examination of a Few Antecedents of Environmental Sustainability Using Structural Equation Modelling

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ABSTRACT

Awareness of environmental issues and appropriate knowledge about solving them through "scalable acts and behaviours" help engage and contribute to environmental sustainability. Though there exist volumes of literature on green behaviours, there is a lack of literature on what motivates sustainable behaviour. The present study bridges this research gap by identifying green shared vision (GSV) and green value (GV) as antecedents of perceived environmental sustainability. The study is based on data collected from 384 respondents among gainfully employed samples from Saudi Arabia. The study used structural equation modeling (SEM) to analyze the data. The findings show significant positive relationships between the variables, supporting the proposed model. The study has significant implications for sustainability and administrators, suggesting the need to improve strategies related to green behaviour.

Keywords: Environmental Sustainability, Green Value, Green Shared Vision, Green Creativity, Structural Equation Modelling
JEL Classifications: Q010, Q56, Q560

1. INTRODUCTION

The world faces enormous environmental challenges, for which appropriate green and sustainable behaviours are the only remedy. Studies suggest that corporate organizations are mostly to blame for global warming and climate change, as they pollute the environment more than others (Robertson and Barling, 2017). As such, stakeholders seek environmentally responsible organizations sensitive to the environment and its sustainability (Boiral, 2016). Further, globally, there is a trend toward environmentalism, which has prompted policymakers and management experts to implement environmental sustainability policies and practices.

The enviable economic growth of the Middle East in general, and Saudi Arabia, in particular, has induced substantially high pollution levels, putting a question mark on the region's

sustainable development. Solutions to such pressing concerns can only be found through attitudinal and behavioural changes within organizational members, which can support practical green, and sustainable attitudes. Creative and innovative thinking laced with green behaviour could effectively solve environmental and sustainability issues (Hameed et al., 2021). Such thought patterns could influence employee attitudes and behaviors and favorably guide them to engage in sustainable activities. Further, this could lead to green management that can enhance organizational effectiveness and the capability to serve the demands of modern green consumers (Alt and Spitzeck, 2016).

Awareness of environmental issues and appropriate knowledge about solving them facilitate green behaviours, which involve "scalable acts and behaviours" that help engage and contribute to environmental sustainability (Goodland, 1995). Significant

value is attached to various green behaviors since they help achieve sustainable goals as employees adopt citizenship roles, leading to performance effectiveness (Sulphey, 2017; Sulphey and Faisal, 2021; Sulphey et al., 2023). These green behaviors are unique to organizational situations. Further, considerable empirical evidence suggests that green behaviours could lead to creativity (Aboramadan et al., 2022; Al-Ghazali and Afsar, 2021). Green creativity (GC) could help businesses gain competitive advantages (Chen, 2008) and the badly required sustainability. These encouraging trends in environmentalism have compelled managers and policymakers to adopt green practices to achieve environmental sustainability (Hameed et al., 2021; Mousa and Othman, 2020). Ali and Kaur (2021) opined that multiple green attitudes and behaviours influence GC. As a result, the current study investigates the different functions of a few green factors on GC and how they help organizations boost sustainability. Thus, the study examines the interlinkages between a few green behaviours likely to initiate positive social changes. This study is significant as, despite extensive literature on green behaviours, only minimal evidence exists of what motivates GC and its impact on sustainability in Saudi Arabia. In addition, pro-environmental attitudes and behaviors are indispensable to tackling the adverse effects of pollution and the consequent environmental degradation.

The present study intends to examine how certain green behaviours and GC helps build an ideal environment for sustainability. These behaviours are central to orienting employees towards the organizational objectives of sustainability and enabling them to be involved in added green efforts. Moreover, these efforts could help develop innovative and sustainable ideas that could help achieve organizational effectiveness due to green and clean production processes (Mittal and Dhar, 2016). These aspects have drawn research attention to how to apply GC, explore innovative solutions to environmental solutions, and have an ideal transition towards sustainability (Kagan et al., 2020). The study, therefore, proposes the indispensability of green creativity and sustainability in organizations and presents empirical evidence on their behavioural antecedents. The antecedents examined in the current study include green shared vision (GSV) and green value (GV). Many social scientists have utilized related methodologies to examine GC and sustainability (Jiang et al., 2021). Therefore, this research work intends to fill this gap in the literature. In addition, this study is conducted with Saudi samples. It is pertinent to note that scant literature exists in Saudi Arabia about these complex relations. Thus, the study is expected to contribute to the body of green behaviour literature by describing a few mechanisms that elucidate the psychology of green creativity and attitude towards sustainability among the Saudi Arabian population.

2. REVIEW OF LITERATURE

The accumulated literature related to the discipline and variables under study is reviewed in this section. This section starts with the theoretical underpinnings and moves on to the empirical evidence about the study variables.

2.1. Theoretical Underpinnings

This study drives inspiration from the Componential Theory of Creativity and Innovation (Amabile, 1997; 2013) and the Norm Activation Model (NAM) (Schwartz, 1977), in addition to the Stakeholder Theory. Amabile's Theory (1997, 2013) on creativity is comprehensive and identifies the multiple social and psychological factors that influence an individual's capability to generate it. The Theory is based on defining creativity as the generation of feasible, innovative ideas and outcomes. In addition, the Theory suggests that social and occupational climatic conditions inspire employee creativity (Amabile and Pratt, 2016). The researchers thus hypothesize that green attitudes channel green creativity based on the findings of Amabile and Pratt (2016).

The Norm Activation Model (NAM) advanced by Schwartz (1977) proposes that prosocial motives like concern for the future, the human race, other species, and the planet drives pro-environmental behaviours. The model has successfully explained various pro-environmental behaviors, including reducing, reusing, and other general behaviours that facilitate sustainability (Abrahamse and Guida Guida, 2018; Zeiske et al., 2020). Based on NAM, it is hypothesized that an individual's moral standards that guide their environmental behaviour develops due to their awareness of environmental issues, voluntary acceptance of individual responsibility for contributing to such issues, and encouragement from societal members. Another related theory is the Values-Beliefs-Norms model (VBN) of Stern et al. (1995), which proposes a causal sequence between the above-cited variables. Deriving inputs from Sulphey et al. (2023), the study suggests that green value and shared vision provide factual knowledge, skills, and talents to drive green creativity across green task domains. This could facilitate sustainable attitudes and behaviours. Despite its importance, studies have overlooked green behaviours' significant roles in advancing creativity (Mittal and Dhar, 2016) and sustainable behaviours.

In addition, companies are exceedingly slow to respond to environmental sustainability issues despite widespread public outcry. This contradiction is presumably due to the perceived gap between profits and environmental sustainability. Organizations can effectively bridge this gap by adopting the principles of the Stakeholder Theory (Freeman et al., 2018). The Theory provides inputs to promote a constructive interface between various stakeholders and their environment, accentuating the need for organizations to concentrate on profits while providing due consideration to the environment (Barney and Harrison, 2020). Thus, the Stakeholder Theory ensures profits based on green value, shared vision, and orientation of organizational objectives with ES (Ogbeibu et al., 2020).

Ruepert et al. (2016) proposed a more parsimonious model – the Value-Identity-Personal Norms model (VIP model)- presenting the general normative antecedents of pro-environmental behaviors. As in the case of the theories discussed, the VIP model suggests that the degree to which individuals support environmental values is a crucial and reliable predictor of many sustainable behaviours (Zeiske et al., 2020). The model suggests that values indirectly impact behavior since they are overarching guiding principles. When applied in the present context, green values would affect personal green behaviours like creativity and sustainability. Further, a person is more likely to regard himself

as environmentally friendly and behave appropriately if his green values are strong. Thus based on the propositions of NAM and VBN theory and the VIP model, it can be presumed that feelings of values and moral obligation to engage in behaviour that predicts their pro-environmental and sustainability behaviors (Van der Werff and Steg, 2016), making the edifice of this study.

Based on the above discussions, it is clear that a multidimensional view that promotes green attitude and behaviour (Jackson, 2005) and sustainability would be ideal.

2.2. Green Creativity (GC)

The concept of GC was propounded by Chen and Chang (2023), who identified it as generating unique, practical, and valuable environmental ideas (Chen and Chang, 2013). To be sustainable and environmentally responsible, individuals and organizations must challenge the *status quo* by developing new ways of thinking and functioning (Reed, 2009). The broad element of conventional creativity also applies linearly to green solutions to issues (Chen et al., 2014). Chen et al. (2014) identified GC as the ability to produce novel, valuable, and implementable ideas with an environmental orientation. It creates distinct and valued green ideas, goods, practices, or services based on individual and organizational antecedents. Ogbeibu et al. (2021) opine that GC involves identifying and developing environmentally sustainable and innovative concepts.

In organizations, GC involves green task motivation, creativity, and proficiency. It also involves extra-role behaviour that develops novel and suitable green products (Chen and Chang, 2012). Moreover, cultivating GC enables organizations to prosper in the long run against an ever-changing market and the environment (Ogbeibu et al., 2021). Thus, GC involves the capacity to encounter novel ideas while being environmentally sustainable (Henriques et al., 2022). Further, GC helps develop unique ideas that could lead to green innovation (Mittal and Dhar, 2016).

There exists a fair amount of literature on GC. For instance, Luu (2021), and Jiang et al. (2021) examined how to foster GC among employees. Mróz and Ocetkiewicz (2021) examined how creativity can be integrated into sustainability education. Though factors ranging from green passion to green organizational identity (Mittal and Dhar, 2016) and green motivation (Li et al., 2020) directly impact green creativity, the psychological antecedents are under-researched. An antecedent to GC is employee flexibility and freedom. However, empirical research on how behavioural skills impact GC is limited (Mittal and Dhar, 2016). However, multiple behavioural constructs must be examined in the context of sustainability (Hameed et al., 2021). Social scientists like Awan et al. (2019) and Li et al. (2020) identified GC as essential for sustainable green production. Similarly, Awan et al. (2019) identified that creativity results in sustainability. This was also empirically observed by Henriques et al. (2022). In addition, Maitlo et al. (2022) found GC to result in environmental sustainability.

2.3. Green Value (GV)

According to EEA (2005), everyone is dutybound to work together to ensure that operations have as little of a negative impact on the environment. Further, employees must wholeheartedly support all green organizational initiatives (Zhang et al., 2019), as emphasizing such initiatives could accelerate the efficient fostering of environmental sustainability. GV is the overall appraisal of the net benefits that could be derived based on environmental desires and sustainable expectations (Chen and Chang, 2012). Robertson and Barling (2013) found that GV influences organizational members' behavior and translates into pro-environmental behaviours leading to sustainability.

Individual green attitudes and behaviours are influenced by personal values (Al-Gazali and Asfar, 2021). Further, environmental values contribute to morality and help develop ecological attitudes, habits, and behaviours. Several researchers, for instance, Andersson et al. (2005) and Schultz et al. (2005), discovered that green values had a significant and favourable influence on individual environmentally friendly behaviours. Further, GV positively influences green trust (Cheung et al., 2015). GV has multiple emotional and environmental benefits. In addition, GV promotes green trust, which influences individual purchasing intentions. Li et al. (2020) state that GV could boost motivation, induce enhanced involvement in environmental behaviours, and initiate creative green outputs. GV could also result in intrinsic green motivation (Wu et al., 2021).

Those with GV prefer reducing, restricting, or rejecting unnecessary expenditures and living a simple lifestyle (Furchheim et al., 2020). GV also positively associates with environmental values and green behavior, facilitating solutions to environmental issues. Li et al. (2020) found that environmental commitment would increase intrinsic motivation and creativity (Wu et al., 2021). Several studies propose that GC highly depends on GV (Chen and Chang, 2013; Li et al., 2020). Furthermore, another study by Wu et al. (2021) found a positive relationship between GV and creativity. Hence, it is hypothesized that:

H1: There is a significant positive relationship between green value and green creativity.

2.4. Green Shared Vision (GSV)

Studies by Andersson et al. (2005) and Schultz et al. (2005) identified a significant and positive relationship between individual environmental values and environmentally friendly behaviors. Employees become creative when motivated by a shared vision, which helps them gain a competitive advantage, achieve critical organizational goals, and exceed expectations (Vogus and Sutcliffe, 2012). Moreover, a shared vision, being a catalyst, could deliver corporate success (Shin and Zhou, 2007). It also facilitates members to view organizational performances from a broader perspective. Sosik et al. (1998) identified that employees who possess a shared vision are motivated to have a disposition to perform their duties creatively. This could apply to green shared vision, too.

GSV originated in the early 2000s and is the internalized shared vision of organizational environmental goals (Chen et al., 2014a), which can potentially deliver competitive advantage and corporate success (Jansen et al., 2008). It has its basis in environmental

friendliness and shared vision. According to Chang et al. (2019), GSV is a clear and consistent strategic direction for members to achieve organizational environmental objectives. It helps employees share insights and objectives (Alt et al., 2014). It is a powerful organizational tool that forms all strategic business cores that encourage members to enhance their outlook to exceed expectations. In addition, GSV encourages employees to recognize, engage, and recombine new ideas, information, skills, and technology to boost creativity (Wu and Chen, 2018). Chen et al. (2020) found GSV to lead to pro-environmental behaviours and better performance levels (Chen et al., 2020). In addition, Chang (2020) identified that employees with GSV harmoniously blend with their organizational culture and could be involved in quality, green creative performance. Implementing GSV could also aid in developing a green organizational identity and psychological ownership for its members (Chang, 2021). Further, empirical evidence suggests GSV is an antecedent of GC (Chen et al., 2014). These findings show that GSV could foster green creativity. Accordingly, the next hypothesis is formulated as follows:

H2: There is a significant positive relationship between Green shared vision and green creativity.

2.5. Environmental Sustainability (ES)

Extreme consumerism, wastefulness, resource depletion and deterioration, contamination of the land and water, unequal resource distribution, and egoistic attitudes of the wealthy have contributed to the indispensability of sustainability and sustainable behaviour (Sulphey and Faisal, 2021). The "deliberate and effective actions" that incorporate environmental protection for the present and future generations are known as sustainable behaviour (Bonnes and Bonaiuto, 2002). According to Sulphey et al. (2023), sustainable behaviour is the cumulation of "pro-ecological action, frugality, altruism, and equitability."

In ordinary parlance, ES is the "maintenance of natural capital." This definition, though sort, proposes that "ES is a natural science concept and obeys biophysical laws," which facilitate gaining adherents (Goodland, 1995). It is a set of constraints on significant actions that govern the scale of the human economic subsystems, like using renewable and nonrenewable resources and managing pollution and waste. Though the environment has provided humanity with services for the past million years, due to its vastness and resilience, recently, human needs have exceeded environmental capacity, leading to extensive damage. In addition, most natural capital or environmental services are non-substitutable and regeneratable. Their self-regeneration capacity is significantly slow, leading to the indispensability of environmental sustainability. Individuals committed to sustainability care for fellow humans (Corral-Verdugo et al., 2012; Sulphey, 2019). They endeavour to create environments that permit fair distribution and judicious consumption of natural resources (Sulphey, 2017; 2019) and exhibit altruism (Pol, 2002). They also strive to conserve natural resources (Faridi, 2019).

Since business organizations are dependent on the environment, only businesses with environmental sustainability as their core business strategy would survive (Hart, 1995). Multiple

employee green behaviours are vital to promoting organizational environmental performance and sustainability. Social scientists, for instance, Awan et al. (2019) and Li et al. (2020), identified GC as essential to achieving ES. Further, Renwick et al. (2013) and Stefanelli et al. (2021) found that when employees identify creative, green solutions, it could result in sustainability.

Adequate literature exists about environmental sustainability, its antecedent behaviours, and its benefits (Adomako et al., 2019; Danso et al., 2019; Sulphey, 2017, Sulphey, 2019; Sulphey et al., 2023). A few antecedent behaviours identified include frugality, altruism, equitability, and pro-environmentality (Bragagnolo, 2014; Iwata, 2002; Wesley Schultz, 2001; Winter, 2002). Some examples of pro-environmental behaviors include activities that can conserve and sustain the available natural resources. Corral-Verdugo et al. (2009) identified pro-environmental knowledge, attitudes, beliefs, and values as antecedents of environmentally sustainable behaviours. (De Silva and Pownall, 2013) identified that ecologically literate people value environmental sustainability than less educated individuals. In addition, other behaviours that could potentially reduce consumption, such as pro-environmental lobbying and pro-ecological activities, have also been identified in the extant literature (Kellert, 2008; Hsu, 2004). Shrivastava and Li (2014) studied how to integrate cognitive and emotive variables into the study of sustainability. These behaviours help reduce, reuse, and recycle, thereby committing to sustainability (Kaiser, 1998; Thogersen, 2005). The following three hypotheses are now proposed:

H3: Green value and perceived environmental sustainability have a significant positive relationship.

H4: Green shared vision and perceived environmental sustainability have a significant positive relationship.

H5: Green creativity and perceived environmental sustainability have a significant positive relationship.

Based on the hypotheses formulated for the study, the following research model (Figure 1) is suggested.

3. METHODOLOGY

The study used a quantitative, questionnaire-based investigation to address the research questions. The study's ethical standards were accomplished by assuring respondents' confidentiality. Hence, no identifying questions were provided in the questionnaire.

Since the different variables were measured simultaneously, a few steps were adapted to avoid issues related to common method variance (CMV). The measures adopted included those proposed

Figure 1: Proposed model
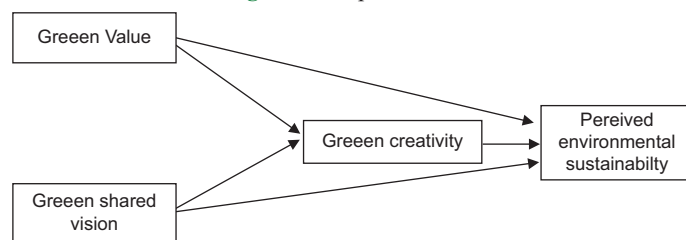
by Podsakoff et al. (2012). In addition, the data were collected in two different lags of 15 days. In addition, Harman's single-factor test was conducted (Podsakoff et al., 2012). The first factor accounted for 43.80% variance. This value is less than the 50% proposed by Podsakoff et al. (2012). These findings present that CMV is not an issue.

3.1 Scales Used

The following standardized and validated scales were used to collect data for the study.

1. Green Value (GV): This variable was measured using a five-item tool developed by Islam et al. (2020). The subscales of the tool include Environmental attitude (EA) and sustainability (ES). The original tool developed by Brown et al. (2005) consisted of nine items. This questionnaire was purified by Islam et al. (2020) by excluding three items since they had low loading. This tool exhibited a reliability of 0.84.

2. Green shared vision (GSV): Chen et al.'s (2014) four-item questionnaire was used to measure GSV. This measure is a modified version of the Jansen et al.'s. (2008) questionnaire. The questionnaire had a reliability of 0.90, which is robust.

3. Employee Green behaviour (EGB): The six-item questionnaire Bissing-Olson et al. (2012) developed measured EGB. The questionnaire has reported a reliability alpha value of over 0.90. Various other studies, such as De Roeck and Farooq (2017), have used this questionnaire.

4. Green Creativity (GC): The tool Chen and Chang (2013) standardized was used to measure GC. Earlier studies that have used the tool include Hameed et al. (2021). The scale has a reasonably high reliability of 0.82.

5. Environmental sustainability (ES): The questionnaire with six items standardized by Wen et al. (2021) was used to collect data. This questionnaire, derived from questionnaires developed by Pinzone et al. (2019), Jabbour et al. (2008), and Saeed et al. (2018), exhibited robust reliability.

All the questionnaires were on a five-point scale ranging between strongly agree and strongly disagree. The questionnaire, in both English and Arabic languages, was administered online to potential respondents. The link was forwarded to various social media groups, inviting the members to respond. This method of data collection facilitated maximum reach among different classes of respondents. This data collection process, which lasted over eight weeks, generated 443 responses. Since there were no missing data, all responses were used for analysis.

Demographic variables like gender, age, experience, and education were used as control variables. Earlier studies by Hameed et al. (2021) and Lamm et al. (2015) have identified environmental performance associated with these demographics.

3.2. Sampling Adequacy

Sampling adequacy is essential for conducting SEM. Krejcie and Morgan (1970) pioneered providing the required inputs towards sampling adequacy. They presented a table about the minimum required sample based on the population. The Table suggests that 384 is the sample necessary to represent one million population. As the population increases, the size of the sample needed diminishes

and remains constant above 380. A sample of 364 is adequate to have a sampling error of 5% (Suskie, 1996). This stipulation is also supported by Gill et al. (2010). Earlier studies by Alkahtani and Sulphey (2022), Salim et al. (2020), and Sandhya and Sulphey (2019; 2021) have closely followed this stipulation. Hence, the sample of 443 collected for this study is adequate. In addition, the KMO measure of sampling adequacy was.921. Bartlett's Test of Sphericity was 5851.306 (df of 171), which had a significance of 0.000.

The respondents were of varying diversity, which is presented in Table 1.

In addition, the age of the respondents ranged between 18 and 70 years. The average age was 42.81 years. The respondents' overall experience ranged between six months and 46 years. The mean experience was 16.98 years.

3.3. Multicollinearity and Common Method Bias Test

Self-reported data are prone to issues related to Common method bias (CMB). Several precautions have been taken to reduce CMB. Some steps undertaken include maintaining anonymity, randomizing items, and separating items from different questionnaires. Further, the respondents were requested to respond to the questionnaire as honestly as possible. These measures helped to confirm the lack of CMV and ensure that the measures have robust validity. In addition, the CMV magnitude was examined using the Harman single-factor test (Podsakoff and Organ, 1986). The cumulative variance was only 67.098%, and no single factor emerged for most covariances. It is assumed that if CMV exists, a single component will account for more than 50% of the covariance (Podsakoff et al., 2003). This was not present in the current study, confirming the non existence of CMV. The results indicated that the variance of the first factor rotation was less than the 50% threshold (Podsakoff et al., 2003).

The existence of co-linearity between latent variables might lead to biased path coefficients. The study employed the indicator variance inflation factor (VIF) before analyzing the structural model to see if there is co-linearity between endogenous constructs (Ringle et al., 2015). Though there is no consensus on the best VIP range, Rahi (2012) proposed a value of <3.3. The inner VIF values presented in Table 2 are <3.3, which is within the stipulation. Kock and Lynn

Table 1: Demographics of sample

Demographics	Number	Percent
Citizenship		
Saudi Arabian	403	88.9
Expatriate	50	11.01
Gender		
Male	118	26.0
Female	335	74.0
Qualification		
High school	53	11.7
Higher Secondary	45	9.9
Graduate	194	42.8
Masters	59	13.0
Doctorate	89	19.6
Data Missing	13	2.9

(2012) also recommend that VIF values ≤3.3 address collinearity issues. This result indicates a lack of lateral multicollinearity concerns (Hair et al., 2017) and confirms common method bias (CMB) issues are nonexistent.

4. ANALYSIS

This study used SmartPLS software version 2.0.M3 to analyze the data (Ringle et al., 2005). In PLS-SEM analysis, the first step involves evaluating the outer or measurement model. The study examined the reliability and validities which are presented in the following sections.

4.1. Construct Reliability and Validity

According to Hair et al. (2010), construct validity results provide a better understanding of the quality measures used. Validity and reliability must be met before testing the significance of relationships in any model structure (Fornell and Larcker, 1981). The study used Cronbach's alpha and composite reliability (CR - rho_a) to examine consistencies. These methods evaluate the constructs' consistency based on indicators (Götz et al., 2009). Table 3 shows that all the constructs exhibited an alpha value over 0.70 (Hair et al., 2014), indicating reliability. In addition, the rho_a is also above 0.70 (Dijkstra and Henseler, 2015). The common measure that assesses convergent validity is AVE. All the constructs have AVE values (between 0.583 and 0.780) higher than the stipulated limit of 0.50 (Fornell and Larcker, 1981). These results indicate that the measurement model has sufficient internal consistency and convergent validity.

The outer model involves the unidirectional predictive relationships between the latent construct and the observed indicator (Hair et al., 2014). Table 4 shows that all the standardized factor loading coefficients exceed 0.50 (Kline and Santor, 1999).

4.2. Discriminant Validity

The Heterotrait-Monotrait (HTMT) ratio is a superior method to examine discriminant validity. Table 5 presents the discriminant validity of the measurement model through HTMT. Gold et al. (2001) state that values ≤0.90 are acceptable for HTMT to establish discriminant validity.

Table 5 shows that all the HTMT values are <0.90. Thus the measurement model is reliable and valid.

Discriminant validity is also assessed using the Fornell-Lacker criterion (Fornell and Larcker, 1981). This criterion compares the square roots of the AVE with the correlations of latent constructs. According to Fornell and Larcker (1981), the square roots of AVE should be greater than the r values of the latent constructs. If the HTMT value is higher than the square roots of AVE, no discriminant validity exists. Table 6 shows that the constructs enjoy discriminant validity.

4.3. Coefficient of Determination (R²)

The coefficient of determination (R^2) and path coefficients evaluate the structural model (Dijkstra and Henseler, 2015). It helps to assess the model's predictive accuracy and represents the combined effect of the exogenous variables on the endogenous variables. R^2 is vital in assessing model predictive accuracy. Cohen (1988) proposes that R^2 values of 0.26, 0.13, and 0.02 describe substantial, moderate, or weak levels of explanatory power, respectively. It can be observed that the R^2 values are 0.616 and 0.434, suggesting strong explanatory power (Cohen, 1988). Thus, the model has substantial explanatory power since both the values exceed 0.26 (Table 7). Thus, it can be observed that both the endogenous variables meet this stipulation.

The F^2 results are presented in Table 8. The F^2 examines measured variance and explains each exogenous variable in the models. The values presented in Table 8 are also as per the effect size stipulation of Cohen (1988).

4.4. Model Fit

The model fit in PLS-SEM is based on Standardized Root Mean Square Residual (SRMR), ChiSquare, squared Euclidean distance (d_ULS), geodesic distance (d_G), and Normed Fit Indices (NFI) (Hair et al., 2014).

The model fit values are presented in Table 9. For SRMR, any value lesser than 0.08 fits well (Hu and Bentler, 1998). Likewise, any value of NFI lesser than 0.9 has a good fit (Bentler and Bonett, 1980). In addition, the NFI is the chi-square ratio of the proposed and benchmark models (Lohmöller, 1989). As a result, the greater the chi-square value, the greater the NFI. This makes NFI the preferred measure for examining model fit (Hair et al., 2014). The squared Euclidean distance (d_ULS) and the geodesic distance (d_G) demonstrate the empirical covariance matrix and composite factor model covariance matrix (Dijkstra and Henseler, 2015; Hair et al., 2016). Thus, the values in the Table present a picture of robust goodness of fit.

4.5. Hypothesis Testing using PLS-SEM

The study aimed to enrich and enhance existing information on the studied variables using a multi-analytical approach. PLS-SEM can validate the conceptual model developed using the existing

Table 2: Variance inflation factor (VIF) (inner model)

Variable	ES	GC	GSV	GV
ES				
GC	1.766			
GSV	1.534	1.084		
GV	1.249	1.084		

Table 3: Construct reliability and validity

Variable	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
ES	0.931	0.932	0.946	0.746
GC	0.846	0.853	0.896	0.684
GSV	0.906	0.907	0.934	0.780
GV	0.829	0.840	0.878	0.591

Table 4: Outer loadings (EFA)

Variables	ES	GC	GSV	GV
ES1	0.838			
ES2	0.896			
ES3	0.877			
ES4	0.900			
ES5	0.876			
ES6	0.790			
GC1		0.784		
GC2		0.883		
GC3		0.832		
GC4		0.805		
GSV1			0.872	
GSV2			0.910	
GSV3			0.894	
GSV4			0.856	
GV1				0.788
GV2				0.824
GV3				0.707
GV4				0.791
GV5				0.726

Table 5: HTMT (Heterotrait – Monotrait Ratio) Matrix

Variables	ES	GC	GSV	GV
ES				
GC	0.593			
GSV	0.839	0.659		
GV	0.359	0.517	0.297	

Table 6: Fornell Larcker criterion

Variables	ES	GC	GSV	GV
ES	0.863			
GC	0.54	0.827		
GSV	0.772	0.59	0.883	
GV	0.335	0.446	0.279	0.769

Table 7: R square

Variables	R-square	R-square adjusted
ES	0.616	0.613
GC	0.434	0.431

Table 8: F square

Variables	ES	GC	GSV	GV
ES				
GC	0.011			
GSV	0.813	0.415		
GV	0.023	0.152		

Table 9: Model fit

Index	Saturated model
SRMR	0.073
d_ULS	1.014
d_G	0.322
Chi-square	864.864
NFI	0.859

theories and predict ES. After conducting the factor analysis and goodness of fit testing, the significance of all the direct and indirect effects of the structural model was evaluated using a bootstrapping technique. The test was conducted with a sample size of bootstrapping n = 10000 (Hair et al., 2016; Henseler et al., 2014). Thus, using the bootstrapping technique, the t-statistics were analyzed for the path coefficients to assess the significance of the various hypothesized connections.

The path analysis coefficients, P-value, and t-values for the hypothesized are presented in Table 10 and Figure 2. The results show that other than H5 (GC -> ES), all the hypotheses formulated for the study are supported. The results show that GV significantly affected GC (t = 6.876, P < 0.001) and ES (t = 2.518, P < 0.012). GSV was also found to relate significantly to GC (t = 12.896, P < 0.001) and ES (t = 17.696, P < 0.001). The analysis found no significant relationship between GC and ES, as the t-value is 1.828, with a P = 0.068.

5. DISCUSSION

GC is an expression of self and a desire to engage in routine and innovative environmental behaviour. GC, according to Jia et al. (2018) and Robertson and Barling (2013), is stimulated by positive emotions toward the environment or green passion (Jia et al., 2018; Robertson and Barling, 2013) and value. This study expands the debate on GC and sustainability in multiple ways. It has examined a few variables, the relationship of which, to the best of the authors' knowledge, have not yet been examined. The variables examined were GV, GSC, GC, and sustainability.

Except for one hypothesized association between GC and sustainability, all other pathways were accepted, indicating that the variables had significant positive relationships. The study has opened up the borders of the theoretical debate and fresh avenues for developing further conceptual models on sustainability. This study extensively expands the theoretical debate on a few green behaviours. First, it considers variables that, to the best of the knowledge, have not been examined in this part of the world. Next, it broadens the theoretical debate by opening new avenues for environmental behaviour research.

The study's findings identify with the general principles of Amabile's Theory (1997, 2013) on creativity, potentially suggesting that it applies to the context of GC. This study thus expands the theoretical debate on GV and sustainability in multiple ways. First, the study considered two variables (GV and GSV) related to GC, which were not considered by researchers earlier to the authors' knowledge. Next, it broadens the theoretical debate by opening up new avenues for developing different conceptual models on GC and sustainability. The study also advances the need for a conducive organizational climate and culture to develop GC and ES. There is also a need to include GC variables like the quality of the organizational culture and organizational citizenship behaviours in future studies. This has been highlighted in earlier literature (Henriques et al., 2022).

Developing GC requires establishing an organizational culture and certain organizational behaviours that facilitate the interconnection between and among all members. This study further confirms the importance of GV for having GC, calling for its inclusion

Table 10: Path coefficient

H	Path	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	t statistics (|O/STDEV|)	P values	
H1	GV -> GC	0.305	0.305	0.044	6.876	0.001	Supported
H2	GSV -> GC	0.505	0.505	0.039	12.895	0.001	Supported
H3	GV -> ES	0.104	0.105	0.041	2.518	0.012	Supported
H4	GSV -> ES	0.693	0.691	0.039	17.696	0.001	Supported
H5	GC -> ES	0.085	0.087	0.047	1.828	0.068	Not supported

Figure 2: Final model
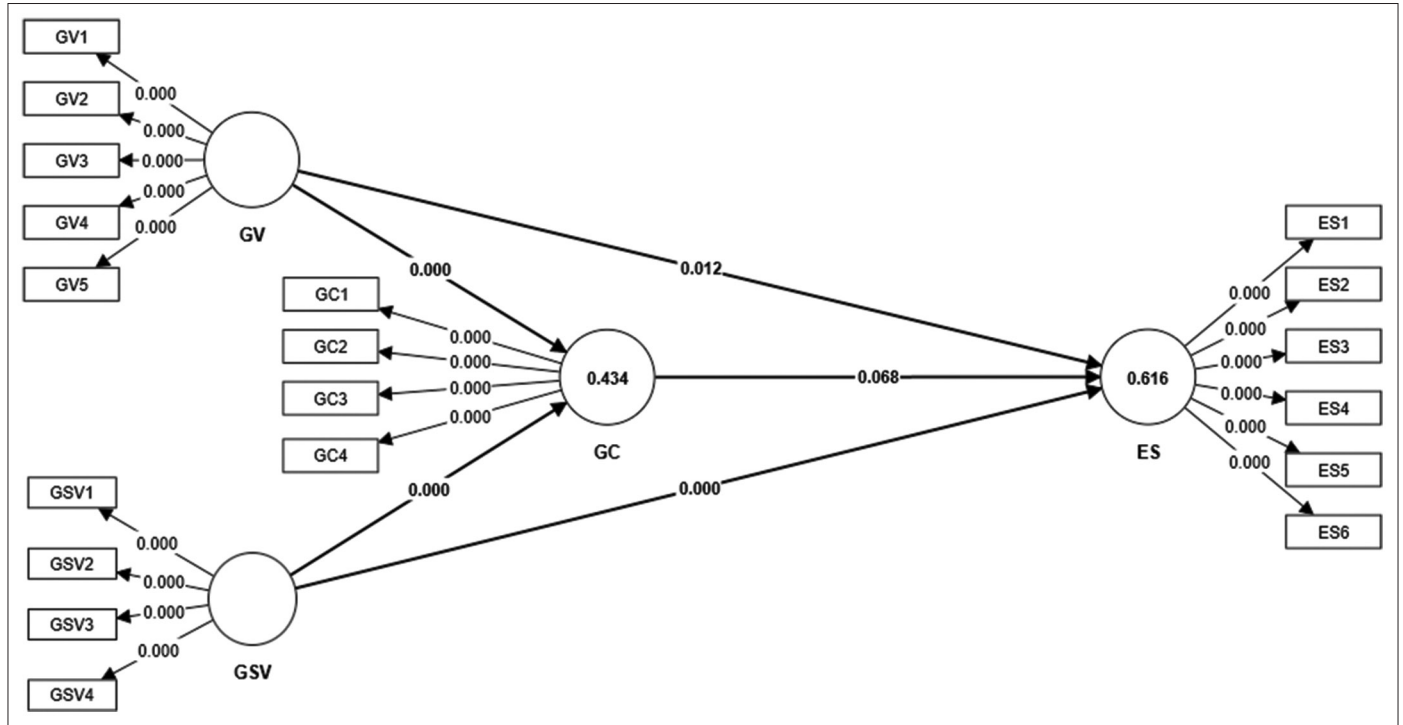
in future studies. It has also brought out the need for GV to enhance sustainable behaviours. One significant finding is no significant relationship between GC and sustainable behaviour. This intriguing result concerning the relationship between GC and sustainability highlights needs to be studied further to examine the causative factors of such a result.

Further studies may also be conducted to examine the implication of GC on the organizational environment. The results of this study can be translated into practice and help contribute to GC and innovation. In addition, as the results highlight the antecedents of GC and sustainability, appropriate programs could be implemented to motivate them to be involved in such behaviours. Such actions could promote high levels of identification and improve green self-efficacy, reinforcing pro-environmental behaviours among the organizational members. This, in turn, could have a cascading effect and make members aware of and effective in green activities, generate new ideas, and be involved in environmental activities and achieving sustainable practices. The study findings also have implications for policymakers. Ideal policy-induced GC is bound to positively impact the organizational environment (Aldieri et al., 2019). Hence, appropriate policies could be put in place to enhance pro-environmental behaviours.

This study has a few limitations that need to be discussed. It is not possible to arrive at the causality as it is cross-sectional. Another limitation concerns self-reported scales, which are based on representations and may raise concerns about subjectivity. However, literature on various pro-environmental behaviours has found strong moorings in self-reported responses and objective behavioural scales (Kormos and Gifford, 2014; Sulphey et al., 2023). Hence, this limitation may not cause significant issues to the final results. Finally, there is the question of generalizability. The data for the study was collected from one country – Saudi Arabia. Future studies could be undertaken with respondents from different countries or regions with a large sample size so that the findings could be generalized and widely applied. In addition, the study used only a few variables. There is scope for further research using more related behavioural variables. Future researchers could consider this aspect.

6. CONCLUSION

The study was conducted to examine a few antecedent behaviours of sustainability. The antecedents examined include green shared vision (GSV), green creativity (GC), and green value (GV). The study used data gathered from gainfully employed Saudi samples to examine the relationship using structural equation modelling.

The analysis of the data found significant positive relationships between the variables. In addition, the outcomes of the study support the model proposed. The present study has extended the existent line of empirical works as it focuses on GC and ES. The findings provide several theoretical and practical implications. It has contributed to the burgeoning literature on sustainability and green literature. Further, a study of this magnitude has not been conducted using Saudi samples, which provides further importance to the findings. Despite significant developments in ES and GC, there is ample scope for further exploration and advancement on the topics. In the present era, where ES is in focus among organizations, having a fair awareness of the antecedents of creative endeavours is critical to boosting green innovation. The current work is expected to act as a catalyst and bring out more studies in this exciting area of research, particularly in the Saudi Arabian scenario. The study findings will likely be a reference for policymakers, administrators, and organizations regarding green behaviours and sustainability. It is expected that researchers will further expand the literature on sustainability behaviour.

7. FUNDING

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