Characteristics of Jakarta society that need intervention to accord with the concept of Architechnopreneurship

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Abstract. Architecture as a form of application of science, technology and art can change space and the environment as part of human culture and civilization that fulfills the rules of function, construction and aesthetics and includes factors of safety, security, health, comfort, and convenience. Architechnopreneurship is a new concept that combines architectural techniques, technological advances, entrepreneurial values, and education which is applied in the form of housing in flooded areas. This study aims to explore the characteristics of the people of Jakarta who require intervention to have a view that is in accordance with the concept of architechnopreneurship. The research method used is the Neuroresearch method with an emphasis on the confirmatory stage. The Neuroresearch research method consists of three main stages, namely exploratory research, explanatory research, and confirmatory research. The result of the research is that there are differences in the views of the whole of Jakarta about architechnopreneurship based on gender, age, and education. However, there is no difference in the views of people throughout Jakarta about the concept of architechnopreneurship in terms of work.

Keywords: concept of architechnopreneurship, Jakarta society, 1. Introduction

Architecture as a system of application of science, technology and art can change space and the environment as part of human culture and civilization that fulfills the rules of function, construction and aesthetics and includes factors of safety, security, health, comfort and convenience. Meanwhile, an architect is someone who practices an architect, which is an activity held to produce architectural works which include planning, designing, monitoring and / or assessing buildings and their environment as well as those related to areas and cities [¹], [²].

Architechnopreneurship is an architectural concept developed with a concept where architects must be able to produce suitable building works for buildings in flood zones by optimizing the use of technology as part of the building's warning system and optimizing the potential for entrepreneurship in accordance with the characteristics of the local area. Arsitechnopreneurship can also be called modern architecture because it is developed by prioritizing the value of modernity because it has to collaborate with the socio-economic conditions of the local community [³]. This is important because
the architectural style of the house is a consideration for consumers both in appearance and in functional layout [4].

The architechnopreneurship concept is implemented in areas that are potentially flooded. This concept is a contribution of scientific collaboration between architecture, technology, entrepreneurship, and education which was developed with the aim of helping flood-affected communities to be able to cope with disasters and maintain their survival. The condition of Jakarta which is prone to flooding has resulted in various thoughts on comprehensive disaster mitigation. Damage scanner, prevention through social media, utilization of geographic information, assessment of potential inundation and various other efforts have been carried out [5] - [9]. It all comes down to how to prevent damage due to flooding which has an impact on social and economic factors [10].

Architechnopreneurship is here to complement the various findings and existing policy inputs. Buildings that are not only aesthetically valuable, are maximized so that they function to survive when the flood hits, are able to maximize technological advances, have entrepreneurial value and provide education for people who use various flood response behaviours. Therefore, through the architechnopreneurship instrument, this study aims to explore the characteristics of the people of Jakarta who require intervention in order to have a view that is in accordance with the concept of architechnopreneurship.

2. Literature Review

Producing design work in urban areas that are prone to flooding, the work of architects has its own challenges [11]. Architects try to create a work of beauty that will be more complex when in a flooded area. In Nigeria a survey on the knowledge and competence of architects who are able to adapt to flood conditions was carried out [12]. Various challenges arise when integrating critical subsurface infrastructure such as hydraulic systems, water networks, civil construction, transportation, energy supply and land systems with the size of buildings in urban environments [13], [14].

By utilizing up to date developments, a research instrument has been prepared that can help analyze an architect's adaptability in force majeure conditions such as floods. The encounter of Architecture, Entrepreneurship and Education will produce an adaptive house design model with flooding accompanied by the necessary educational process which is the basis for the concept of architechnopreneurship.
Architechnopreneurship design is based on fulfilling the rules of function, construction and aesthetics and includes factors of safety, security, health, comfort and convenience. But added with the use of technology as a warning system when the floods hit. With the concept of a tall building, its entrepreneurial value can be used as a survival strategy. It is hoped that the design of houses that collaborates with various knowledge will provide education to people in flood-prone areas so that they are able to produce responsive behavior and be able to adapt to environmental changes [15].

3. Research Method

The Neuroresearch method as a mixed method model consisting of exploratory research, explanatory research, and confirmatory research is the research method applied in this study [16], [17]. At the exploratory stage, a theoretical construct and development of the Architechnopreneurship instrument were found. At the explanatory stage, the construct validity calibration has been carried out which results in the architechnopreneurship standard instrument.

This research is the third stage in Neuroresearch, namely the confirmatory stage to find a description of the characteristics of the people of Jakarta who need intervention in order to have a view that is in accordance with the concept of architechnopreneurship.

The architechnopreneurship instrument consists of three indicators, namely architechnopreneurship sketches in the architectural aspect, in the educational aspect and in the architechnopreneurship aspect itself. The instrument consists of fifteen questions and is distributed through a survey to 419 samples of people in Jakarta.

4. Result

First Research Results

Analysis of differences in terms of views of people throughout Jakarta about Architechnopreneurship (ARCHITECH), if viewed from gender differences. The results are as shown in Table 1 below.

Table 1. An analysis of differences in the views of the entire Jakarta community on Architechnopreneurship (ARCHITECH), when viewed from gender differences

| Gender | N   | Mean  | Std. Deviation | Std. Error Mean |
|--------|-----|-------|----------------|-----------------|
| Male   | 223 | 51.3767 | 9.67777       | .64807          |
| Female | 196 | 53.2551 | 8.67216       | .61944          |

Before testing, the researcher determined the homogeneity test through the Leven Test for two groups, namely the male and female groups. The result is that F of 3.526 is non-significant at α > 0.05. Based on Table 1 above, the t value is 2.081 with a significance value of 0.038, which is the significance at α < 0.05. So it can be concluded that there are differences in the views of the whole of Jakarta about Architechnopreneurship (ARCHITECH) if it is seen from the gender differences between male and female. Jakartans who are female have the view that Architechnopreneur is “unsuitable”, while the male community assesses “very unsuitable” at α < 0.05.

Second Research Result

Analysis of differences in terms of the views of people throughout Jakarta about Architechnopreneurship (ARCHITECH), when viewed from differences in age. The results are as shown in Table 2 below.
Table 2. Analysis of the Difference in the Views of the People of All Jakarta about Architechnopreneurship (ARCHITECH), when viewed from the difference in age

![Table](image)

**Descriptives**

|          | N  | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean |
|----------|----|------|----------------|------------|----------------------------------|
|          |    |      |                |            | Lower Bound | Upper Bound | Minimum | Maximum |
| <25 years| 334| 52.8393 | 8.81564        | .48237     | 51.8894     | 53.7872    | 15.00    | 75.00    |
| 25-40 years | 38 | 49.7105 | 10.33731       | 1.67693    | 46.3127     | 53.1083    | 31.00    | 71.00    |
| 41-55 years | 17 | 53.7647 | 12.27563       | 2.97728    | 47.4532     | 60.0763    | 33.00    | 75.00    |
| >55 years  | 30 | 48.1333 | 9.60148        | 1.75298    | 44.5481     | 51.7186    | 29.00    | 62.00    |
| Total     | 419| 52.2554 | 9.25783        | .45227     | 51.3664     | 53.1444    | 15.00    | 75.00    |

**ANOVA**

|          | Sum of Squares | df | Mean Square | F   | Sig. |
|----------|----------------|----|-------------|-----|------|
| Between Groups | 908.065   | 3  | 302.688    | 3.597 | .014 |
| Within Groups     | 34917.611 | 415 | 84.139   |       |      |
| Total           | 35825.675 | 418 |           |       |      |

**Multiple Comparisons**

LSD

| (i) AGE | (j) AGE | Mean Difference (i- j) | Std. Error | Sig. | 95% Confidence Interval |
|---------|---------|------------------------|------------|------|------------------------|
| <25 years | 25-40 years | 3.12780 | 1.57038 | .047 | 6.2147 |
| 25-40 years | 25-40 years | -9.2638 | 2.28063 | .685 | -3.4904 |
| 41-55 years | <25 years | 4.70499 | 1.74930 | .007 | 8.1416 |
| >55 years | 25-40 years | -3.12780 | 1.57038 | .047 | -6.2147 |
| >55 years | 25-40 years | -0.05418 | 2.67648 | .131 | 1.2070 |
| >55 years | 41-55 years | 1.57719 | 2.24027 | .482 | 5.9809 |
| >55 years | <25 years | 0.92638 | 2.28063 | .685 | -3.5566 |
| >55 years | 25-40 years | 4.05418 | 2.67648 | .131 | 9.3153 |
| >55 years | 41-55 years | 5.63137 | 2.78460 | .044 | 11.1050 |

* The mean difference is significant at the 0.05 level.
Based on Table 2 above, the results of the analysis produce an F of 3.597 with a significance value of 0.014, which is the significance at $\alpha < 0.05$. So it can be concluded that there are differences in the views of the whole of Jakarta about Architechnopreneurship (ARCHITECH), if it is seen from the difference in age. In detail the results are as follows.

First, the people of Jakarta who are (<25 years old) have their view of Architechnopreneur as “unsuitable” significantly at $\alpha < 0.05$. Meanwhile, those aged (25-40 years) and (> 55 years) have the view "very inappropriate".

Second, the people of Jakarta who are aged (41-55 years), their view of Architechnopreneur is “unsuitable” significantly at $\alpha < 0.05$. Meanwhile, those who are aged (> 55 years) have the view that “very unsuitable” is significant at $\alpha < 0.05$.

Third Research Results
Analysis of differences in terms of views of people throughout Jakarta about Architechnopreneurship (ARCHITECH), if it is seen from differences in educational backgrounds. The results are as shown in Table 3 below.

| Descriptives |
|--------------|
| ARCHITECH    |

|          | N  | Mean  | Std. Deviation | Std. Error | 95% Confidence Interval for Mean |
|----------|----|-------|----------------|------------|---------------------------------|
| Junior High | 6  | 54.333 | 1.21106        | .49441     | Lower Bound | Upper Bound | Minimum | Maximum |
| High School  | 272 | 53.0625 | 8.65038        | .51565     | 53.0624 | 55.6043 | 53.00 | 56.00 |
| Diploma     | 14  | 52.2143 | 11.76160       | 3.14342    | 52.0473 | 54.0777 | 22.00 | 75.00 |
| Bachelor    | 95  | 50.8737 | 10.79031       | 1.10706    | 48.6756 | 53.0718 | 15.00 | 75.00 |
| Master      | 27  | 48.5556 | 9.93569        | 1.91212    | 44.6251 | 52.4860 | 29.00 | 71.00 |
| Doctor      | 5   | 52.2000 | 6.22093        | 2.78209    | 44.4757 | 59.9243 | 45.00 | 60.00 |
| Total       | 419 | 52.2554 | 9.25783        | .45227     | 51.3664 | 53.1444 | 15.00 | 75.00 |

Based on Table 3 above, the results of the analysis produce an F of 1.776 with a significance value of 0.117, which is non-significance at $\alpha > 0.05$. So, it can be concluded that there is no difference in the views of the whole of Jakarta society about Architechnopreneurship (ARCHITECH), if it is seen from the difference in educational background. So, all levels of society from all different backgrounds have the view that Architechnopreneur is "not suitable" significantly at $\alpha < 0.05$.

Fourth Research Result
Analysis of differences in terms of views of people throughout Jakarta about Architechnopreneurship (ARCHITECH), when viewed from differences in work backgrounds. The results are as shown in Table 4 below.
Table 4. Analysis of Differences in the Views of the Society of All Jakarta regarding Architechnopreneurship (ARCHITECH), when viewed from differences in work backgrounds

|            | N   | Mean   | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | Lower Bound | Upper Bound | Minimum | Maximum |
|------------|-----|--------|----------------|------------|---------------------------------|-------------|-------------|---------|---------|
| Entrepreneur | 29  | 54.2759| 11.3574        | 2.10903    | 49.9557                         | 45.6000     | 58.6300     | 31.00   | 75.00   |
| Private Employees | 69  | 52.2444| 10.43086       | 1.25659    | 49.7389                         | 45.7339     | 53.7439     | 31.00   | 75.00   |
| Government Employees | 7   | 47.5714| 8.75323        | 3.30941    | 43.4760                         | 39.7668     | 47.2852     | 39.00   | 60.00   |
| Architect    | 13  | 45.5231| 9.71649        | 2.69407    | 41.2051                         | 37.1947     | 45.5354     | 29.00   | 60.00   |
| College Student | 291 | 52.4021| 8.73202        | 5.1188     | 48.1946                         | 43.7946     | 52.4946     | 15.00   | 75.00   |
| Students     | 10  | 53.7000| 5.57873        | 1.76415    | 49.9092                         | 47.6908     | 52.1176     | 44.00   | 64.00   |
| Total        | 419 | 52.2554| 9.25783        | 4.5227     | 48.3684                         | 45.1444     | 51.5924     | 15.00   | 75.00   |

Based on Table 4 above, the results of the analysis produce an F of 1.936 with a significance value of 0.087, which is non-significance at $\alpha > 0.05$. So, it can be concluded that there is no difference in the views of the whole of Jakarta society about Architechnopreneurship (ARCHITECH), if it is seen from the differences in their work backgrounds. So, all levels of society from all different types of work have the view that Architechnopreneur is "not suitable" significantly at $\alpha < 0.05$.

5. Discussion and Conclusion

The results showed that there are differences in the views of people throughout Jakarta about the concept of architechnopreneurship in terms of gender, age, and education. However, there is no difference in the views of people throughout Jakarta about the concept of architechnopreneurship in terms of work.

Judging from the gender where women feel that the architechnopreneurship design is not suitable, it mostly refers to aesthetic needs in residential design. The results of the study generally show that the design is still not in accordance with the concept of architechnopreneurship which is expected to be an input for research to develop designs that are able to show functions based on the concept of architechnopreneurship itself, namely the function of aesthetics, technology, entrepreneurship, and education. Therefore, this research still needs to be explored in depth so that the work of architects can be utilized by the wider community, especially those living in flood-prone areas.

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