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## Article

# Do green innovation and green competitive advantage mediate the effect of green marketing orientation on SMEs' green marketing performance?

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## MARKETING | RESEARCH ARTICLE

# Do green innovation and green competitive advantage mediate the effect of green marketing orientation on SMEs' green marketing performance?

Nuryakin Nuryakin<sup>1\*</sup> and Tri Maryati<sup>1</sup>

**Abstract:** This study attempted to fill a gap in the literature and explore the effects of green marketing orientation on SMEs green marketing performance. According to the result, the critical role of green innovation and green competitive advantage were solutions to achieving green marketing performance. The researchers implemented the moderating role of experience manager or owner and education to enhance green marketing performance. A total of 223 samples of Batik SMEs in Yogyakarta, Indonesia, were selected and investigated. The purposive sampling method helped to collect data from respondents. The results concluded that green marketing orientation significantly affected green innovation. Green marketing orientation had a significant impact on green competitive advantage. Green



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### ABOUT THE AUTHOR

Nuryakin is a senior lecturer in the Department of Management, Faculty of Economics and Business, Universitas Muhammadiyah Yogyakarta and a senior researcher at the Postgraduate Program of Universitas Muhammadiyah Yogyakarta, Indonesia. His research interests include marketing management focusing on SMEs, relational marketing, online marketing, sustainable green marketing, and networking.

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### PUBLIC INTEREST STATEMENT

We have investigated the determinant of green marketing performance in the SMEs. Green marketing performance results from marketing activities oriented to the environmentally concept by utilizing resources and technology adopt that always preserves the environment issues. In this study, green marketing orientation variable was the independent variable to determine the green marketing performance of SMEs. Meanwhile, green product innovation and green product competitiveness were the mediating variables to fulfill the relationship between green marketing orientation on green marketing performance. Green product innovation positive effect on green marketing performance. Green product competitiveness positive effect on green marketing performance. However, the owner's experience did not moderate effect on the relationship between green product innovation to green marketing performance. Owner's education moderate effect on the relationship between green product innovation to green marketing performance. Besides, the owner's experience and education did not moderate effect on the relationship between green product competitiveness to green marketing performance in SMEs.

innovation had a significant positive effect on green marketing performance. However, the owner or manager's experiences did not moderate the relationship between green innovation and green marketing performance. The manager or owner's educational background also did not support the relationship between green innovation and green marketing performance. The result of this study indicates the mediating role of green product innovation and green product competitiveness advantage on green marketing performance.

**Subjects:** Production, Operations & Information Management; Small Business Management; Marketing Management

**Keywords:** Green marketing orientation; green innovation; green competitive advantage; green marketing performance; education; experience

## 1. Introduction

Global sustainability has increased company awareness of the impact of changes that can be detrimental to business activities and changes in the natural environment (Patari et al., 2016). As a result, the green marketing concept has grown in popularity, especially in the company's strategy in maintaining its current competitive advantage (Papadas et al., 2019). Despite environmental issues touching people's lives, many studies have included green marketing issues in management and economics literature reviews (Borsatto & Amui, 2019; Borsatto et al., 2020).

Green marketing has also influenced the company's strategy in maintaining business sustainability through green innovation (J. Chen & Liu, 2018). Several studies found that consumers also perceived that green management practices developed by companies gained their attention on the preservation of the natural environment businesses and began to modify the behavior of company stakeholders to overcome social, ethical, and environmental sustainability problems (Galindo-Martín et al., 2020; Guo et al., 2020). The business strategy developed by the company also quickly accepted and then adapted to the environmental management system, minimized waste, and had integrated environmental issues such as voluntary environmental programs and mandatory regulations and corporate green innovation (Li et al., 2020). Therefore, green marketing and environmental marketing have developed corporate strategies to achieve performance growth. Holtzman and McManus (2008) explained growth and innovation as the company's chance to accomplish corporate resilience in the future. Meanwhile, other researchers demonstrated that many companies needed to continuously innovate in technological and marketing innovations (Lin & Chen, 2007; Meroño-Cerdán et al., 2008).

This study measured green marketing performance in SMEs, closely related to the concepts of green marketing orientation, green innovation, green competitive advantage, and green marketing performance. However, SMEs lack enough organizational capabilities (H. Lin et al., 2014), limited access to market information (Nuryakin et al., 2021), weak innovation and product advantages (Nuryakin, 2018). Only a small number of SMEs are growth-oriented and have limited capabilities with resources and competitive advantages (Pucci et al., 2017; Simpson, 2004). Meanwhile, Lin and Chen (2007) mentioned that environmental and friendly innovation improves SMEs' performance with an individual, organizational perspective approach, focusing on personal traits, management innovation, and competitiveness. Environmental and friendly SME management is an issue in a study (Dangelico & Pujari, 2010). Therefore, future research on green innovation and green competitive advantage in achieving green marketing performance should focus on environmental challenges.

This research consists of several parts. First, a literature review focuses on green marketing orientation, green innovation, green competitive advantage, and green marketing performance. Second, the research model and proposition developed in this study are based on the literature

review of previous studies, such as the relationship between green marketing orientation on green innovation and green competitive advantage, the relationship between green innovation on green marketing performance and green competitive advantage, and the relationship between green competitive advantages. Therefore, green marketing performance and moderating factors (experience and education) were explored and connected with green marketing performance. Finally, management implications, constraints, and future study prospects were highlighted. In the context of the green marketing orientation strategy, the important role of social marketing theory is that organization awareness of producing environmentally friendly products is essential to building long-term sustainable competitive advantage. Thus, this study also shows that green product innovation and green competitive advantage become critical strategies to reduce green organization behavior.

## 2. Literature review and hypothesis

### 2.1. Green marketing orientation and green innovation

Lazer (1969) first introduced green marketing as a dimension of social marketing. Social marketing discusses limited environmental resources, conventional marketing, and the greening of various aspects of traditional marketing. Kotler et al. (2009) defined green marketing as “marketing that meets the needs of consumers and businesses today while preserving or enhancing the ability and care of future generations to meet their needs.” Green marketing begins with the impact of marketing on society and the environment. Green marketing also brings the ecological effect of marketing under scrutiny and increases the need to address environmental concerns in marketing (Lazer, 1969).

This study developed the concept of green marketing orientation. The idea of green marketing orientation means the company's strength in maintaining a competitive advantage (Martínez, 2015). Along with environmental sustainability and business ethics, research discussing green marketing has increased to date (Papadas et al., 2019). Chahal et al. (2014) conceptualized a green marketing orientation with several dimensions (green innovation, greening the process, and green supply chain). This research also reveals that green marketing orientation plays an essential function in generating green innovation and gaining a green competitive advantage in green marketing performance.

A green marketing orientation has become an essential part of customer orientation in achieving competitive advantage (Papadas et al., 2019). In contrast, customer orientation is a concept of market orientation widely studied around the 1990s. According to Cao et al. (2017), market orientation is a critical view of the company in achieving company performance characterized by successful innovation development. In addition, Slater and Narver (1994) claimed a link between market orientation and innovation outcomes, namely innovative performance in new product creation. Kohli et al. (1990) explained that the rapid response to changes in customer needs is an essential factor when companies are dealing with aggressive competitors. Carbonell and Escudero (2009) found a substantial impact of organizational capability on the speed of innovation, thereby increasing performance in new product innovation.

This study developed and tested the concept of green marketing orientation on green innovation. Green marketing is a critical aspect of a company's marketing activity when creating client relationships, especially in SMEs (AlQershi et al., 2020). Furthermore, green product innovation is an essential key for business in collaborative innovation activities (P.-C. Chen & Hung, 2014), green organizational identity (Chang & Chen, 2013), and improving the performance of SMEs (R. J. Lin et al., 2013). Cronin et al. (2011) highlighted the importance of consistently developing green strategies and paving the route to address the various stakeholders for enterprises to succeed. The literature recognized three primary categories of green strategy: green innovation, green processes, and green alliances. The first strategy (green innovation) is innovative green products. The second strategy emphasized environmental aspects within the company. The third strategy is

to produce new products that are environmentally friendly or green organizational processes. Companies can also choose to use alliances or partnerships.

Moreover, green product innovation is a company's efforts to expand its business while keeping environmental functions and responding to market demands, affecting its long-term strategic orientation in creating company performance (R. J. Lin et al., 2013). According to Ar (2012), green product innovation has been critical in attaining company success, environmental sustainability, and high quality of life beyond business environment aspects. Y.-C. Huang et al. (2016b) found that companies' adoption of green innovation products depended on internal green capabilities, R&D intensity, and company size. Thus, organizations are supposed to build a green marketing orientation to achieve product excellence and the success of their products in a competitive market (Kam et al., 2012). In addition, Dabija et al. (2018) uncovered that the antecedents of customer behavior differ in green loyalty. Retailers then have challenges trying to attract, satisfy, and engage consumers.

Most studies discovered that marketing orientation through green innovation was a critical choice for organizational strategies in creating unique products for their customers in the market (Ar, 2012; Dangelico & Pujari, 2010; R. J. Lin et al., 2013). Products with specific values and the advantages of green environmental products are a separate bargaining value for the company to customers to have an advantage over their competitors' products. As a result, the researchers came up with the first hypothesis.

H1. Green marketing has a significantly positive effect on green innovation.

## **2.2. Green marketing orientation and green competitive advantage**

Since the 1980s, the green marketing concept has evolved from the standard marketing notion (Peattie et al., 2005). Huang et al. (2016a) found that green organizations determined companies in achieving green innovation. Green organizations make a positive contribution to enhancing green innovation directly through the genuine commitment of the company's stakeholders to preserve the environment. Organizational care also is needed to pay attention to marketing aspects that care about the environment and influence its reputation in the customer market to sustain its performance.

Qi et al. (2020) considered the relationship between marketing activities and the environment an essential part because organizations see it as an opportunity to achieve their goals. Several other researchers have also explained many green marketing terms, such as green practice in management (Sellitto, 2018), environment sustainability (Shahzad et al., 2020), eco industry (Shahzad et al., 2020), green marketing perspective (Martínez, 2015), and orientation to green marketing for internal business (Papadas et al., 2019).

A study conducted by Ionescu (2021) found a relationship between green behavior and environmental sustainability. May et al. (2021) investigated the green behavior perspective of employees on organizational sustainability with organizational trust and organizational identification as mediating. The results showed that organizational identification partially mediated the relationship between employees' green behaviors affecting environmental sustainability. Meanwhile, Ionescu (2020) revealed a relationship between environmental performance, sustainable energy, and green financial behavior.

Furthermore, green marketing or environmental marketing includes changes to the product, the manufacturing process, the packaging, and the advertising (Chahal et al., 2014). The company creates and facilitates any exchange to gratify customers and society and also, at the same time, pave the way for profitable organizational growth by being profitable and reducing negative



impacts on the natural environment and maintaining long-term business sustainability (Saether et al., 2021).

Thus, SMEs must maintain their competitiveness (Gorondutse et al., 2020). Competitive advantage means a company's superior position in the market in the face of its competitors (Porter, 1985). In environmental uncertainties and competitive pressures, SMEs must develop their unique approach. SMEs must also strengthen their product lines to survive in a competitive market by creating green innovations in the face of rapid and unavoidable change (Nuryakin & Maryati, 2020). As a result, the researchers proposed the second hypothesis.

H2. Green marketing orientation has a significantly positive effect on green competitive advantage.

### **2.3. Green innovation and green marketing performance**

The achievement of green marketing performance is related to the green innovation developed by the company (Sudaryati et al., 2020). The company's adoption of technology and information is also a consequence of the innovation process within the company (Wang & Yu, 2021). Innovation activities developed by the company focus more on marketing activities to affect success in product creation and performance (Lertpachin et al., 2013). Companies also need to carry out designs that adapt to customer desires for their innovations. As a result, their products are successful (Fernández-Mesa et al., 2013) and adapt to company practices concerning green environmental issues (Meirun et al., 2020).

As in the last literature review, this study focuses on green innovation (Chen et al., 2006b; Tariq et al., 2019; Wong & Bigliardi, 2012). Soewarno et al. (2019) said that a green innovation strategy could achieve organizational concern for the environment and the degree of performance improvement. Organizations that build a green innovation strategy will quickly earn their identity in dealing with environmental issues that lead to their business strategy's long-term success. In green innovation activities, the value creation process can also be through supplier chains created by company executives (Shamah & Singh, 2012). dddddd Besides, technology utilization has an important role in organizational sustainability (Suler et al., 2021). Moreover, to achieve the sustainability of organizational performance, companies can build technology using their database. Meanwhile, the study by Tucker (2021) found that the internet of think became one of the important strategies in the decision-making process of big data-based organizations.

Specifically, SMEs that develop the concept of green innovation in creating company products become easier to achieve green marketing performance. For example, Enzing et al. (2011) explained that innovation affected product success in the market. Other studies also clarified findings that the role of innovation helped organizations achieve product positions over their competitors (Bakar & Ahmad, 2010; Chen, 2008; Salavou & Avlonitis, 2008). As a result, the researchers put forward the third hypothesis.

H3. Green product innovation has a significantly positive effect on green marketing performance.

### **2.4. Green competitive advantage Dan Green marketing performance**

Company resources can influence the adoption and development of sustainable strategies in responding to environmental conditions, including resources within the scope of SMEs (Malesios et al., 2020). SMEs need to invest to be more successful in adhering to the principles and complying with the environment. Successful SMEs in managing their resources more effectively influence environmental behavior. Even the idea of SMEs making decisions that care about environmental conditions is strongly influenced by the attitudes and norms held by the managers or owners of SMEs.

Moreover, competitive advantage can adapt to the business environment and competitive dynamics (Nandakumar et al., 2010). Companies adapted to environmental conditions are easy in operational cost efficiency and creating excellence. Jamsa et al. (2011) claimed that networks are sources of opportunities and resources in SMEs. Companies, therefore, must respond quickly and focus on customers than achieving sustainability (Nwokah & Maclayton, 2006).

Maintaining the superiority of the company's products also impacts its ability to obtain market share (Ledwith & O'Dwyer, 2008). Efforts to maintain product excellence include creating and launching products to indicate the products' authority. The success of new products or services has become a significant concern for organizations. The innovation activities also significantly encourage organizations to fit into market changes, technology, and competition, including creating green products and competition (Simpson, 2004). Another study uncovered that innovation made an essential contribution to companies achieving a competitive advantage and improving the marketing performance of SMEs (Mannan et al., 2016).

Parnell et al. (2015) explained that SMEs had been considered an essential force in innovation in an uncertain environment and impact business sustainability. The clarity of company regulations based on market orientation positively impacted the adoption of external knowledge. Furthermore, green absorptive capacity reinforced the positive effects of market-based regulation on adopting external knowledge. Meanwhile, Lee and Kim (2012) discovered the importance of companies creating green new product development from the company's green strategy in achieving company growth. More emphasis was placed on sustainable innovation and environmental performance. They further explained that sustainability is the primary concern of long-term-oriented businesses. As a result, the researchers came up with the fourth hypothesis.

H4. Green competitive advantage has a significantly positive effect on green marketing performance.

### **2.5. Green innovation Dan Green competitive advantage**

Companies need to build business strengths to gain a competitive advantage through green innovation (Ar, 2012). Furthermore, managing the business environment includes making management plans based on environmental issues and important aspects of adapting to customer desires to achieve performance (Sezen & Çankaya, 2013).

The challenge for SMEs players to achieve a degree of competitive advantage by paying attention to environmental aspects is still an interesting discussion for several researchers (Jamsa et al., 2011; Simpson, 2004; Singh & Garg, 2008). SMEs must also develop their individuality by creating attractive products for customers, thereby increasing their success in the customer market. One of them is through the creation of environmentally friendly products (Karlsson & Olsson, 1998). Green product innovation is critical to boosting SMEs' competitive advantage and product development and performance.

SMEs can also produce products that match market potential by using market resource allocation strategies to enhance product distinctiveness and looking at the potential for product creation for customers (Bradley & Sean, 2001). For example, creating a company's competitive advantage builds green innovation to respond to market demand (Nugroho Soebandrija, 2018). As a result, the researchers formulated the fifth hypothesis.

H5. Green innovation has a significantly positive effect on green competitive advantage.



## **2.6. The moderating role of SME manager's or owner's experience**

Lee et al. (2013) described the critical role of adjustment and performance, transformative leadership, and social support through mechanisms that consider the moderating role of experience. Transformational leadership and social support were found to impact adjustment and performance substantially. The study also looked at the role of experience as a moderator.

Another study discussing environmental sustainability has been interesting to examine the construct of the academic experience of corporate managers (He et al., 2021). According to the result, the academic expertise of senior management positively affected the green innovation of companies. In addition, the influence of senior management was significant in terms of higher education levels. Empirical results of other studies revealed that innovation performance was positively affected by overseas functional experience and industry experience (Yang et al., 2019).

Business competition, capabilities, and an uncertain environment impact the innovation and growth of small-scale companies (Parnell et al., 2015). Therefore, SMEs need to encourage innovation and company growth in a high level of turbulence and dynamics of environmental competition. Therefore, risk-taking, which arises from various levels of technological turbulence, experience, innovation, and growth of minor companies (market share and ROI growth), is an aspect that is the focus of strategy in managing SMEs. As a result, the researchers developed the sixth and seventh hypotheses.

H6. Manager's or owner's experience has a significant moderating effect on the relationship between green product innovation and green marketing performance.

H7. Manager's or owner's experience has a significant moderating effect on the relationship between green competitive advantage and green marketing performance.

## **2.7. The moderating role of the manager's or owner's education**

Increasing the education level of business owners has expanded the company's capabilities (Barringer & Jones, 2004). The education level of business managers has also had a positive relationship with business performance and growth, with the survey findings significantly explaining the percentage of higher education with a higher degree or qualification. Blackburn et al. (2013) claimed that the size and age of the company dominated the performance and were essential to the owner's strategy and entrepreneurial qualities. It was necessary to have a business plan to achieve success. Other findings revealed that younger business owners were more likely than older owners to have received an education, implying that younger owners could manage a business.

Karadag (2017) discovered that small business owners/managers' educational backgrounds exhibited a high and favorable link with financial management performance. However, no substantial disparities across SMEs existed in different industries. Meanwhile, the influence of firm age revealed significant variations between small and medium-sized businesses that were five years old or older and those less than five years old. As a result, the researchers put forward the eighth and ninth hypotheses.

H8. Manager's or owner's education has a significant moderating effect on the relationship between green product innovation and green marketing performance.

H9. Manager's or owner's education has a significant moderating effect on the relationship between green competitive advantage and green marketing performance.

### 3. Methodology

#### 3.1. Data collection technique

This study distributed questionnaires to the respondents directly. The survey questions consisted of 20 items that measured four constructs (Table) in [Figure 1](#).

#### 3.2. Research sample and sampling technique

The process of data collection involved distributing questionnaires to the research samples. The sampling technique was purposive sampling by considering the scope of materials produced by SMEs Batik and their production. Therefore, the sampling was carried out with a purposive sampling approach, or selection based on specific criteria in selecting respondents (Sekaran & Bougie, 2010).

A total of 302 samples were investigated in this study. However, only 223 samples of Batik SMEs in Yogyakarta, Indonesia, were selected and examined. After the screening data, only 223 respondents were completely filled in and could be continued in data analysis. Furthermore, 223 respondents who had been successfully screened were tested for normality, outliers, and multicollinearity, and then the data were continued in testing research hypotheses. The following are the results of testing respondents descriptions, descriptive statistics, validity and reliability, and research hypotheses.

#### 3.3. Measurement of construct

The researchers used a quantitative research approach to test the hypothesis model, conducted a literature review, and identified the validity and reliability constructs of four constructs, including green marketing orientation, green innovation, green competitive advantage, and green marketing performance. The researchers employed a seven-point Likert scale (1 strongly disagree—7 strongly agree) to examine the four constructs.

#### 3.4. Dependent and independent variables

The exogenous construct in this study was green marketing orientation. Therefore, the constructs of green innovation, green competitive advantage, and green marketing performance were endogenous. Green innovation in this study is the use and management of the environment in innovation activities while still caring for protecting the environment (Chen et al., 2006a). Green innovation in this study was measured by 5-question items as in Table .

Green marketing performance refers to a study conducted by Papadas et al. (2019). It explained green marketing performance as a result of marketing activities. Green marketing performance in this study was developed in 5-statement items, as shown in Table . Moreover, a green competitive advantage is a company advantage that is more difficult to imitate and develop than competitors (Chang, 2011). Therefore, the green competitive advantage used 5-question items in Table .

### 4. Moderating variable

#### 4.1. Manager's or owner's experience

The manager's or owner's experience is attached to the management of resources and technology in the management of SMEs, impacting the company's growth (He et al., 2021). Therefore, experiences were measured by the time length of the manager or owner in managing SMEs.

#### 4.2. Educational background

The educational background of the manager or owner was a personal indicator used in this research to look into the effects of characteristics on green marketing performance (Naseem et al., 2020). Therefore, the educational background was measured by the highest level of education attached to the manager or owner, namely elementary, junior high, high school, diploma, undergraduate, and postgraduate.

## 5. Findings

### 5.1. Data screening

This study took a sample of 302 respondents in the distribution process using a questionnaire. However, only 223 respondents were entirely collected in the filling process by SME actors engaged in the scope of Batik producers made of natural ingredients and developed production patterns using environmentally friendly materials with human power. The unit was the owners or managers of Batik SMEs in Yogyakarta, Indonesia. The data collection was carried out by distributing questionnaires to the research samples. The sampling technique used the purposive sampling method by considering the scope of SMEs and natural ingredients in the production process. Then, they were tested as the research hypotheses. The following are respondents' descriptions, descriptive statistics, testing validity, reliability, and research hypotheses.

### 5.2. Respondents' descriptions

Table 1 describes the descriptive statistics on the respondent's profile and the correlation matrix on all research variables and explains the average value, standard deviation, and correlation matrix for each construct to test the model for H1 to H7. Statistical testing in this study did not discover any phenomena of multicollinearity in testing the research model. The following is the demographic profile of the respondents.

### 5.3. Descriptive statistics and correlations matrix tests

The calculation results of each construct on the mean, standard deviation, and correlation matrix are in Table 2. A positive correlation between the constructs of green marketing orientation, green innovation, green competitive advantage, green marketing performance is in Table 2.

### 5.4. Data analysis

Data analysis implemented AMOS 3.0 as a statistical model test. The researchers used structural equation modeling (SEM) to analyze the empirical research model (see, Figure 1). SEM can combine the observed latent variables based on the experimental measurements (H. Lin et al., 2014). Several criteria were calculated to test the suitability of the model, including:

- Root Means Square of Approximation (RMSEA)
- Comparative fit index (CFI)
- Normed fit index (NFI)
- $\chi^2/df$

**Figure 1. The results of the entire model.**

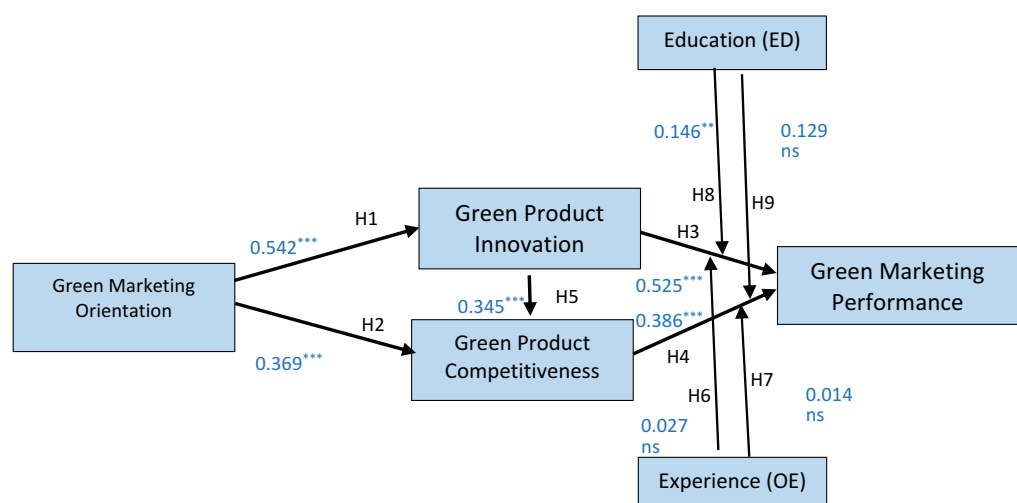


Table 1. Demographic profile of respondents				
		Total	Percentage (%)	
Age	≤ 25 years old	8	4.1	3.1
	26-30 years old	14	7.2	
	31-35 years old	26	13.3	
	36-40 years old	36	18.5	
	41-45 years old	104	53.3	
Education	> 45years old			
	Elementary School	20	10.3	
	Junior High School	40	20.6	
	Senior High School	76	39	
	Diploma	8	4.1	
Family Background	Bachelors Degree	42	21.5	
	Masters Degree	8	4.1	
	Non-Entrepreneur	151	77.4	
Status in the company	Entrepreneur	43	22.1	
	Manager			
	Owner	86	44.1	
Gender	Owner and manager	76	39	
		32	16.4	
		194	99.5	
	Female			
	Male	114	58.5	
		80	41	

**Table 2. Mean, standard deviation, and correlation of the construct**

Construct	Mean	Standard Deviation	1	2	5	6
Green marketing orientation	5.421	.589	1.000			
Green product innovation	5.108	.555	.564**	1.000		
Green competitive advantage	5.269	.530	.562**	.525**		
Green marketing performance	5.088	.628	.585**	.569**	.557**	1.000

\*p < 0.05, \*\*p < 0.01

- Goodness-of-fit index (GFI)
- Adjusted goodness-of-fit index (AGFI)

### 5.5. Validity and reliability

CFA helps to analyze the validity test. Meanwhile, the reliability test looks at internal consistency, convergent validity, and discriminant validity by observing Cronbach's alpha value above 0.70. Items of the instrument must be removed when the loading factor is less than or equal to 0.6, and if the loading factor is more than 0.60, the item will be retained (Saether et al., 2021).

- The results of the green marketing orientation construct validity test showed the loading factor values for items X1 (0.784), X2 (0.745), X3 (0.797), X4 (0.747), and X5 (0.744). Thus, the green marketing orientation construct could measure the measured construct. At the same time, the reliability value of the indicator revealed the result of 0.875, higher than 0.6 for convergent validity. Thus, the green marketing orientation construct was declared reliable.
- The green innovation construct uncovered the loading factor value for items X6 (0.701), X7 (0.777), X8 (0.727), X9 (0.688), and X10 (0.744), where the items were > 0.6. Thus, the green innovation construct could measure the construct. At the same time, the indicator reliability value showed the result of 0.849, more than 0.6 for convergent validity. Thus, the green innovation construct was declared reliable.
- The competitive advantage construct revealed the loading factor value for items X11 (0.832), X12 (0.749), X13 (0.788), X14 (0.742), and X15 (0.706), where these items were > 0.6. The green innovation construct, therefore, could measure the measured construct. Meanwhile, the indicator reliability value showed the result of 0.873, more than 0.6 for convergent validity. Thus, the green competitive advantage construct was declared reliable.
- Testing on the green marketing performance construct displayed the results of the loading factor values for items X16 (0.761), X17 (0.782), X18 (0.784), X19 (0.797), and X20 (0.734), where the items were > 0.6. Hence, the green construct innovation could measure the construct. At the same time, the indicator reliability value exhibited the result of 0.880, more than 0.6 for convergent validity. Thus, the green marketing performance construct was declared reliable (see, Table 3).

### 5.6. Results from structural equation modeling (SEM)

Table 3 shows the structural equation model results describing the hypothesis testing of the empirical research model. The model fit test revealed good results as shown in Figure 1 (CFI = 0.969, AGFI = 0.866, RMSEA = 0.045, and GFI = 0.895). All predicted pathways were supported for all hypotheses (see, Table 3).

Table 3. Model fit test results						
	$\chi^2/df$	GFI	AGFI	NFI	CFI	RMSEA
Structure model Recommended value	1.389 < 3	0.895 > 0.9	0.866 > 0.8	0.898 > 0.9	0.969 > 0.9	0.045 < 0.1



According to Table 3 and Figure 2, this study's estimated paths showed significant results. The results also found that testing on H1 showed that green marketing orientation significantly and positively affected green innovation ( $\beta = 0.542$ ,  $p < 0.05$ ). Thus, H1 was accepted.

Tests on H2 revealed a significant positive effect between green marketing orientation and green competitive advantage ( $\beta = 0.369$ ,  $p < 0.05$ ). Thus, H2 was supported. Testing H3 showed a significant positive effect of green innovation on green marketing performance ( $\beta = 0.525$ ,  $p < 0.05$ ). Thus, H3 was accepted. Tests on H4 indicated that the results of green competitive advantage had a significant positive effect on green marketing performance ( $\beta = 0.386$ ,  $p < 0.05$ ). Thus, H4 was accepted. Finally, testing on H5 uncovered that green innovation had a significant positive effect on green competitive advantage ( $\beta = 0.345$ ,  $p < 0.05$ ). Thus, H5 was accepted.

Testing the moderating role of the influence of green innovation on green marketing performance with owner experience as the moderating variable displayed results ( $\beta = 0.027$ ,  $p = 0.368 > 0.05$ ). Thus, H6 was rejected. At the same time, the moderating role of green competitive advantage on green marketing performance with owner experience as a moderating variable showed results ( $\beta = 0.014$ ,  $p = 0.847 > 0.05$ ). Thus, H7 was rejected.

Then, testing the moderating role of the effect of green innovation on green marketing performance with education as a moderating variable revealed results ( $\beta = 0.146$ ,  $p = 0.042 < 0.05$ ). Thus, H8 was supported. Simultaneously, the moderating role of green competitive advantage on green marketing performance with education as a moderating variable demonstrated results ( $\beta = 0.129$ ,  $p = 0.073 > 0.05$ ). Thus, H9 was rejected.

The following Table 4 shows the results of testing each research hypothesis from H1 to H8.

## 6. Discussion

There is three theoretical and managerial implication for this research. First, no previous study has empirically tested the effect of green marketing orientation on achieving green marketing performance, although several previous research studies have extensively discussed green marketing. Therefore, this study's concept of green marketing orientation was tested on green marketing performance with mediating variables of green innovation and green competitive advantage to answer research gaps. Second, this study showed that green innovation and green competitive advantage significantly and positively affected green marketing performance. Thus, green innovation and green competitive advantage have proven to improve the green marketing performance of Batik SMEs in Yogyakarta, Indonesia. Third, the results indicated that education and work experience did not constantly strengthen the effect of green innovation and green competitive advantage on green marketing performance. Therefore, SMEs must achieve green innovation and green competitive advantage strategies to improve green marketing performance.

The exciting findings in this study proved that not all the tested hypotheses were significant. Still, testing this research hypothesis found that green marketing orientation significantly and positively affected green innovation and green competitive advantage. The results reinforce the findings of previous studies, which stated that market orientation is seen as an essential strategy in achieving performance through the development of innovation (Cao et al., 2017). The results of other studies also strengthen the findings, saying that green marketing orientation is an essential function of marketing in building relationships with customers (AlQershi et al., 2020). Besides, green product innovation is an organizational effort in developing business while maintaining environmental functions and responding to market demands that can affect the company's long-term strategic orientation in creating performance (R. J. Lin et al., 2013).

According to this study, green product innovation has a considerable beneficial effect on green marketing performance. The influence of a green competitive advantage on green marketing

**Table 4. The research hypothesis results**

<b>Description</b>	<b>Hypothesis</b>	<b><math>\beta</math></b>	<b>p-value</b>	<b>supported</b>
Green marketing orientation → Green product innovation	H1	0.542	0.000	H1 is supported
Green marketing orientation → Green competitive advantage	H2	0.369	0.000	H2 is supported
Green product innovation → Green marketing performance	H3	0.525	0.000	H3 is supported
Green competitive advantage → Green marketing performance	H4	0.386	0.000	H4 is supported
Green product innovation → Green competitive advantage	H5	0.345	0.002	H5 is supported
Moderating 1	H6	0.027	0.713	H6 is rejected
Moderating 2	H7	0.014	0.847	H7 is rejected
Moderating 3	H8	0.146	0.042	H8 is supported
Moderating 4	H9	0.129	0.073	H9 is rejected

Notes: \*p 0.05; \*\*p 0.01

performance is good. The results support previous studies stating that green marketing performance depends on green innovation (Sudaryati et al., 2020). This study also supports that innovation processes influence the value creation of products and performance (Lertpachin et al., 2013), technology process (Pozo et al., 2019), and concern with green environmental issues (Meirun et al., 2020). The competitive advantage achieved by the company also requires concern for the business environment (Nandakumar et al., 2010). Jamsa et al. (2011) asserted that networks determine SME sustainability as a source of opportunities and resources. To achieve sustainable performance, companies must respond quickly with green management (Habib et al., 2020).

Tests on moderating variables uncovered that educational background and manager experience could not strengthen green innovation and green competitive advantage on green marketing performance. The finding of this paper contrasts with previous research finding that the experience of company managers is necessary for company development (He et al., 2021). The results of another study are also inversely related to this study showing that innovation performance was positively influenced by the functional experience of managers (Yang et al., 2019). Nevertheless, the study is in line with how experiences impact the innovation and growth of small-scale companies.

## 7. Managerial implication and limitation

This study raised the issue of the environment and sustainability of SMEs as it is still an exciting research topic. This study was pioneered by social marketing theory, where company awareness of producing environmentally friendly products is essential in building sustainability and competitive advantage. Consequently, green innovation and green competitive advantage become critical strategies for companies in reaching their customers. Green innovation is also vital when companies develop new product innovations and production processes. Some researchers believe that green innovation is a long-term breakthrough oriented by the company while keeping competitive advantage and environmental sustainability (Nwabueze & Mileski, 2018; Soewarno et al., 2019). Green innovation is also developed in the company's strategy to improve reputation and access to new customers and broader markets, especially by adopting environmentally friendly technologies and resources (Low & Shang Gao, 2015).

Further, this study has turned into an exciting investigation despite various prior researchers studying the association between green marketing orientation and green marketing performance. The researchers also found a gap between green innovation and green competitive advantage. Green innovation and green co-creation were proposed as mediating variables in this study. This study also created a research framework and empirical research model to understand better their interactions with educational and experience management as moderating variables.

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### correction

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