Model of ecolabel in environmental conservation

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Abstract. The aim of this study is to propose ecolabel model in Jakarta. This survey study distributed the questionnaires to 757 consumers in Jakarta in Indonesia using Structural Equation Modeling (SEM). The research found that model suggested was good fit for the data. The result of study shows that environmentally informative instrument, environmentally friendly label, and environmental protection were positively associated with ecotourism. Providing accessible message to consumer about the environmental attributes of the product, giving the consumer knowledge about the production standards of the product, and transmitting green product messages have positive correlation with environmentally informative instrument. Indicating the products coming from environmentally friendly substances, communicating a sense of environmental consideration on the part of the manufacturer to consumer, and arousing consumer interest to purchase environmentally friendly products are positively related to environmentally friendly label. Assisting to diminish the volume and toxicity of pollutants, encouraging consumer awareness development about product impact on the environment, and driving ecologically conscious consumer behavior are predictors of environmental protection. The conclusion of this study is that ecolabel model suggested can be used in Jakarta in order to have environmental conservation.

1. Introduction

Based on the government legislation No. 46 in 2016 about procedures for operation of strategic environmental studies, sustainable development is a conscious effort planned to integrate environmental, social, and economic aspects into development strategies to ensure integrity of the environment, safety, ability, welfare, and quality of current and future generation lives [1]. One’s environmental education is indicated by his satisfying natural curiosity, environmental awareness, and strengthening pro-conservation values [2]. Another study shows that there is positive association between ecolabel and consumer concern about environment indicating that consumer motivation of willingness to pay eco-
labeled goods is environmental consideration [3]. There is positive association between one’s environmental education and natural basis, conservation, sustainability, benefits to local, and awareness [4-6]. Ecolabel is voluntary instrument indicating ecofriendly products [7]. Ecolabel assists to develop consumer awareness of the product impact on the environment. Ecolabel determines the consumer decision making process due to consumers presented with the knowledge of products being environmentally friendly. Consumer awareness, consumer knowledge, environmental quality credibility, information clarity, persuasiveness and personal benefits predict consumer understanding and ecolabel perception [8]. Consumer green purchase behavior is determined by consumer’s environmental concern [9]. Environment built with products labeled ‘environmentally friendly’ tends to change consumer behavior [10]. Ecolabel knowledge influences consumer attitudes toward environment in driving ecologically conscious consumer behavior [11]. Ecolabels are made to encourage consumer acts of purchasing environmentally friendly products and broadcasting green product messages [12]. However, most studies don’t give a more detail explanation about indicator measurement of ecolabel.

Ecolabel may be predicted by environmentally Informative instrument, environmentally friendly label, and environmental protection [5]. However, this research doesn’t give detail indicator measurement of environmentally informative instrument, environmentally friendly label, and environmental protection.

Environmentally informative instrument, environmentally friendly label, and environmental protection estimate ecolabel [5]. The summary of relationships hypothesized is represented in a model seen in figure 1.

![Figure 1. Theoretical framework of the study.](image)

2. Methods
This research conducted the survey method to 757 consumers in Jakarta in Indonesia. Data collected in this research were associated with ecolabel. Analysis of content was done to literature of ecolabel consisting of preparation of environmentally Informative instrument, environmentally friendly label, and environmental protection [4]. These dimensions were derived into the questionnaire given to 757 consumers in Jakarta in Indonesia.

The three aspects of environmentally Informative instrument involve providing accessible message to consumer about the environmental attributes of the product, giving the consumer knowledge about the production standards of the product, and transmitting green product messages. The three dimensions predict environmentally friendly label are indicating the products coming from environmentally friendly substances, communicating a sense of environmental consideration on the part of the manufacturer to
consumer, and Arousing consumer interest to purchase environmentally friendly products. The indicators of environmental protection consist of assisting to diminish the volume and toxicity of pollutants, encouraging consumer awareness development about product impact on the environment, and driving ecologically conscious consumer behavior.

In this study, Analysis of data used Structural Equation Modeling (SEM) with IBM SPSS Statistics 24 and SPSS AMOS 24 with 2017 Edition. SEM was used to predict the association of environmentally informative instrument, environmentally friendly label, and environmental protection with ecolabel. Data were collected from 757 consumers in Jakarta in Indonesia inputted in excel using responses with “strongly agree” scored 5, “agree” scored 4, “neutral” scored 3, “disagree” scored 2, “strongly disagree” scored 1 for positive questions, and “strongly agree” scored 1, “agree” scored 2, “neutral” scored 3, “disagree” scored 4, “strongly disagree” scored 5 for negative questions.

3. Results and discussion

The result of goodness of fit statistical analysis indicated that Normed Fit Index (NFI) value attained 0.942 showing that the model suggested in this research is good fit. The value of Comparative Fit Index (CFI) reached 0.957 showing that the model offered is good fit. Incremental Fit Index (IFI) value reached 0.958 stating that the model is good fit. Relative Fit Index (RFI) value attained 0.892 showing that the model is good fit. Based on SEM measurement result, the model proposed in this research is a fit model. On the basis of measurement model test of observed variables seen in table 1 and table 2, it can be estimated that environmentally informative instrument, environmentally friendly label, and environmental protection have positive relation with ecolabel of 0.802, 0.906, and 0.880, respectively. These values were significant at the 0.05 levels of t statistics. These findings were similar to the research pointing out that environmentally informative instrument, environmentally friendly label, and environmental protection affect ecolabel helping to foster and develop consumer awareness of environmental conservation [5].

In table 1 and table 2, it can be seen that providing accessible message to consumer about the environmental attributes of the product, giving the consumer knowledge about the production standards of the product, and transmitting green product messages have significant positive association with of environmentally informative instrument of 0.258, 0.681, and 0.777, respectively. This result was in line with the study found that ecolabels was influenced by broadcasting green product messages to motivate consumer acts to purchase environmentally friendly products [10].

| Table 1. Measurement model test (Regression weights: Group number 1 – Default model). |
|-------------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Estimate | Standard Error | Critical Ratio | Probability | Label |
| EI | <--- | ECLB | 0.988 | 0.084 | 11.703 | *** |
| EF | <--- | ECLB | 0.415 | 0.067 | 6.203 | *** |
| EP | <--- | ECLB | 1.000 | | | |
| EI3 | <--- | EI | 1.000 | | | |
| EI2 | <--- | EI | 1.008 | 0.072 | 13.994 | *** |
| EI1 | <--- | EI | 0.345 | 0.056 | 6.121 | *** |
| EF3 | <--- | EF | 1.000 | | | |
| EF2 | <--- | EF | 2.462 | 0.371 | 6.640 | *** |
| EF1 | <--- | EF | 2.298 | 0.352 | 6.521 | *** |
| EP3 | <--- | EP | 1.000 | | | |
| EP2 | <--- | EP | 1.010 | 0.067 | 14.997 | *** |
| EP1 | <--- | EP | 0.756 | 0.062 | 12.115 | *** |
Table 2. Measurement model test (Standardized regression weights: Group number 1–Default model).

| Estimate | ECLB | EI | EF | EP | EI3 | EI2 | EI1 | EF3 | EF2 | EF1 | EP3 | EP2 | EP1 |
|----------|-----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0.802    |     |    |    |    | 0.777 | 0.681 | 0.258 | 0.286 | 0.715 | 0.617 | 0.690 | 0.728 | 0.536 |

Notes:
- ECLB = ecolabel
- EI = environmentally informative instrument
- EF = environmentally friendly label
- EP = environmental protection
- EI1 = providing accessible message to consumer about the environmental attributes of the product
- EI2 = giving the consumer knowledge about the production standards of the product
- EI3 = transmitting green product messages
- EF1 = indicating the products coming from environmentally friendly substances
- EF2 = communicating a sense of environmental consideration on the part of the manufacturer to consumer
- EF3 = arousing consumer interest to purchase environmentally friendly products
- EP1 = assisting to diminish the volume and toxicity of pollutants
- EP2 = encouraging consumer awareness development about product impact on the environment
- EP3 = driving ecologically conscious consumer behavior

Table 1 and table 2 pointed out that the products coming from environmentally friendly substances, communicating a sense of environmental consideration on the part of the manufacturer to consumer, and arousing consumer interest to purchase environmentally friendly products have significant positive connection with environmentally friendly label of 0.617, 0.715, and 0.286, respectively. These results were the same as the study stated that ecolabels are produced in order to give support to the consumer to buy environmentally friendly products [10].

In table 1 and table 2, it can be shown that assisting to diminish the volume and toxicity of pollutants, encouraging consumer awareness development about product impact on the environment, and driving ecologically conscious consumer behavior have significant positive association with environmental protection of 0.617, 0.715, and 0.286. These findings were similar to the study found that credibility of environmental quality is positively connected with consumer understanding and ecolabel perception [6].

The structural model is shown in figure 2.
4. Conclusion

Model of ecolabel proposed in this research is a fit model. Environmentally Informative instrument, environmentally friendly label, and environmental protection are positively associated with ecolabel. It can be concluded that the model of ecolabel proposed can be used by environmental management to manage consumer in order to conserve the environment.

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