

Мікро- та малі підприємства (ММП) вважаються важливим сектором, що грає важливу роль в економіці країни. В Індонезії налічується 62,9 мільйона ММП, які складаються з 62,1 мільйона мікропідприємств і 757,090 малих підприємств. Всі ці ММП приносять 57,94 % валового внутрішнього продукту Індонезії або 4,303 трлн індонезійських рупій і охоплюють до 110,8 млн робітників. Маланг – це місто в Індонезії, яке має безліч ММП, зайнятих в сфері продовольства, одягу і різних галузей промисловості, які виробляють ремісничі вироби в якості сувенірів. Потенціал ремісничого виробництва в цьому місті багатообіцяючий. Оскільки місцеві жителі самі продають різні види ремісничих виробів, це фактично полегшує туристам пошук виробів ручної роботи в якості сувенірів, типових для Маланг. Типовий в цьому сенсі означає, що ремісничі вироби, вироблені ММП, засновані на історичному і культурному аспекті міста. Існуючі проблеми полягають в тому, що не існує найкращої моделі, яка могла б використовуватися ММП для створення ремісничих виробів, характерних для Маланг. Метою даного дослідження є порівняння декількох варіантів структурної моделі з метою отримання найкращої моделі. Це було зроблено за допомогою методу часткових найменших квадратів (ПНК), в якому були визначені споживчі потреби. Дане дослідження пропонує найкращу структурну модель серед альтернатив, розроблених для ММП для створення ремісничих виробів на основі історичних цінностей, місцевої культури і споживчих потреб. Дизайни в якості удосконалення – це вироби з написом «Маланг»; зображенням «Пам'ятника міста», «Голови лева» і «Лотоса» як символу міста; ремісничий виріб повинен бути гарним візуально; він повинен мати яскраві кольори, унікальні і динамічне представлення, функціональний аспект і бути зручним в транспортуванні

Ключові слова: ремесло, удосконалення, Маланг, ММП, ПНК, дизайн виробу, структурна модель

1. Introduction

The potential that Malang City owns in the tourism side attracts tourists to enjoy the beautiful nature, cool climate and various tourism sites that can be found in the region. Besides, this city also has a lot of micro and small enterprises (MSEs) in the field of food, clothing and various home industries producing handicrafts as souvenirs.

The potential of handicraft products in Malang City is also big. Since the locals marketize the handicraft products themselves, it eases the tourists to find souvenirs which are typical of the city. Typical here refers to the production of the handicraft products which must be done by the MSEs based on historical aspect and local culture of the city.

The potential of the handicraft products market in Malang City is very promising. It cannot be separated from the fact that the tourism sites in the city are spread as seen in Fig. 1. The number of tourist visits is also increasing which then supports the industry life-cycle within the society associated with businesses in the tourism industry, such as tou of Malang.

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THE MODEL SELECTION FOR MICRO AND SMALL ENTERPRISES (MSES) FOR HANDICRAFT PRODUCT DESIGN INNOVATION IN MALANG

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To date, the potential of handicraft products in Malang City is still well-preserved due to the positive interaction between people in the MSEs doing the handicraft product business, the government of Malang city, consumers and community in general where they shortly have the same mission which is to develop the city. The potential is also supported by the policy from the government stating that Malang needs an art market as a place to sell souvenirs considerably typical of Malang, ranging from food, beverages, and souvenirs having the icon of the Arema world [2].

The marketization of various kinds of handicraft products by the locals is a proof of sustainable tourism in the city since it eases the tourists whenever they want to buy those products as souvenirs after finishing their visit. The handicraft products that are now in the market are made of materials such as wood, paper, cloth, ceramic, pottery, glass, metal and waste recycling of some products.

The handicraft product design innovation is very important, because it becomes the answer to the tourist preferences about a region's unique handicraft products. The problem is that the design of handicraft products in Malang City has

not been based on historical aspects and cultural values of this city. This research becomes important to obtain a model that can be used as a reference for MSEs to produce types of handicraft products according to tourist preferences.

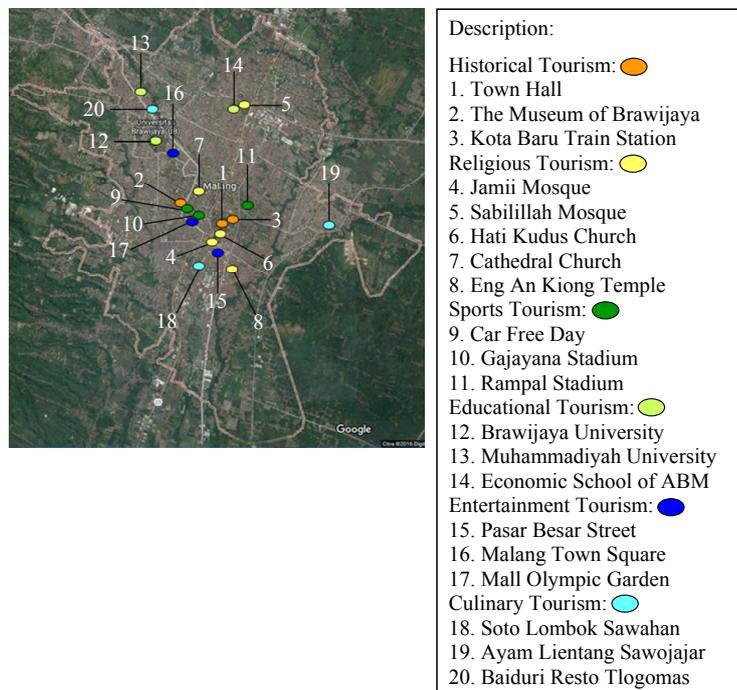


Fig. 1. Map of Tourism Sites in Malang City [1]

2. Literature review and problem statement

This study produced the best structural model among the alternatives of models constructed for micro and small enterprises (MSEs) to make design innovation on Malang handicraft products. The best model was made based on demand from MSEs because it included the history factor, local culture of the city, and design effectiveness. This study focuses merely on handicrafts of MSEs and it did not discuss fashion and culinary. Culinary was not analyzed because it was not related to the product design. Fashion was not discussed because the number of MSEs that runs fashions is not large. Therefore, this study was focused on the design innovation of Malang handicraft product.

In the research done by [3], it is said that a city – as a center of cultural tourism that uses the concept of heterogeneity, economic relation and government intervention – will not have any problem with its informal sector. It is in line with the Malang city that has a positive characteristic in terms of peaceful life atmosphere existing within the society. This gives an impact toward the interaction between formal and informal sectors, also consumer behavior in the purchase of the handicraft products, be it regarding their sexuality or age.

While based on the research conducted by [4] it is concluded that according to sexuality and age, there are differences in behavior among female tourists when purchasing souvenirs, identified from if they are early adult or middle adult. Early adult female never plans the characteristic of souvenirs that they want to buy, while adult female plans beforehand whether it is together with friends or spouse,

also as in which tourist shop she wants to visit to buy the souvenirs.

In another study [5], it is mentioned that there is a relation between intention for purchasing souvenirs and some significant predictors such as past experience of visiting the place and attitude towards the souvenir, influenced by the category of the souvenirs. While [6] stated that there is an important market share in the production of clothing by inserting motives of local culture to be sold to the tourists where the originality of the cultural souvenirs is still significant even though the sales results do not meet the expectation.

According to [7], Kansei Engineering has been developed as technology to translate the feeling and image of consumers towards a product into elements of design. While according to [8], based on the integration of Kansei Engineering done by combining Kano Model and Quality Function Deployment (QFD) and were then applied in service business, it is seen that emotion can be more important than knowledge as it affects the customer satisfaction entirely.

The development of woodcraft in Indonesia is a process that flows dynamically towards some point with hand creativity and usually contains artistic elements. It starts from the forms of traditional arts that have cultural richness as a basis [9].

Partial Least Square (PLS) is a technique for data analysis in which the strength is not based on many assumptions, such as that the data do not have to be distributed normally, the indicator uses ordinal measurement scale, interval to ratio can be applied in the same model and the sample size does not have to be big. Although PLS is used to confirm the theory, but it can also be used to explain the existence of the relationship between latent variables.

3. The aim and objectives of the study

The aim of this study is to obtain the best structural model for the MSEs so that they could design the handicraft products based on historical values, local culture and consumer needs.

To accomplish the aim, the following objectives have been set:

- to create alternatives of the structural model for the MSEs;
- to test each alternative of the structural model by using Partial Least Square (PLS) method;
- to develop a method for comparative assessment of alternative models of cultural values.

4. Materials and methods

4. 1. Research Types

This research belongs to descriptive study since it describes and explains the phenomenon behind the production of handicraft products among MSEs at the moment. Based on the method used, this research integrates qualitative method with a quantitative method.

These two methods can be used effectively in the same research project, that is by using the qualitative data to

describe, or quantitatively explaining the findings gathered. When these two methods are combined, then the qualitative aspect is more of a complementary for the bigger research project [10].

4. 2. Research Variables

Research variables are research objects or anything that becomes the point of attention of research [11]. In this research, the variable measurement was started by doing the brainstorming session with MSEs that are part of Association of Handcrafters in Malang City (APKM) and recapitulating the result as design attributes for the handicraft product which the handcrafters need. The brainstorming session was done using a snow ball technique where the participants were given freedom to intensively discuss their views on the design attributes for the handicraft product seen typical of Malang. The discussion then went like a snow ball effect.

Furthermore, the data of “voice of customer” from the consumer were gathered by spreading questionnaires to tourists visiting tourism sites in Malang City. This variable was measured by matching the expectation of the handcrafters and the consumers.

5. Research results of models testing

Based on the result of brainstorming session with the MSEs actors in the field of handicraft that are also part of APKM and literature review on the historical aspects of Malang City, design attributes that are likely to be used when designing handicraft products based on local history of the city are obtained [12] as seen in Table 1.

Table 1

The Design Attributes of Handicraft Products for MSEs in Malang

| Number | Attributes |
|--------|---|
| 1 | Attach the word <i>Malang</i> |
| 2 | Picture of town monument as the special symbol of Malang City |
| 3 | Picture of lion’s head as the special symbol of Malang City |
| 4 | Picture of lotus as the special symbol of Malang City |
| 5 | Beautiful |
| 6 | Sharp color |
| 7 | Unique and dynamic impression |
| 8 | Has a functional aspect |
| 9 | Easy to carry |
| 10 | Proportional length |
| 11 | Proportional width |
| 12 | Proportional thickness |
| 13 | Light |
| 14 | The appearance meets the consumers’ demand |
| 15 | Invite the consumers to buy |

5. 1. The Formation of Alternative Model I

Alternative Model I was made using the coefficient path as seen in Fig. 2.

Examination result in Table 2 shows that not all loading values of the construct indicator have a value above 0.5. Indicators with loading value < 0.5 are not included in the next analysis due to invalidity.

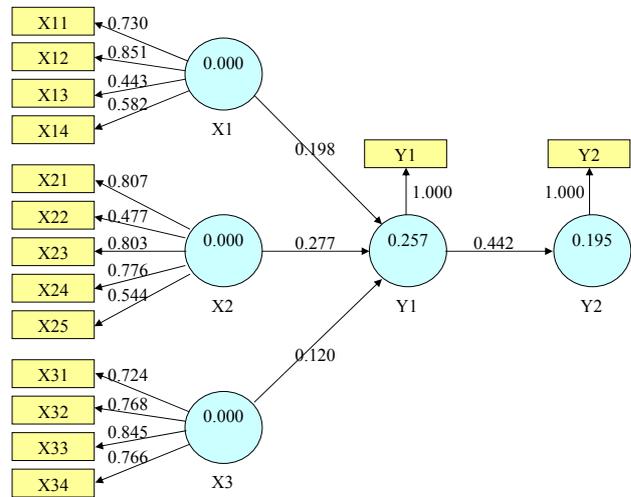


Fig. 2. Coefficient Path Model I

Table 2

Test Result on Convergent Validity

| Variable | Indicator | Outer Loading | Status |
|--|-----------|---------------|---------|
| Historical and Cultural Aspect (X1) | X11 | 0.730 | Valid |
| | X12 | 0.851 | Valid |
| | X13 | 0.443 | Invalid |
| | X14 | 0.582 | Valid |
| Design Effectiveness (X2) | X21 | 0.807 | Valid |
| | X22 | 0.477 | Invalid |
| | X23 | 0.803 | Valid |
| | X24 | 0.776 | Valid |
| | X25 | 0.544 | Valid |
| Product Size (X3) | X31 | 0.724 | Valid |
| | X32 | 0.768 | Valid |
| | X33 | 0.845 | Valid |
| | X34 | 0.766 | Valid |
| Design according to the wishes of consumers (Y1) | Y1 | 1.000 | Valid |
| Causing a desire to buy (Y2) | Y2 | 1.000 | Valid |

This evaluation uses the value of square root of Average Variance Extracted (AVE). In Table 3, the values of root square AVE in latent variables X1 (0.669278), X2 (0.695856), X3 (0.776681), Y1 (1.000) and Y2 (1.000) are above 0.500. Being seen from discriminant validity, the measurement model is good.

Table 3

Result of Average Variance Extracted (AVE)

| Variable | AVE | Root Square AVE |
|----------|----------|-----------------|
| X1 | 0.447933 | 0.669278 |
| X2 | 0.484216 | 0.695856 |
| X3 | 0.603233 | 0.776681 |
| Y1 | 1.000000 | 1.000000 |
| Y2 | 1.000000 | 1.000000 |

Evaluation on measurement model using composite reliability was made to determine if the construct had high reliability. In Table 4, the values of composite reliability in latent variables X1 (0.754), X2 (0.818), X3 (0.858), Y1 (1.000) and Y2 (1.000) are above 0.700. Being seen composite reliability, the measurement model is reliable.

Table 4

Result of Composite Reliability

| Variable | Composite Reliability |
|----------|-----------------------|
| X1 | 0.754 |
| X2 | 0.818 |
| X3 | 0.858 |
| Y1 | 1.000 |
| Y2 | 1.000 |

Goodness of Fit (GoF) structural model was calculated from R-square value and communalities value. In Table 5, it can be seen that the GoF value in the model in the study is $0.418 > 0.36$. Thus, Goodness of Fit in this research is good.

Table 5

The Value of Goodness of Fit

| Effect | R-Square | Communalities | GoF |
|---------|----------|---------------|-------|
| X1 | | 0.448 | 0.418 |
| X2 | | 0.484 | |
| X3 | | 0.603 | |
| Y1 | 0.257 | 1.000 | |
| Y2 | 0.195 | 1.000 | |
| Average | 0.226 | 0.772 | |

Hypothesis testing was done using the value of the coefficient path as seen in Table 6.

Table 6

Test Result on Coefficient Path

| Effect | O | M | STERR | T-Statistics | P-Value |
|----------|----------|----------|----------|--------------|---------|
| X1 on Y1 | 0.198308 | 0.216285 | 0.128736 | 1.540424 | 0.06332 |
| X2 on Y1 | 0.276983 | 0.274533 | 0.125801 | 2.201751 | 0.01500 |
| X3 on Y1 | 0.120193 | 0.129444 | 0.129109 | 0.930937 | 0.17708 |
| Y1 on Y2 | 0.441747 | 0.437443 | 0.111673 | 3.955714 | 0.00007 |

5. 2. The Formation of Alternative Model II

Alternative Model II was made using the coefficient path as seen in Fig. 3.

Test result in Table 7 shows that all loading values of the construct indicator are above 0.5, hence all question items in each variable are valid and can be used in the next testing.

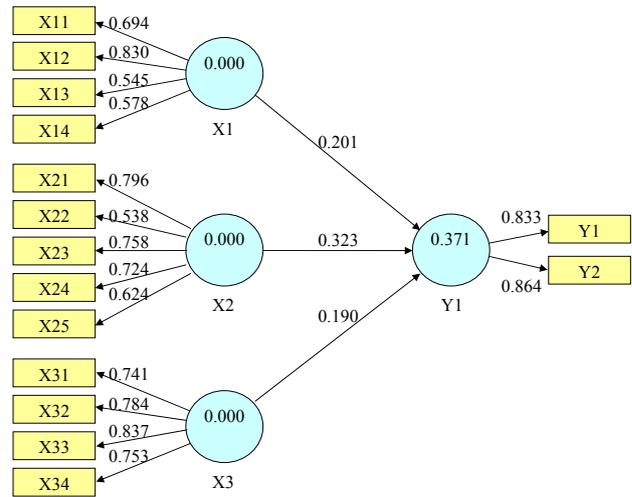


Fig. 3. Coefficient Path Model II

Table 7

Test Result on Convergent Validity

| Variable | Indicator | Outer Loading | Status |
|--|-----------|---------------|--------|
| Historical and Cultural Aspect (X1) | X11 | 0.695 | Valid |
| | X12 | 0.831 | Valid |
| | X13 | 0.542 | Valid |
| | X14 | 0.578 | Valid |
| Design Effectiveness (X2) | X21 | 0.796 | Valid |
| | X22 | 0.538 | Valid |
| | X23 | 0.758 | Valid |
| | X24 | 0.724 | Valid |
| | X25 | 0.624 | Valid |
| Product Size (X3) | X31 | 0.742 | Valid |
| | X32 | 0.784 | Valid |
| | X33 | 0.837 | Valid |
| | X34 | 0.753 | Valid |
| Design according to the wishes of consumers (Y1) | Y1 | 1.000 | Valid |
| Causing a desire to buy (Y2) | Y2 | 1.000 | Valid |

In Table 8, the values of root square AVE in latent variables X1 (0.671), X2 (0.696), X3 (0.780), Y1 (1.000) and Y2 (1.000) are above 0.500. Hence, being seen from discriminant validity, the measurement model is good.

Table 8

Result of Average Variance Extracted (AVE)

| Variable | AVE | Root Square AVE |
|----------|-------|-----------------|
| X1 | 0.450 | 0.671 |
| X2 | 0.484 | 0.696 |
| X3 | 0.608 | 0.780 |
| Y1 | 1.000 | 1.000 |
| Y2 | 1.000 | 1.000 |

In Table 9, the values of composite reliability in latent variables X1 (0.761), X2 (0.821), X3 (0.861), Y1 (1.000) and Y2 (1.000) are above 0.700. Being seen from composite reliability, the measurement model is reliable.

Table 9

Result of Composite Reliability

| Variable | Composite Reliability |
|----------|-----------------------|
| X1 | 0.761 |
| X2 | 0.821 |
| X3 | 0.861 |
| Y1 | 1.000 |
| Y2 | 1.000 |

In Table 10, it can be seen that the value of GoF in this research is $0.452 > 0.36$. Therefore, Goodness of Fit in this research is good.

Table 10

The Value of Goodness of Fit

| Effect | R-Square | Communalities | GoF |
|---------|----------|---------------|-------|
| X1 | | 0.450 | 0.452 |
| X2 | | 0.482 | |
| X3 | | 0.608 | |
| Y1 | 0.243 | 1.000 | |
| Y2 | 0.334 | 1.000 | |
| Average | 0.288 | 0.708 | |

Hypothesis testing was done using the value of the coefficient path as seen in Table 11.

Table 11

Test Result on Coefficient Path

| Effect | O | M | STERR | T-Statistics | P-Value |
|----------|----------|----------|----------|--------------|---------|
| X1 on Y1 | 0.199304 | 0.208078 | 0.114595 | 1.739196 | 0.043 |
| X1 on Y2 | 0.098828 | 0.118348 | 0.108614 | 0.909895 | 0.183 |
| X2 on Y1 | 0.263851 | 0.258424 | 0.128647 | 2.050971 | 0.021 |
| X2 on Y2 | 0.222268 | 0.221085 | 0.159966 | 1.389470 | 0.084 |
| X3 on Y1 | 0.114035 | 0.130629 | 0.146003 | 0.781048 | 0.218 |
| X3 on Y2 | 0.177030 | 0.168726 | 0.129093 | 1.371342 | 0.087 |
| Y1 on Y2 | 0.233443 | 0.236540 | 0.139744 | 1.670505 | 0.049 |

5. 3. The Formation of Alternative Model III

Alternative Model III was made using the coefficient path as seen in Fig. 4.

Examination result in Table 12 shows that all the loading values of the construct indicator are above 0.5 meaning that

all question items in each variable are valid and can be used for the next testing.

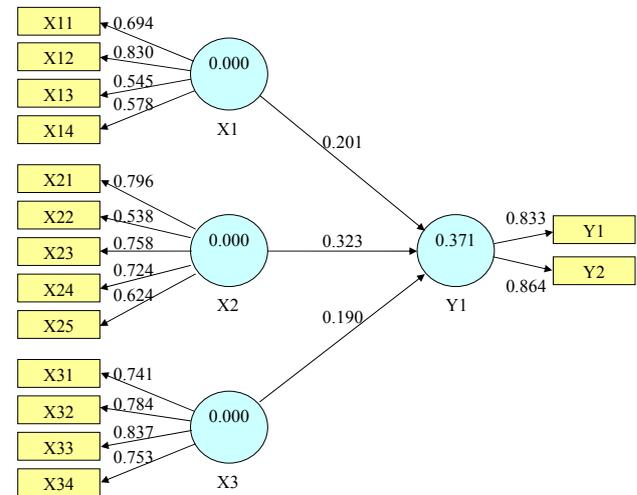


Fig. 4. Coefficient Path Model III

Table 12

Test Result on Convergent Validity

| Variable | Indicator | Outer Loading | Status |
|---|-----------|---------------|--------|
| Historical and Cultural Aspect (X1) | X11 | 0.694 | Valid |
| | X12 | 0.830 | Valid |
| | X13 | 0.545 | Valid |
| | X14 | 0.578 | Valid |
| Design Effectiveness (X2) | X21 | 0.796 | Valid |
| | X22 | 0.538 | Valid |
| | X23 | 0.758 | Valid |
| | X24 | 0.724 | Valid |
| | X25 | 0.624 | Valid |
| Product Size (X3) | X31 | 0.741 | Valid |
| | X32 | 0.784 | Valid |
| | X33 | 0.837 | Valid |
| | X34 | 0.753 | Valid |
| Consumer Perceptions towards the Design (Y) | Y1 | 0.833 | Valid |
| | Y2 | 0.864 | Valid |

In Table 13, it is seen that the values of root square AVE in latent variables X1 (0.671), X2 (0.695), X3 (0.780), and Y (0.849) are above 0.500. This shows that in discriminant validity, the measurement model is good.

In Table 14, it is seen that the values of composite reliability in latent variables X1 (0.761), X2 (0.821), X3 (0.861), and Y (0.838) are above 0.700. This shows that in composite reliability, the measurement model is reliable.

Table 13

Result of Average Variance Extracted (AVE)

| Variable | AVE | Root Square AVE |
|----------|-------|-----------------|
| X1 | 0.450 | 0.671 |
| X2 | 0.482 | 0.695 |
| X3 | 0.608 | 0.780 |
| Y | 0.721 | 0.849 |

Table 14

Result of Composite Reliability

| Variable | Composite Reliability |
|----------|-----------------------|
| X1 | 0.761 |
| X2 | 0.821 |
| X3 | 0.861 |
| Y | 0.838 |

In Table 15, it is seen that GoF in this research model is $0.458 > 0.36$. This shows that Goodness of Fit in this research is good.

Table 15

The Value of Goodness of Fit

| Effect | R-Square | Communalities | GoF |
|---------|----------|---------------|-------|
| X1 | | 0.450 | 0.458 |
| X2 | | 0.482 | |
| X3 | | 0.608 | |
| Y | 0.371 | 0.721 | |
| Average | 0.371 | 0.565 | |

Hypothesis testing was done using the value of the coefficient path as seen in Table 16.

Table 16

Test Result on Coefficient Path

| Effect | O | M | STERR | T-Statistics | P-Value |
|---------|-------|-------|-------|--------------|---------|
| X1 on Y | 0.201 | 0.230 | 0.103 | 1.956 | 0.027 |
| X2 on Y | 0.323 | 0.332 | 0.106 | 3.048 | 0.001 |
| X3 on Y | 0.190 | 0.181 | 0.117 | 1.619 | 0.054 |

6. Discussion of the research results of models testing

Based on the test result of Model I, it is shown that the variable of Design Effectiveness has a significant influence on Design According to the Wishes of Consumers. While the variables of Historical and Cultural Aspect, and Product Size are not significant. The variable of Design According to the Wishes of Consumers has a significant influence on Causing a Desire to Buy.

Based on the test result of Model II, it is shown that the variables that have a significant influence on the Design According to the Wishes of Consumers are Historical and Cultural Aspect, and Design Effectiveness. Whereas the significant influence on Causing a Desire to Buy is made only by the variable of Design According to the Wishes of Consumers.

Based on the test result of Model III, it is shown that the variables of Historical and Cultural Aspect, and Design Effectiveness have a significant influence on Consumer Perceptions towards the Design. While the variable of Product Size is not significant.

From three alternative models created, the best structural model is Model III. In this model, all of the indicators used are valid, the discriminant validity is good, the construct measurement is reliable, and the model represents the suitable approach for the MSEs to produce handicraft products based on local history and culture.

The use of the approach model for MSEs is an innovation in making handicraft product designs based on the history and local culture of Malang City, compared to existing designs namely each MSEs makes handicraft products with their own designs.

The limitations of this study is that it does not cover all types of MSEs. This study is only focused on handicraft MSEs. While the field of clothing and culinary has not entered as the object of this research. It also does not involve new tourist areas which are currently developing in the form of thematic villages.

The Partial Least Square method is appropriately applied in this study, so that the best structural model is obtained for MSEs to handicraft product design innovation. But the disadvantage that can be noted is that Product Size consisting of length, width, thickness, and weight does not affect the design desired by consumers. So that in the future MSEs must pay attention to this dimension related to the functional aspects of the product.

What can be developed of this research is conducting further research on all types of MSEs in Malang City, namely handicraft, clothing, and culinary, in relation to the response of consumers who visit thematic villages as new tourist areas. The difficulty that can be encountered is to gather all MSEs to carry out brainstorming to formulate the desired new innovations (product design or packaging design). Another difficulty is collecting voice of customers' data in all thematic villages which certainly requires not a short time.

7. Conclusions

1. Based on the result of brainstorming session with the MSEs actors that are also part of Association of Handcrafters in Malang City (APKM) and literature review on the historical aspects of this city, design attributes obtained are used to create three alternatives of structural models for MSEs, with an indication of qualitative indicators of research results.

2. The Partial Least Square method is appropriately applied to test each alternative of the structural model by using Convergent Validity, Discriminant Validity, Composite Reliability, Goodness of Fit, and Hypothesis testing, with an indication of quantitative indicators of research results.

3. By comparing the three alternatives of structural models, the best model is obtained for SMEs with an in-

dication of quantitative indicators of research results. The designs as the innovation are products putting the word “Malang”; using the picture of “City Monument”; the image of “Lion’s Head” and “Lotus” as the symbol of the city; the handicraft product must be beautiful when being enjoyed visually; it has to have sharp colors, unique and dynamic impression, functional aspect and be easy to carry.

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