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Learning Experience in the Mini Museum Atsiri Oil in Sarinah Jakarta Indonesia with the Application of Video Mapping Technology

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A B S T R A C T

In the last two decades, museums have experienced rapid changes in the application of technology. Some museums use digital technology to stimulate visitor curiosity and present collections interestingly. Technological developments can be enjoyed by various age groups and become an opportunity to attract visitors, especially young people. The mini museum Atsiri Sarinah Jakarta presents the experience of plants with the application of digital technology, one of which is video mapping. Applying elements that visitors really like because they have aesthetic qualities that have a positive effect, namely plants. This is intended to make visitors more enthusiastic about exploring the museum space. The purpose of this research is to validate the extent to which visitors can learn information through experience, regarding the role of the museum space in educating essential oil products as Indonesian cultural heritage. The research was conducted using a mixed method exploratory sequential approach, qualitatively conducting interviews with Atsiri and quantitatively providing questionnaires to validate the learning experience of visitors. The results show the learning experience through digital installations such as video mapping makes visitors learn new and interesting things, understand all the information during the visit, and learn more about essential oil products.

A R T I C L E   I N F O

1. INTRODUCTION

The museum is an institution dedicated to the public in collecting, maintaining, presenting, and preserving cultural heritage that is used for study, research, and pleasure or entertainment (Nugroho *et al.*, 2018). Museums have experienced rapid changes in the application of technology in the last two decades, one of which is used to present museum collections in new ways, empowering attractive design solutions, and generating content and experiences (Fatta, 2018). Digital technology has been developed and utilized for advancement and attractiveness by several museums (Nugroho *et al.*, 2018), and digitally enhanced exhibitions can encourage interaction bringing museums closer to visitors (Nikolakopoulou, 2022). Thanks to technology it is possible to see how the majority of museum spaces exploit this potential, mixing digital technology provides an exploration of works of art from different perspectives.

The transformation of the museum into a sensory-enriched space through a technological approach can produce dynamic visualizations and change visitor perceptions in an interactive way (Nikolakopoulou, 2022). Technology and digital media can be used effectively to support museum spaces by presenting works that increase knowledge, stimulate curiosity, improve communication skills for new understandings, and attract visitor engagement (Fatta, 2018). Developments from the world of technology can be enjoyed by various age groups and this is an opportunity to attract visitors, especially young people who are very enthusiastic about vivid illustrations, audio narrations, and more (Nikolakopoulou, 2022). As a means of education, restoring the informative image of the museum, and as a means of fun recreation, it is hoped that visitors can explore better with digital and interactive displays (Nugroho *et al.*, 2018).

In the museum space, video mapping acts as a mediator between visitors and content, video projected on an interior scale will convey the message more realistically. Content communication and technology used can only be aligned through the visitor experience, considering that installations are usually placed at the end of a museum space visit, it is assumed that visitors have the opportunity to recapitulate and reflect on intangible values (Nikolakopoulou, 2022). Projection-based technology provides an interactive route to encourage active learning, shifting the perspective of visitors with works of art to become liberated visitors, provoking the act of creation and appreciation of visitors (through the visitor's physical, emotional, or imaginary experiences), and the actions between the artist and the visitor when operating within the visitor experience because without visitor participation the work does not exist (Roldan, 2019).

The main characteristic of virtual reality is that it can visualize objects that are not owned directly and in real terms, such as historical objects or abstract objects that are physically impossible. Virtual reality enables multisensory experiences on human perceptions such as balance, movement, touch, scale, or time as well as places in outer space or the ocean floor that are physically impossible. (Roldan, 2019). One of them is by applying elements that visitors really like because of their aesthetic qualities which have positive benefits and effects such as floral or plant elements (Hami *et al.*, 2018), this is intended so that visitors are more enthusiastic about exploring the museum space and processing works of art in depth (Carbon, 2017).

The mini museum Atsiri Sarinah presents experiences to plants, with the application of interactive digital technology, one of which is video mapping. Located in the DKI Jakarta province is one of the foremost provinces that has the largest total museums in Indonesia, namely 63 museums according to data reports from the Ministry of Education and Culture

(2023). The existence of a mini museum Atsiri in Sarinah Jakarta has historical value and the attraction is that Indonesia has Atsiri essential oils that need to be studied. The purpose of this research is to validate the extent to which visitors can learn information through experience after entering the mini museum Atsiri Sarinah, related to the role of museum space in educating essential oil products as Indonesian cultural heritage. The object of this research is the mini museum Atsiri in Sarinah Jakarta. The subjects of this study were visitors who had direct experience with an age range of 17 to 35 years were in normal circumstances and had no history of physical disabilities (vision, hearing, taste, and touch).

2. METHODS

This research was conducted using a mixed methods exploratory sequential approach, starting with qualitative research and continuing with quantitative research. Qualitative research conducted interviews with Atsiri Sarinah. Quantitative research was conducted by giving questionnaires to visitors at the mini museum Atsiri Sarinah Jakarta to validate the visitors' learning experience. Data collected in this study is in the form of primary data and secondary data. Primary data with survey research or questionnaires, in the form of physical documentation, data obtained in the field at the mini museum Atsiri in Sarinah Jakarta which was filled in by 40 respondents through an online Google form using 5 Likert scales (see **Table 1**) and interviews with Atsiri Sarinah parties to obtain the required data. The Likert scale is a set of statements (items) offered as a preferred way to real situations, measuring human attitudes that can be scientifically validated (Joshi *et al.*, 2015). Answer categories on a Likert scale usually have an odd number as Fink (Chakrabartty, 2014) suggests five to seven and are usually numbered. Secondary data through a collection of literature from scientific journals and others which are used as references and theories to support research.

Table 1. Questionnaire scoring.

Answer Choices	Scoring
Strongly agree (SA)	5
Agree (A)	4
Neutral (N)	3
Disagree (D)	2
Strongly disagree (SD)	1

2.1. Parameter

Museums generally like the use of technology, one of which is video mapping. Research so far shows that video mapping is used in cases of simple physical interactions because visitors do not need to wear any special equipment (Nikolakopoulou, 2022). Digital technologies to enhance the visitor experience in museums can incorporate various elements of projectors, touch sensors, haptic, audio, and more (Komianos, 2022) as well as combining video mapping camera-based interaction techniques to get an interactive experience. The aim of implementing digital technology is to support the learning experience through virtual elements that are projected and combined with real-time video captured by the camera so that visitors experience it in real-time (Komianos, 2022), experience through the installation makes visitors remember many aspects encountered during the visit (Nikolakopoulou, 2022).

The GLO (Generic Learning Outcomes) framework is a measurement of the learning experience of museum space which is based on a learning activity as a process of making sense, active involvement with experience, and visitor personal development. Has the aim of

gathering information about what visitors think can be learned through experiences in museum spaces related to the role of museum spaces as educational institutions, cultural assets, tourist attractions, community builders, and participants in urban creativity. The categories include five namely, knowledge and understanding, skills, attitudes and values, enjoyment of inspiration and creativity, behavioral activities, and progress (Brown, 2007). This parameter can be used as a reference in this study to validate the extent to which visitors can learn information through experience after entering the mini museum Atsiri Sarinah, related to the role of museum space in educating essential oil products as Indonesian cultural heritage.

2.2. Data Analysis Method

Testing the instruments in this study carried out validity tests, reliability tests, and Likert scale calculations. Validity test to test whether the statements compiled in this study are accurate. Interpretation of the validity test of the questionnaire using a significance value (*p*-value), if the specified significance value is < 0.05 then it is concluded that it is valid and if the significance value is > 0.05 then it is concluded that it is not valid (Leo & Sardanelli, 2020; Kwak, 2023). Validity can be done through statement points that form certain dimensions, done by correlating the score of each statement with the score of each variable. Reliability test to test the consistency of respondents' answers from the questionnaire statements (Tavakol & Dennick, 2011), find out whether the questionnaire statements remain consistent when measurements are carried out many times (Taber, 2018). This analysis uses the Alpha method, the variable is said to be reliable if the Cronbach Alpha value > 0.70 is included in the high-reliability category according to Nawi *et al.* (2020). Calculation of the Likert scale to determine the interval, frequency, and percentage as a response to the results of the Likert scale (Sullivan & Artino, 2013).

3. RESULTS AND DISCUSSION
3.1. Respondent Demographics

The results of the demographics of the respondents here are based on gender, age range, and profession. These results are used as additional information that can support and expand the analysis, not affecting certain factors. Because the selection of respondents had been given a limit from the start, these 40 respondents did indeed fulfill the category as research subjects as explained in the introductory point (see Page 3). The reason for determining the age range for selecting research subjects was based on the results of interviews with Atsiri, that the age category who came to the mini museum Atsiri Sarinah ranged from 17 to 35 years. The results of the demographics of the respondents will be displayed through tables and pie charts along with their explanations.

Based on **Table 2**, it is known that the total number of respondents is 40 people. The total number of female respondents was 28 people (70%), while the total number of male gender respondents was 12 people (30%). **Figure 1** presents the demographic distribution of respondents by gender in a pie chart. Decades of empirical research have generalized that gender differences exist between the way women and men differ in stages of development as well as in personality (Giudice, 2015) because women and men have different characters in society. **Table 2** and **Figure 1** show that more women tend to come to the mini museum Atsiri Sarinah than men. According to the results of interviews, women are more interested in coming to museums and attending workshops held by Atsiri.

Table 2. Respondent demographics based on gender.

Gender	Frequency	Percentage
Female	28	70%
Male	12	30%
Total	**40**	**100%**
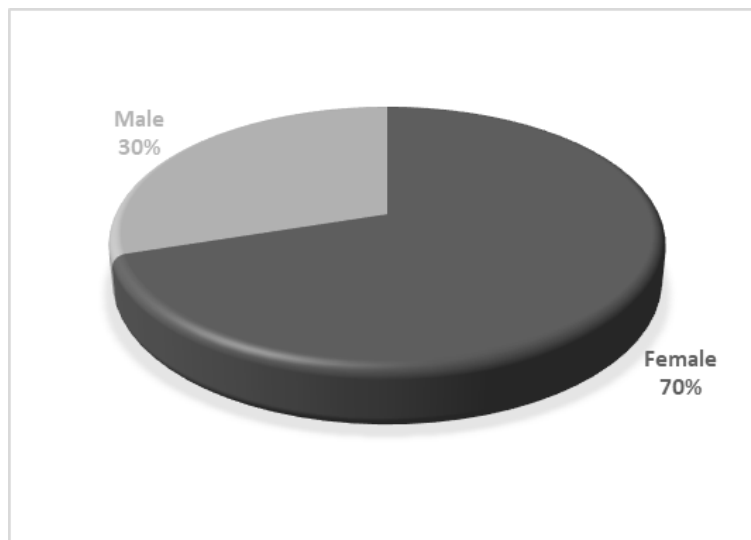
Figure 1. Respondent demographics based on gender.

Based on **Table 3** it is known that the total respondents aged 17-20 years were 5 people (12.5%), the total respondents aged 21-25 years were 20 people (50%), while the total respondents aged 26-30 years were 12 people (37.5%). It can be concluded that the most respondent category is the age range of 17-25 years as many as 25 people (62.5%), this age range belongs to the late adolescence category (Riandi, 2021) who have high mental dynamics (Dyussenbayev, 2017). **Figure 2** presents the demographic distribution of respondents seen by age range in a pie chart. The younger generation includes people who are digitally aware and have grown up with digital media or technology. In this case, age has a role in explaining the pattern of involvement with technology (Kubiatko, 2013). **Table 3** and **Figure 2** show that the age category that likes to come to the museum is late adolescence, following what is offered by Atsiri with the application of digital technology in museums to attract visitors, especially young people.

Table 3. Respondent demographics based on age range.

Age	Frequency	Percentage
17-20 years	5	12.5%
21-25 years	20	50.0%
26-30 years	15	37.5%
31-35 years	0	0.0%
Total	**40**	**100%**

Based on **Table 4**, the total number of respondents with private employee professions was 22 people (55%), the total number of respondents with student professions was 13 people (32.5%), the total number of respondents with civil servant professions was 3 people (7.5%), while the total number of respondents with the entrepreneurial professions was 2 people (5%). It can be concluded that the majority of the respondents' professions are private

employees. **Figure 3** presents the demographic distribution of respondents by profession in a pie chart. The use of technology in almost all aspects has changed human life towards a digital world for various groups (Adhiarso *et al.,* 2018) and the increasingly entwined people with digital media (Hoehe & Thibaut, 2020) where work, life, and others are increasingly inseparable from the digital world (Hurst *et al.,* 2023). **Table 4** and **Figure 3** show that those who come to the mini museum Atsiri Sarinah are from various professional backgrounds, which incidentally are more workers than students, this indicates that technology is not limited to certain professions.
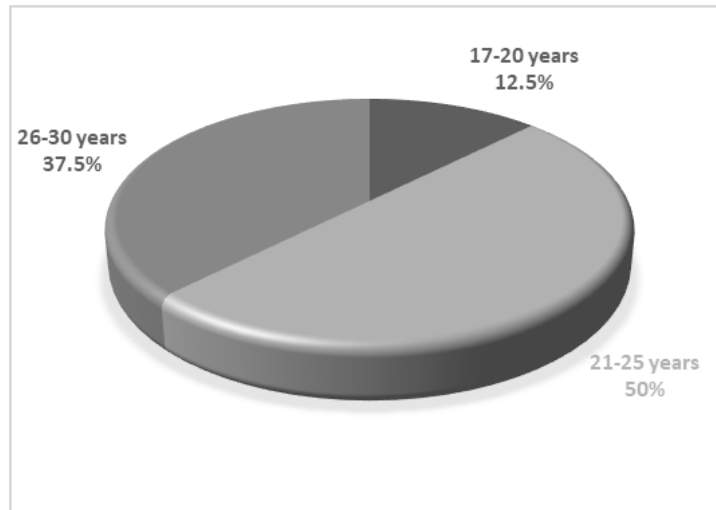

Figure 2. Respondent demographics based on age range.

Table 4. Respondent demographics by profession.

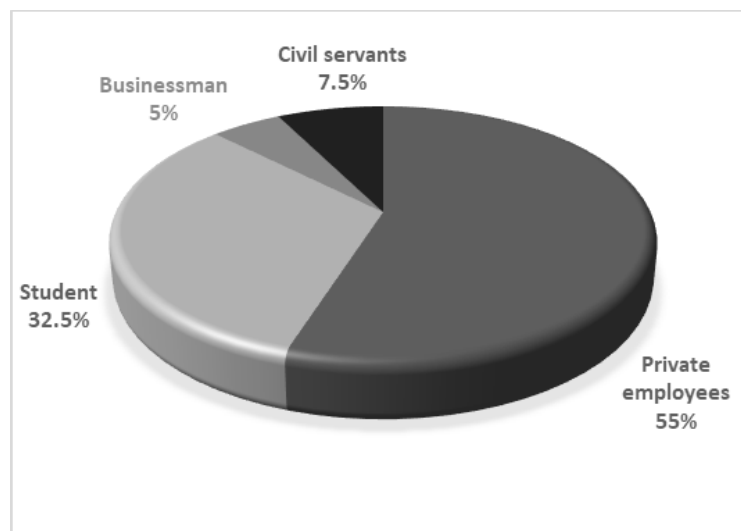| Profession	Frequency	Percentage
Private employees	22	55%
Student	13	32.5%
Businessman	2	5%
Civil servants	3	7.5%
Total	**40**	**100%**

Figure 3. Respondent demographics by profession.

3.2. Instrument Testing Results

Based on **Table 5**, the validity test using a significance value (*p*-value) is said to be valid because it has a value of 0.00 < 0.05, while the reliability test using the Alpha (α) method is said to be reliable because it has a Cronbach Alpha value of 0.88 > 0.70, so each statement pointer variable can be used in statistical testing. The results of the validity value are following the specified significance level is 0.05 which in research by Kwak (2023) in nine papers was assigned the significance level is 0.05, supported by the research of Leo & Sardanelli (2020) that many researchers still use this threshold. The results of the reliability value exceed 0.70 which has been set and enter the high-reliability limit point (Nawi *et al.,* 2020) as an indication of acceptable reliability (Taber, 2018), with acceptable Alpha values ranging from 0.70 to 0.95 (Tavakol & Dennick, 2011).

Table 5. Questionnaire validity and reliability test.

S/N	Item	*p*-value	α
1.	I enjoyed today's visit.	0.000	
2.	I learned some interesting new things.	0.000	
3.	I could understand most of the things we saw and did.	0.000	
4.	This is an exciting place.	0.000	
5.	Visiting this museum has given me lots of ideas for things I could do.	0.000	0.884
6.	The information I got through this museum visit will be useful for other things.	0.000	
7.	This visit made me want to find out more about essential oil products.	0.000	

3.3. Results of Questionnaire Item Analysis

Data from the analysis of the questionnaire items based on the Likert scale scoring results of the questionnaire and the results of scoring each questionnaire statement. The results of the questionnaire Likert scale scoring to find out how much the respondents agree or disagree that the mini museum Atsiri Sarinah can have an impact on the learning experience. While the results of scoring each questionnaire statement, are to find out the questionnaire statement items that have the greatest or smallest impact on respondents.

Based on **Table 6**, the results of the respondent's data describe the percentage of data collected through the distribution of questionnaires, 67% of visitors strongly agree that the mini museum Atsiri Sarinah has a good impact on the learning experience. It can be concluded that the mini museum Atsiri Sarinah can be said to be fulfilling in terms of education. **Figure 4** presents the distribution of the questionnaire scoring results in a pie chart. It is important to calculate the overall score on the Likert scale data because it affects the analysis decisions according to the results of frequencies, percentages, and others (Chyung *et al.,* 2017). The Likert scale is a set of statements for real situations because respondents are asked to indicate their level of agreement, it reveals that the attitudes towards research issues are interrelated. Using a symmetrical Likert scale where the neutral position is right between strongly agree (SA) and strongly disagree (SD) gives freedom to respondents to choose equally in both directions (Joshi *et al.,* 2017).

Table 6 and **Figure 4** show that 97.5% namely 39 out of 40 respondents agree and strongly agree that there is an impact on the learning experience, this score almost covers the entire number of respondents. The more detailed reasons regarding the points that have the most significant impact will be explained in **Table 7** and **Figure 5**. Of course, these results are in line with the aim of the mini museum Atsiri Sarinah to educate essential oil products, data obtained through interviews with the Atsiri. According to Atsiri, it is difficult to attract visitors

to the museum. Therefore, need to awaken the senses of visitors according to research conducted by Komianos (2022). The most complete experience is felt by all the senses where reality meets unreality. Combining the physical world with the digital world is a powerful formula to invite interest, one of which is the application of video mapping.

Table 6. Questionnaire scoring results.

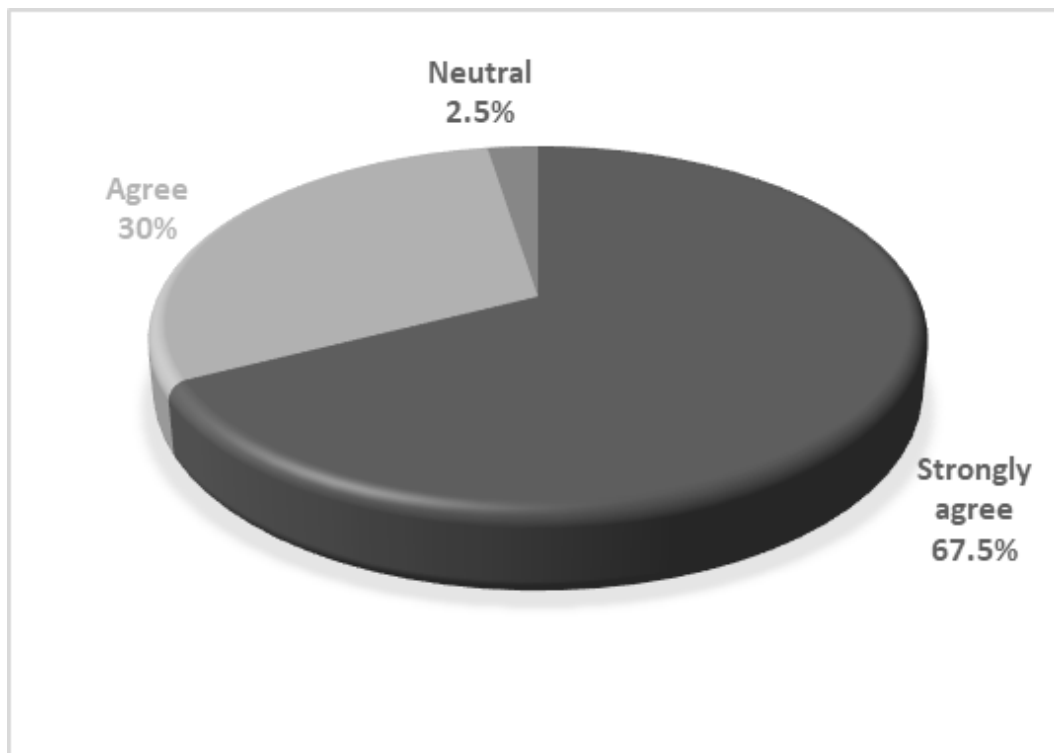| Category	Intervals	Frequency	Percentage
Strongly agree (SA)	35.0 – 29.4	27	67.5%
Agree (A)	29.4 – 23.8	12	30.0%
Neutral (N)	23.8 – 18.2	1	2.5%
Disagree (D)	18.2 – 12.6	0	0.0%
Strongly disagree (SD)	12.6 – 7.0	0	0.0%
Total		**40**	**100%**

Figure 4. Questionnaire scoring results.

Based on **Table 7**, the results of the respondent's data describe the frequency collected through distributing questionnaires with the most significant impact such as enjoying the visit (GLO1), mini museum Atsiri Sarinah is a fun place (GLO 4), and learning new interesting things (GLO2). **Figure 5** presents the distribution of the questionnaire results per statement item in a bar chart. These results follow research conducted by Hami *et al.* (2018) that floral or plant elements have a positive effect, it was proven that most of the respondents strongly agreed with the questionnaire statements. Experience in driving learning and educating essential oil products, of course in an interactive and fun way that can provoke visitor appreciation (Roldan, 2019; Nugroho *et al.,* 2018). **Table 7** and **Figure 5** show that 6 out of 7 questionnaire statements with more than 20 respondents strongly agree with these statements, which means more than half of the total respondents.

Table 7. Questionnaire Results per Statement Item

S/N	Item	Frequency
1.	I enjoyed today's visit.	27
2.	I learned some interesting new things.	26
3.	I could understand most of the things we saw and did.	22
4.	This is an exciting place.	27
5.	Visiting this museum has given me lots of ideas for things I could do.	19
6.	The information I got through this museum visit will be useful for other things.	22
7.	This visit made me want to find out more about essential oil products.	22
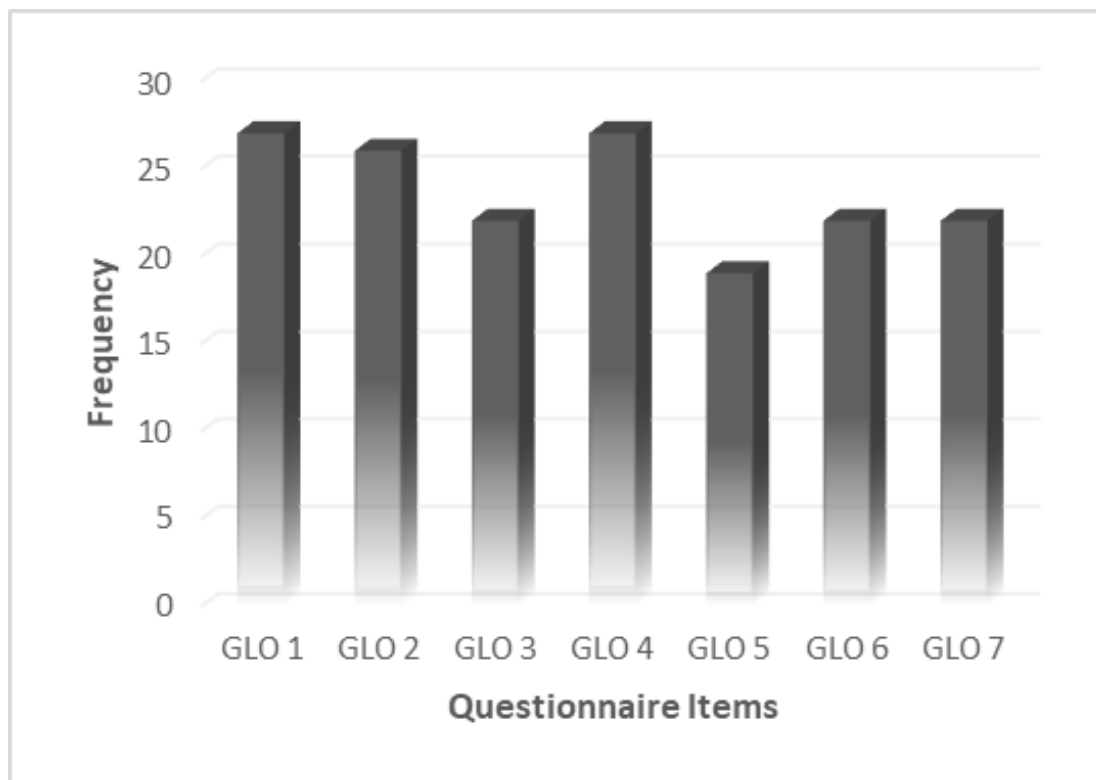
Figure 5. Questionnaire results per statement item.

3.4. Results of Data Analysis

Based on the results of instrument testing, it is known that the statements prepared in this study are accurate, evident from the significance value (p-value) of all statement points < 0.05 so that it is said to be valid. Questionnaire statements are also consistent when repeated measurements are carried out. It is evident from the Alpha value (α) of all statement points > 0.70 that it is said to be reliable and statistical testing can be carried out. Based on Likert scale calculations, it is known that the mini museum Atsiri Sarinah can be said to be fulfilling in terms of education, as seen in the GLO 1, GLO 4, and GLO 2 statements. According to the results of interviews with Atsiri, the purpose of the mini museum Atsiri Sarinah is to attract curious visitors, this shows that the expectations of the Atsiri are achieved. Supported by the respondent's statement that visitors can understand most of the things seen and done (GLO3), the information obtained through the visit will be useful (GLO6) and want to know more about essential oil products (GLO7).

4. CONCLUSION

The use of technology or digital media such as video mapping can attract young visitors, especially the late adolescent category, by stimulating curiosity, curiosity, and supporting learning experiences so that visitors can learn about real plants through installations. This can improve the image of the mini museum Atsiri in Sarinah Jakarta as an informative educational tool in educating essential oil products as Indonesian cultural heritage. The learning experience with installations makes visitors learn new and interesting aspects, understand all the information obtained during the visit, and want to learn more about essential oil products that can be useful for visitors in other ways.

5. ACKNOWLEDGMENT

6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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