Analysis of the semi-permanent house in Merauke city in terms of aesthetic value in architecture

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Abstract. Semi permanent houses are also used called “Rumah Kancingan” is the houses that generally exist in the Merauke city. Called semi permanent because the main structure use is woods even if the walls uses bricks. This research tries to analyze more about Semi permanent house in terms of aesthetics value. This research is a qualitative research with data collection techniques using questionnaire method and direct observation field and study of literature. The result of questionnaire data collection then processed using SPSS to get the influence of independent variable against the dependent variable and found that color, ornament, shape of the door-window and shape of roof (independent) gives 97,1% influence to the aesthetics of the Semi permanent house and based on the output coefficient SPSS obtained that the dependent variable has p-value < 0.05 which means independent variables have an effect on significant to aesthetic variable. For variables of semi permanent and wooden structure gives an effect of 98,6% to aesthetics and based on the result of SPSS coefficient it is found that free variable has p-value < 0.05 which means independent variables have an effect on significant to aesthetic variable.

Keywords: Aesthetics, Semi permanent house, Merauke

1. Introduction
Merauke city is located at 137030 ° - 141000 BT and 6000 - 9000 LS is one of the districts in Papua whose development is quite rapid with an area of 45,075 km². This is marked by the number of immigrants who come in the city of Merauke and become a businessman that drives the economy in this city. With more and more migrants, more shelter is needed to meet the needs of the community will be a place to live. The need for high shelter is not accompanied by the availability of natural materials such as sand and gravel. This is what reason behind the construction of a Rumah Kancingan namely the house whose main structure is supported by the wood while the walls use the material of bricks.

The house is a refuge and is the second rank to be achieved for safety purposes before higher demands are met. Winand Klassen (1992:4) in Wahid (2013)³ revealed The theory of Vitruvius in three components namely vernity which means endurance, utility and aesthetic (beauty).

Home is an architectural product that serves to accommodate all activities / activities of the home owner. Maslow (1954) in Lang (1987)⁷, explained that the house as a necessity (needs) should be able to accommodate the activities in the house, needs in question are:

a. Physiological needs, physical-physiological needs
b. Safety needs (physical, psychic), physical and psychological safety needs
c. Affiliation needs, the need to associate within a system, interact.
d. Esteem need, need for rewards
e. Actualization needs, the need to actualize themselves
f. Cognitive/aesthetic needs, cognitive / esthetic needs

From the order of the above mentioned needs, seen the fulfillment of its needs in a hierarchical order where physical needs are considered the most important and the lowest is the fulfillment of self-actualization needs and cognitive needs.

Rumah kancingan is a house that uses wood material as the main structure but the material for the wall still use brick material. The use of wood as a replacement structure of concrete is caused because there is no gravel in Merauke and the available sand is considered to be of less good quality to be applied to the concrete because the mud content is so high that to make a house with concrete construction requires a very large cost because it must bring sand or concrete from outside the city as is usually provided by The supplier is from Makassar or from Palu with the estimated price for one cubic sand of pair is Rp. 950,000,- as well as gravel, must also be imported from out of town.

Here are some pictures of the Rumah Kancingan in terms of structure.

2. Materials and method
2.1. Location and time of research
The research was conducted on July - October 2017 in the town of Merauke, Papua. The distribution of questionnaires was carried out on Tanah Miring SP V, in the Tugu Lingkaran Brawijaya, and at Taman Mandala.

2.2 Sample research
The sample in this study took some houses with the structure of the scattered in several villages in the district of Merauke kelurahan Bambu Pemali, kelurahan Karang Indah, kelurahan Mandala, and
kelurahan Rimba Jaya. Here is a map where the sample of community houses of the scattered structure of the Kancingan.
Here are a few examples of the *Rumah Kancingan* that were sampled in this research:

**Picture 1. Map of Home Owner’s Area**

**Picture 2. Mrs Agustina’s House (number 18)**

**Picture 3. Mrs Sarmo’s House (No. 14)**

### 2.3 Method of collecting data

Research data by distributing questionnaires and interview techniques conducted by selecting respondents who can provide information appropriate to the research problem or intentionally withdraw the sample (purposive sampling). The selection of respondents for the distribution of questionnaires was done by giving a questionnaire to the homeowners, society and people who are considered competent in the field of architectural sciences.
After the questionnaire collected, done organizing the data and then processed using spss software to determine the effect of independent variables to the dependent variable in this case aesthetic value.

2.4 Research variable

The independent variable in this research is the structure system, material, ornament, color, the shape of the roof and the shape of doors and windows. And the dependent variable is the variable that is influenced or become the result of the independent variable that is the factor that emerges or does not appear or change according to that introduced by the researcher. The dependent variable in this research is the aesthetics of the building form.

2.5 Research design

This research is a qualitative research with the following research stages: 1) Data collection with questionnaire distribution. 2) determining the sample of the rumah kancingan. 3) interviews with people who are deemed to have competence in the field of architecture 4) direct field observation. 5) literature studies. 6) analyzing the questionnaire data using statistical methods using SPSS.

The data used in this research is ordinal data showing different sub-table levels such as quantitative data that is turned on in the form of rank or ranking. According to Furqon in Jabir (2016) ordinal data may ignite that the subject or group that occupy other rank below it. Ordinal data can be used in social research to measure interests and perception. Data interviews and questionnaires will be analyzed by using the scoring method is 7-10 if the influence is large. Value 4-6 if the influence is medium and value 1-3 if the influence is small.

3. Research result

1. Analyst against factors affecting aesthetic value in the rumah kancingan.

| NO | Factors Affecting Aesthetics | Strong Influence | Medium Influence | Weak Influence | amount Respondents |
|----|------------------------------|------------------|------------------|---------------|-------------------|
| 1  | Color                        | 63               | 35               | 10            | 108               |
| 2  | Ornament                     | 28               | 44               | 36            | 108               |
| 3  | Shape Of Doors and Windows   | 53               | 45               | 10            | 108               |
| 4  | Shape roof                   | 55               | 43               | 10            | 108               |

| NO | Factors Affecting Aesthetics | Strong Influence | Medium Influence | Weak Influence | amount Respondents |
|----|------------------------------|------------------|------------------|---------------|-------------------|
| 1  | Structure                    | 18               | 7                | 3             | 28                |
| 2  | Material                     | 15               | 9                | 4             | 28                |

2. Analysis of Independent Variables (Color, ornament, roof shape and window shapes) Against Dependent Variables (Aesthetics) at the Rumah Kancingan.
Table 3. Independent Regression Variable Summary Model of Dependent variable (aesthetics)

| Model | R      | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|--------|----------|-------------------|---------------------------|
| 1     | .985a  | .971     | .970              | .283                      |

a. Predictors: (Constant), shape of door, window, ornament, color, roof shape
b. Dependent Variable: aesthetics

Based on the above table obtained R square value of 0.971 (97.1%). It shows that the contribution percentage of independent variable to the dependent variable (aesthetic) is 97.1%.

Table 4. Coefficients of the public data

| Model  | Unstandardized Coefficients | Standardized Coefficients | t       | Sig. |
|--------|----------------------------|---------------------------|---------|------|
| (Constant) | .378                      | .110                      | 3.445   | .001 |
| color   | .253                      | .015                      | 16.393  | .000 |
| Ornament | .238                      | .013                      | 18.207  | .000 |
| Shape of door | .238                  | .017                      | 14.086  | .000 |
| Shape of window | .264                  | .017                      | 15.621  | .000 |

a. Dependent Variable: aesthetics

Based on the SPSS Coefficients output it can be seen that the color variables, ornament, roof shape and shape of the windows have p-value 0.05 which means the variable color, ornament, roof shape and the form of the doors have a significant effect on the dependent variable aesthetics.

Table 5. Coefficients data regression that has the competence in the field of architecture

| Model | R     | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------|----------|-------------------|---------------------------|
| 1     | .993a | .986     | .985              | .258                      |

a. Predictors: (Constant), structure, material
b. Dependent Variable: aesthetic

At the output of SPSS Model Summary it can be seen that the value of the correlation coefficient is (Value R 0.993) which indicates that the relationship between independent variables (structural and matrix) and the bound varieties (aesthetic) are in strong criteria. This is supported by the value of the coefficient of determination (R Square) of 0.986. This value indicates that the independent variable can explain (be factor) for the dependent variable equal to 98.6%
Table 6. Regression coefficient of community data possessing competence in architecture

| Model          | Unstandardized Coefficients | Standardized Coefficients | t    | Sig.  |
|----------------|-----------------------------|----------------------------|------|-------|
| (Constant)     | .080                        | .163                       | .492 | .627  |
| 1 material     | .509                        | .041                       | 12.342 | .000  |
| structure      | .512                        | .040                       | 12.826 | .000  |

a. Dependent Variable: aesthetic

Based on SPSS Coefficients output it can be seen that material and structure variables have p-value <0.05 which means structure and material significantly influence to dependent variable of aesthetics / beauty.

4. Discussion

This research shows that of 108 respondents taken data, 63 people who responded that the colors had a strong influence on the aesthetics of the rumah kancingan. This is because color greatly affects the human psychological in terms of beautiful taste because the first impression obtained by the eye of light is the color. Ishac, in Habsari (2010)[4], color has the power to awaken and influence the sense of beauty by providing a beauty experience. In the case of a rumah kancingan, because the main structure is wood then the use of wall paint on the walls of the house causes wood that is also part of the wall, if painted with wall paint then after a while this paint will peel off and causing the color of the wall becomes uneven and reduce the beauty of the house. Approximately 53-55 people who answered that the variable shape of the roof and the shape of the doors and windows affect the aesthetic of the rumah Kancingan. The roof that is an important part of the house has a function as a house cover, and also the crown of a building. At a common rumah kancingan in merauk city, the selection of roof forms is limited to the type of pelana roof or perisai roof. The structure of rumah kancingan caused only two types of roof’s model that can be applied to the rumah kancingan remaind the main structure is wood, so as to make the construction of the roof as light as possible. Also for the form of the window and the door frame. The main structural system is very determining the formation of the frame in the rumah kancingan because the frame is part of the main structure of rumah kancingan. This is what causes the form of frames in the house is generally uniform and impressed rigid.

According to the structure variable, from 28 respondent, there are 8 respondents whose answer that structure give strong influence to the aesthetic value of rumah kancingan. Structure have a very important impact to the form of the building. The dimentions and distance between column influence to the building facade form and the column itself mostly a very important factor to the building form, Saputra (2014)[2]. On Rumah kancingan, the modification of the structure model is difficult because of the limitation from the wood ability to transform the structure and the buildings load. The characteristic of wood more easy to deform then other buildings material such as concrete and steel that caused space between structure column on rumah kancingan is only between 1-1.5 m distance. For the independent variable material, from 28 respondents who taken data about 15 people who answered it give strong influence to the aesthetic form to rumah kancingan the main problem is bounding between wood and brick. wood stricken shrinkage due to the hydration of water content in the wood between the masonry brick with wood and it will cause the cavity, so that the wall plastering and paint color is peeled and this greatly affects the appearance of the rumah kancingan. Skar 1989 in Iswanto (2008)[6], wood as other lignocellulosic materials have hygroscopic properties that can absorb or release water from the environment. When wood absorbs water, the mass of wood will increase. While when wood releases water, the mass of wood will decrease. This conditions is very damaging appearance of the rumah kancingan wall.
5. Conclusion
Rumah kancingan is one alternative structure that is cheap and easy on its application. But aesthetic aspect is still the main problem to rumah kancingan. However, aesthetics is still a major issue considering aesthetics are an important aspect for a house. The bond between wood and brick is the main problem in the rumah kancingan, because wood is an organic material will experience shrinkage and deformation and it caused space between wood and the brick and this is a very disturbing appearance of the wall of the building so special handling is required so that the wood material when applied to the building can be reduced depreciation.

6. Recommendation
For further research, it is better to try to analyze the Rumah Kancingan in terms of structural feasibility, what are the advantages and disadvantages of the structural system in this house of the seismic load, and the structural strength of the building load compared with the system of permanent house structure considering the the wood is a renewable material and availability is still very abundant so that it can be used as an alternative structure of houses and buildings in other areas.

References
[1] Jabir, J 2016, Faktor-faktor penyebab Keterlambatan Pada Proyek Pembangunan gedung di Makassar (Universcity of Hasanudin, Faculty Of Engineering) pp 63
[2] Saputra 2014, Struktur Sebagai Elemen Estetis Dalam Rancangan Pengembangan di Kawasan Institut Teknologi Nasional Bandung, Jurnal Rekakarsa pp 1-10
[3] Wahid 2013, Teori Arsitektur Suatu Kajian Perbedaan Pemahaman Teori Barat dan Timur (Yogyakarta:Graha Ilmu)
[4] Hapsari 2010, Aplikasi semiotik dan Efek Psikologis Tampilan Warna Pada Rumah Minimalis Jurnal riptek 4 pp 37-44
[5] Iswanto 2008, Sifat Fisis Kayu: Berat Jenis dan Kadar Air Pada beberapa Jenis Kayu, USU e-Repository pp 7
[6] Lang 1987, Creating Architecture Theory, Van Nostrald Reinhold