A Model of Green Business Predicted Green Economy through Inspiration of Public Mind

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Abstract: The research objectives were to validate the causal model of Green Business (GB) Predicted Green Economy Perception (GEP) through Inspiration of Public Mind (IPM) of undergraduate of Rajabhat Mahasarakham University. The findings illustrated that GB and IPM can predict the variation of GEP with 79.00 percent. GB had the most direct effect on GEP with an effect 0.48, subsequence was IPM with an effect 0.45. Moreover, GB had effect on IPM with an effect of 0.40 and be able to predict the variation of IPM with 80.00 percent.

The causal model of GB effect with IPM and GEP was confirmed the proposed model and it was fitted with all observed variables consistent with criteria of Chi-Square/df value with less or equal to 2.038. It was less than or equaled to 5.00 (X^2/df < 5.00). RMSEA (Root Mean Square Error Approximation) equaled to 0.042 (RMSEA < 0.05) and RMR (Root Mean Square Residual) equaled to 0.028 (RMR < 0.05) including index level of model congruent value of Goodness of Fit Index (GFI) equaled to 0.94, and Adjust Goodness of Fit Index (AGFI) equaled to 0.93 which are between 0.90-1.00.

Keywords: Model / Green Business / Inspiration of Public Mind / Green Economy Perception

1. INTRODUCTION

The Green Business (GB) has been recognized as major motivating force to sustainable development over the world. The task to sustain the advance of any business sector development without impairing the atmosphere can be accomplished through the execution of green systems, performs, and strategies. This business operations is concentrated on three pillars of economy, society, and environment as sustainable development concept (Hasan et al., 2019; Rashid et al., 2019; Sarkar et al., 2020; Sarkar et al,. 2021). GB or sustainable business refers the management with every resource to be used wisely together with environmental conservation that bring benefits to the business with good image for society and community with the advantage towards business as well (UNEP, 2020; Wikipedia, 2017). The operations of company or organizations should not create any negative impacts to environment of community or locality. GB has paid attention to 3 important business results towards people with well-being, planet with environmental conservation and profit for the economic return that will be generated from doing business (Sawangsawai, 2015; Limsuwan et al., 2021). GB is an exogenous latent independent variable projected to measure the observed variables of green design, green purchasing, green production, green marketing and green logistics. As Belz and Peattie (2012) and Wikipedia (2017) say that generally, the green design is known as the green architecture a tactic to the building with the decreasing destructive consequences on the human health and environmental principles to preserve air, water, and earth qualities by choosing eco-friendly building materials and structure. In addition, the green design includes the products design in the industry feature by the method of business administration, and other business design.

The Green Economy (GE) is paid attention more and more across the world while global monetary crisis in B.E.2008 and it dramatically increase the climate change due to the growth of human economic activity that the vast fossil fuel still be exploited in industrial expansion. This makes green economic is recognized as the best choice for business and industry implementation to accomplish sustainable development in United Nations Conference on Sustainable Development (UNCSD) in B.E. 2012 (Atkisson, 2012; BElz and Peattie, 2012). Thus, GE was raised as an important issue disputation on the negotiating platform among various intergovernmental. Moreover, the public and private investment drive in the growth in employment and income into economic activities of infrastructure and assets with GE concept. The companies and organizations execution with GE should totally express and integrate their environmental awareness, pro-environmental behavior with public mind and social cooperate responsibility in their business as well (Sutthiphapa et al., 2015; Thiengkamol, 2016; Jitrumluek et al, 2019; Tungchuvong et al., 2020; Limsuwan, 2021) These reduced carbon emissions and pollution, enhanced energy and resource efficiency with clean energy, and prevention of the loss of biodiversity and ecosystem service. The GE is prepared to support sustainable consumption and production.

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An inclusive green economy is low-carbon, resource-conservation, various and circular. To explain the factors proved in this study, the main goal of GE as Al Tayer (2018) tempts that changing towards a greener economy affords greater occasions for public and private investments to pay attention for environmental sustainability and economic progress. Nevertheless, the GE was emphasized to operate the economic activity to meet the sustainable development goals (SDGs) as Thiengkamol (2011e) and UNDP (2017) declare that it is formally known as "Converting Our World: the 2030 Agenda for the sustainable development" with a group of the seventeen aspiration "Global Goals". However, the Sustainable Development Goals (SDGs) provide a powerful aspiration for improving our world by escalating the millennium development goals (MDGs). The SDGs includes 17 goals of no poverty, zero hunger, good health and well-being, quality education, gender equality, clean water and sanitation, affordable and clean energy, decent work and economic growth, industry innovation and infrastructure, reduced inequality, sustainable cities and communities, responsible consumption and production, climate action, undersea life, life on land, peace, justice and strong institutions and partnership for the goals (UNDP, 2017; Limsuwan et al., 2021). Therefore, Green Economic Perception (GEP) relates to abilities of the administrators of organizations a way of regarding, understanding, or interpreting with mental impressions on GE representation in their business activities process to realize the SDGs with public concerns (UNDP, 2017; Jitrumluek et al, 2019; Tungchuvong et al., 2020; Limsuwan et al., 2021).

Inspiration of Public Mind (IPM) verified by Thiengkamol and her colleagues research works by covering numerous topics of research including, education, environment and natural resources, life cycle assessment, biodiversity conservation, environmental health, and disease control that associated to pro-environmentally friendly behavior (Saisunantharom et al., 2013a; Klangburum et al., 2015; Maporn et al., 2015; Sutthiphapa et al., 2015; Thiengkamol, 2016; Jitrumluek et al, 2019; Tungchuvong et al., 2020). IPM consists of vital factors of person performs as a role model, an impressive environment, an impressive event and inspiration from media receiving. Per se, she and her colleagues observed an authoritative approach to create the inspiration of public mind or a public consciousness of environmental conservation. It is apparently seen that general people do not apprehend environmental problems in daily living because of their facing with other important needs to consume for daily living (Thiengkamol, 2012e; Sutthiphapa et al., 2015; Maporn et al., 2015; Thiengkamol, 2016). Hence, they will not pay attention to the environmental disaster until it comes to their surroundings and affects their good living. Though, if people face to any vigorous pollution, such as air pollution or water pollution and so on, they will be enforced to pay attention for those environmental problems (Deerada et al,.2014; Bootrach et al, 2015a; Borvornsakulcharoen et al., 2015; Mukpradub et al., 2016). In this framework, the inspiration is completely different from motivation because they do not require any rewards and admiration to support anyone to act and perform the environmental conservation with public mind. The inspiration for such an act may have been acquired from a leading role model, an impressive environment, an impressive event and / or inspiration from perceiving different the media (Thiengkamol, 2011e; Thiengkamol, 2016; Rashid et al, 2019; Tungchuvong et al., 2020; Limsuwan et al., 2021).

IPM directs the moods, attitudes, inspiration, beliefs and voluntarily public mind to practice under the GEP. Similarly, QuickBooks Canada Team (2019) describes the GB that it covers sustainable functioning procedures, products and material obtaining, labor performs and shipping approaches, whereas the goal green business is to eradicate any undesirable impact on the atmosphere, on together of local and global scales. The principal fact of three former specified factors primarily emphases on sustainable development in humans' life quality, protecting environment at all community levels, and executing the entrepreneur policy to implement for human well-beings.

Therefore, the variables of GB, IPM and GEP are conferred as the latent variables that are formed the green economy perception model by considering the relationships among the exogenous latent variable of Green Business (GB) as causal variable, the exogenous latent variable that affects through inspiration of public mind for environmental conservation (IPM) as mediated variable towards the endogenous latent variable of the Green Economy Perception (GEP) as the resulted variable. To understand the holistic relationship within the green economy perception model. This research results will illustrate the strong clarification.

2. RESEARCH OBJECTIVE

This study is causal model construction to confirm variables s affecting the Green Economy Perception (GEP) model with aims to 1) examine the relationships of the factors among the Green Business (GB), inspiration of the public mind for environmental conservation (IPM) and green economy (GE), and 2) confirm the structural relationship model of the Green Economy Perception (GEP).

3. CONCEPTUAL FRAMEWORK

This part demonstrations to evidently understand the studied variables covering the exogenous variable or independent variable of GB that confirmed by 5 observed variables of X1-green design, X2-green purchasing, X3-green production, X4-green marketing and X5-green logistics. The endogenous variables or dependent variables or resulted variable of GEP are confirmed by 6 observed variables of Y1-green policy, Y2-green action plan, Y3-green projects/activities, Y4-green implementation, Y5-green monitoring and Y6-green evaluation. Finally, IPM as mediating variable that is confirmed by Y7-self-inspiration of public mind, Y8-person as role model, Y9-impressibe events, Y10-impressive environment, and Y11-media receiving.

4. HYPOTHESES

The anticipated findings can be categorically hypothesized that: 1) GB should positively affect to IPM, 2) GB should positively affect to GEP, 3) GB should indirectly positive affect through mediated variable IPM towards GEP, and 4) IPM should positively affect to GEP.

5. METHODOLOGY

The research method was conducted step by step as the followings:

5.1. Population and Sample

Population the populations were 10,757 undergraduates in first semester of academic year of 2021 of Rajabhat Mahasarakham University in the Northeastern of Thailand.

Sample was 400 undergraduates of Rajabhat Mahasarakham University in second semester of academic year of 2021 that gathered with the Multi-Stage sampling technique (Schonlau, Fricker & Elliott, 2002).

5.2. Research Tool

The research tool was the 5-rating scaled questionnaires as Likert's scale covering the content of GB with 5 observed variables contain 35 questions, GEP in 6 observed variables contain 42 questions and IPM with 5 variables contain 35 questions as the previous description in the conceptual framework (3.). Before the collecting the data, the questionnaire quality was conducted with 2 steps and the measurement results shown as follows:

Each latent variable was constructed and proved by using the confirmatory factor analysis (CFA) to identify the congruent issues of each item. Additionally, the number of items used to measure the observed variable requires at least three items for each variable. Another criterion for each latent variable required at least three observed variables. Thus, the number of items was used to qualify each observed variable and latent variables constructs are presented in Table **1**.

Table 1. Number of Items and Latent Variable Construct.

Constructs	Variables	Number of Items
Green Business (GB)	X1-green design	35
	X2-green purchasing	
	X3-green production	
	X4-green marketing	
	X5-green logistics	
Green Economy Perception (GEP)	Y1-green policy	42
	Y2-green action plan	
	Y3-green projects/activities	
	Y4-green implementation	
	Y5-green monitoring	
	Y6-green evaluation	
Inspiration of the Public Mind for environmental conservation (IPM)	Y7-self-inspiration of public mind	35
	Y8-person as role model	
	Y9-impressibe events	
	Y10-impressive environment	
	Y11-media receiving	

1. For the content and structural validity values, they were determined by Item

Index Objective of Congruence (IOC) checked by 5 experts in the aspects of GB, GEP and IPM. the values of every item have the value starting from 0.50 to 1.00 as appropriate values.

2. For the reliability values, the questionnaires in 3 main variables were

Evaluated for the reliability values by the try-out with sample group of 50 undergraduate students from the nearby university, Mahasarakham University. The reliability values were determined by Cronbach's Alpha value. The reliability of each main variables of the questionnaires was illustrated that GB, IPM, GEP were 0.95, 092, and 094 respectively. The reliability values were appropriately proved for collecting the data with the research samples.

5.3. Data Collection

The research tool was the questionnaire and it was used for data gathering. The survey research is used questionnaire to collect 400 undergraduates with the Multi-Stage sampling (Schonlau, Fricker & Elliott, 2002) from 10,757 undergraduates in first semester of academic year of 2021 of Rajabhat Mahasarakham University of Northeastern region of Thailand.

5.4. Data Analysis

The descriptive statistics were frequency, percentage, mean and standard deviation. Structural Equation Model (SEM) was used for model confirmation with LISREL version 8.30 by considering on Chi- Square value had no statistically significant at level of 0.01 or Chi-Square/df value with less or equal to 5, RMSEA (Root Mean Square Error Approximation) and RMR (Root Mean Square Residual) values with less than 0.05 including index level of model congruent value, GFI (Goodness of Fit Index) and index level of model congruent value, AGFI (Adjust Goodness of Fit Index) between 0.9-1.00 (Rovinelli & Hambleton, 1977).

6. RESULTS

6.1. General Characteristics of Sample Group

The sample group was 400 undergraduate students that were selected by Multi-stage random sampling technique. The sample group was collected from different faculties of 10,757 undergraduates of Rajabhat Mahasarakham University in first semester of academic year of 2021. Northeastern region of Thailand. Majority of sample group was female 230 (57.50%), most of them paid respect for Buddhist with 390 (97.50%), and had resident Inside Municipality 250 (62.50%). Majority had nuclear family with 250 (62.50%). They traveled by Motor-bicycle 296 (74.00%), and had age with mean 19.60 years. Moreover, majority had income per month with mean 6,425.20, baht as illustrated in Table **2**.

Table 2. General Characteristics of Sample Group

Gender	Number	Percent
1. Male	170	42.50
2. Female	230	57.50
Total	400	100.00
Religion	Number	Percent
1. Buddhist	390	97.50
2. Christian	5	1.25
3. Islamic	5	1.25
Total	400	100.00
Resident	Number	Percent
1. Inside Municipality	250	62.50
2. Outside Municipality	150	37.50
Total	400	100.00
Characteristic Family	Number	Percent
1. Nuclear Family	250	62.50
2. Extended Family	150	37.50
Total	400	100.00
Travel by	Number	Percent
1. Motor-bicycle	296	74.00
2. Bicycle	40	10.00
3. Car	10	2.5
4. Public Transport	10	2.5
5. Walk	44	11.00
Total	400	100.00
Age (years) Minimum =17, Maximum=25, Mean=19.60, S.D.=1.180		
Income (baht) Minimum =1,050 Maximum=19,500, Mean=6,425.20,	S.D.=2,030.70	

6.2. For the Calculation

It was through the structural equation modeling (SEM) approach to verify the measurement model with the LISREL program version 8.30. The confirmatory factor analysis was conducted to identify the measure of observed variables for each construct. To test the hypotheses and a structural model were developed. The model was verified by indexes of Chi-Square/df value with 2.021 (lesser or equal to 5), RMSEA (Root Mean Square Error Approximation) with 0.042, and RMR (Root Mean Square Residual) with 0.028 (lesser than 0.05) including index level of model congruent value, GFI (Goodness of Fit Index) with 0.94, AGFI (Adjust Goodness of Fit Index) with 0.93 (between 0.90-1.00) and critical number with 259.68 (more than 200). All these indexes identifying the model were fitted to the empirical data.

6.3. Results of Effect among Variables in Model

The Green business (GB) and Inspiration of Public Mind (IPM) had effects on the Green Economy Perception (GEP) as the followings.

6.3.1. Confirmatory factors of the GB directly affected on IPM with a statistically significant level of 0.01 with an effect 0.40. This accepted the hypothesis No.1 stating that the Green Business (GB) was positively associated to the Inspiration of Public Mind for Environmental Conservation (IPM). GB directly affected on the GEP with a statistically significant level of 0.01 with an effect 0.48. This accepted the hypothesis No.2 stating that the Green Business (GB) was positively associated to the Green Economy Perception (GEP). GB indirectly affected on the GEP with a statistically significant level of 0.05 with effect of 0.18. This accepted the hypothesis No.3 stating that GB was indirectly positive associated through mediated variable IPM towards GEP.

6.3.2. Confirmatory factors of the IPM directly affected on the GEP with a statistically significant level of 0.01 with effect of 0.45. This accepted the hypothesis No.4 stating that the IPM was positively associated to GEP.

Considering on structural model confirmatory factors of component analysis of the GEP and the IPM had effects on the GEP with variation of 79.00 %. The structural equation can be written as showed in following equation (1).

Equation 1

$$GEP = 0.48*GB+0.45*IPM \; R^2 = 0.79 \quad (1)$$

Equation (1) factors that had the most effect to the GEP was GB with 0.48, subsequence was IPM with an effect 0.45, it was able to explain the variation of the GEP with 79.00 percent.

Considering on confirmatory factor the IPM of undergraduates, it demonstrated that the GB had an effect on the IPM with 0.40. It is able to explicate the variation of the IPM with 80.00%. The structural equation can be written as the following.

Equation 2

$$IPM = 0.40*GB \; R^2 = 0.80 \quad (2)$$

Equation (2) factors that had the most effect to the IPM was GB and it is able to explain the variation of IPM with 80.00 percent.

6.4. Model of Green Economy Perception

The result analysis of the structural relationship equation model and relationship among GB, IPM, and GEP were developed and could be verified with the indexes as mentioned above and the developed mode was fitted to the empirical data. The model of GEP is showed the details in Figure 1. and Table **2**.

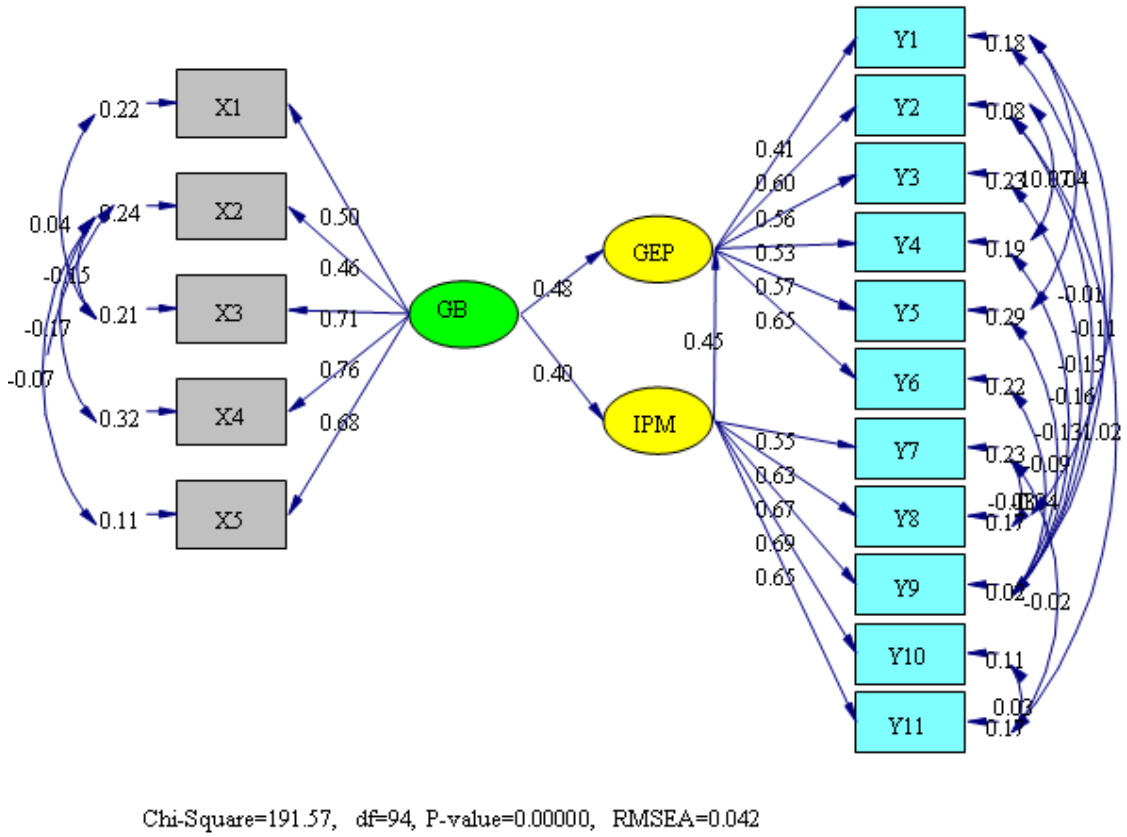

Fig. (1). Model of Green Economy Perception.

Table 3. Results of Direct and Indirect Effect of GB Affecting GEP through IPM.

Causal Variable	Result Variables					
	IPM			GEP		
	TE	IE	DE	TE	IE	DE
GB	0.40** (0.011)	-	0.40** (0.011)	0.66** (0.004)	0.18* (0.005)	0.48** (0.005)
IPM	-	-	-	0.45** (0.012)	-	0.45** (0.012)
χ^2 = 191.57; df = 94		CN = 259.68		χ^2/df = 2.021		
GFI = 0.94 AGFI = 0.93		RMSEA = 0.042		RMR = 0.028		

TE : Total Effect, IE : Indirect Effect, DE: Direct Effect

To interpret the statistical symbols, the guideline explanations are as follows:

p represents Probability value df represents Degree of freedom value

GFI represents Goodness of fit index value

AGFI represents Value of adjust goodness of fit index

p represents statistically significant level

RMSEA represents Value of root Mean square error of approximation

RMR represents Value of root mean square residual

CN represents Critical number value

DE represents Direct effect value

IE represents Indirect effect value

TE represents Total effect value

Latent Variables

GB represents Green Business

IPM represents Inspiration of the public mind for environmental Conservation

GEP represents Green Business Perception

From Fig. (**1**) and Table **3**. These indicated the variables of the structural relationship equation model of the confirmatory factor of the GB is causal variable to affect through IPM towards GEP. Thus, the Model of GEP is fitted and confirmed by Chi-Square/df value with less or equal to 2.038 and it was less than or equaled to 5.00 ($\chi^2/df \leq 5.00$). The result could accept that the hypothesis model was correlated to the empirical data. Furthermore, the statistic values used to support were the Goodness of Fit Index (GFI) and Adjust Goodness of Fit Index (AGFI) with the values of 0.94 and 0.93 with the accepted level that GFI> 0.90 and AGFI > 0.90 respectively. Moreover, Critical N (CN) was 259.68, more than 200.

7. DISCUSSION

The analysis results illustrated that the confirmatory factors of the Green Business (GB) had the direct effect to the Inspi-

ration of Public Mind for Environmental Conservation (IPM) and Green Economy Perception (GEP) with the statistically significant at the level of 0.01 with 0.40 and 0.48. The Green Business (GB) had the indirect effect to the Green Economy Perception (GEP) at the statistically significant level of 0.05 with the effect of 0.18 and the total effect to the green economy (GE) at the statistically significant level of 0.01 with 0.66.

As studies of Sutthiphapa et al. (2015) and Jitrumluek et al. (2019), illustrated that the pro-environmental behavior of undergrads and entrepreneurs who had inspiration of public mind for environmental conservation would realize to express their environmentally friendly behavior with awareness and responsibility by realizing on their conception behavior in all aspects such as consumption behavior, energy conservation behavior and waste management behavior. As the research of Limsuwan et al. (2021), it implied that the exogenous latent variable of the Green Business (GB) was able to be measured by the observed variables of X1- green design, X2-green purchasing, X3-green production, X4-marketing, and X5-green logistic, suggesting these factors could impact on the undergrads green economy perception emphasized on every factors, especially, the green purchasing and green marketing empowering to support prosper perception in green economy concept. Additionally inspiration of public mind for environmental conservation of undergraduate could support and encourage them for better green economy perception and perform their pro-environmental behavior with the better consumption behavior by selecting buying green products in their everyday living.

Each variable details showed that the exogenous variable of GB was measured by 5 observed variables of X1- green design, X2-green purchasing, X3-green production, X4-marketing, and X5-green logistic with the loading weight of 0.50, 0.46, 0.71, and 0.76 respectively, but the highest the loading weight was green logistic with 0.76. Consequently, it is obviously seen that GB is a critical factor to make undergraduate to alter their green economy perception. GEP is confirmed by Y1-green policy, Y2-green action plan, Y3-green projects/activities, Y4-green implementation, Y5-green monitoring and Y6-green evaluation with loading weight of 0.41, 0.60, 0.56, 0.53, 0.59, and 0.65 respectively. It is indicated that GB is an essential exogenous variable to incorporate for increasing green economy perception of undergraduates to understand the reach a better perception to act as a good role model to express their green business knowledge for their close friends and family members, and others university friends and their society. This is pertinent to Thiengkamol and her colleagues' researches (Thiengkamol, 2012e; Deerada et al,.2014; Bootrach et al, 2015a; Borvornsakulcharoen et al., 2015; Mukpradub et al., 2016; Jitrumluek et al, 2019; Tungchuvong et al., 2020; Limsuwan et al., 2021).

Additionally, the Public Mind Inspiration (IPM) had direct effect on the GEP with effect of 0.45. IPM was confirmed by 5 observed variables of Y7-self-inspiration of public mind, Y8-person as role model, Y9-impressibe events, Y10-impressive environment, and Y11-media receiving. These are consistent with different researches of Thiengkamol and her colleagues (Saisunantharom et al., 2013a; Deerada et al., 2014; Sutthiphapa et al. 2015; Mukpradub et al., 2016; Jitrumluek et al, 2019; Tungchuvong et al., 2020; Limsuwan et al., 2021).

This indicated that IPM is directly affecting and mediating student green economy perception in terms of green policy, green action plan, green projects/activities, green implementation, green monitoring and green evaluation. Moreover, the research results showed that university administrators and academic team can use GB integrated in teaching-leaning process and use it to encourage and inspire the undergraduate to pay devotion and play a role as a good role model via environmental knowledge and understanding of GB to transfer with the public mind concept to achieve the real sustainable development and good quality of life.

Nevertheless, to accomplish green business related to the green economy perception, every variable studied could be adopted to actually implement by the state policies to support for nation citizens to perform environmentally friendly behavior for their selecting green consumption. It can be successful if the government provides the nation goals to effectively develop the green economy, the variables connected like the green business and the inspiration of public mind for environmental conservation should be integrated into the state strategies or policies for the real development. The results application could be suddenly raised to be associated to the study results of the relationship of the variables of green business as Al Tayer (2018) reported the effects concerned with the green economy and its advantages for the appreciable policy implementation for the environmental conservation to achieve sustainable development.

8. CONCLUSION

From the research findings, the conclusion presents as follows:

1. The confirmatory factors of the Green Business (GB) was positively associated to the Inspiration of the Public Mind for Environmental Conservation (IPM) and the Green Economy Perception (GEP) at the statistically significant level of 0.01. Finally, the Green Business (GB) was appeared positively associated to the Green Economy Perception (GEP) with the indirect effect at the statistically significant level of 0.05.

2. The confirmatory factors of the Green Business (GB) was positively associated to the Green Economy Perception (GEP) and the Inspiration of the Public Mind for Environmental Conservation (IPM) with the direct effect at the statistically significant level of 0.01, enabling to explain the variation of endogenous variable of the Inspiration of the Public Mind for Environmental Conservation (IPM); in turn, it could explain the variation of the Green Economy Perception (GEP) at the predictive level of 79.00%, and the variation of endogenous factor of the Inspiration of the Public Mind for Environmental Conservation (IPM) at the prediction level of 80.00%.

3. It can be applied the finding to the economic sector to meet the green economy by introducing the factors of Green Business (GB) Public Mind for Environmental Conservation (IPM) and the Green Economy Perception (GEP) into polic-

es and plans of the business organizations to implement in business system.

4. However, the predicting variables of green design, green purchasing, green production, green marketing and green logistics for green business and the predicting variables of self-inspiration of public mind, person as role model, impressibe events,-impressive environment and media receiving for the Public Mind for Environmental Conservation (IPM) should be included in the policies and plans in order to meet the green economy perception.

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