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PUBLIC PERCEPTION OF NOISE (CASE STUDY: MALIKUSSALEH UNIVERSITY AKSI ADB PROJECT)

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ABSTRACT
Malikussaleh University (Unimal) is one of the four universities selected to get *a loan* from the *Asian Development Bank* (ADB) related to *the Advanced Knowledge and Skills for Sustainable Growth in Indonesia* (AKSI) project. In the construction process, such as installation activities and building infrastructure from equipment, it can trigger unexpected noise, so it can have an impact on people's health and comfort. This research was conducted in five new building construction locations on the Bukit Indah campus of Malikussaleh University. The purpose of this study is to see the perception and attitude of the community around the construction project activities. The research method used was the distribution of questionnaires and using the Likert scale to measure the attitudes, opinions, and perceptions of the research respondents. The results of the questionnaire will be processed using SPSS software. The results showed that the overall average value of the respondents' perception of noise was 2.35. This figure shows that the current place of work/study/living does not feel noisy due to ongoing construction work.

INTRODUCTION

Buildings are a necessity for all people, who hold an important and inseparable contribution in life, one of which is the need for buildings and/or lecture halls to support the educational process. The Asian Development Bank (ADB) provides a loan to the Indonesian government to be implemented into the Advanced Knowledge and Skills for Sustainable Growth in Indonesia (AKSI) project which targets universities to produce intellectual and capable human resources to support inclusive and sustainable economic growth for the Indonesian state. Indonesia (UPI), the University of Jambi (UNJA), and the University of Riau (UNRI) were selected to get loans from ADB related to the AKSI project.

Although it aims to be a development with positive value to meet the needs of the community, construction activities have a negative side to the environment which has an effect on the impact of land use and Kristianto's comfort. Building construction activities or activities can have an important and very large environmental impact (Rellua, 2013). In the construction process, such as installation activities and building infrastructure from construction equipment and activities, it can trigger unexpected noise, so it can have an impact on health (Ginting, et al. 2016).

The project location is in an area that is directly adjacent to residential areas and is still within the campus environment, this can interfere with the comfort of the community and students around the project environment. There is an issue of complaints due to noise from people who live in areas directly adjacent to the location of construction activities of the project building which is conveyed by word of

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mouth. Development must pay attention to spatial planning that balances the natural environment and the built environment to maintain the interests of the community. Several environmental aspects need to be considered in the implementation of construction development projects. This is as stated in Law Number 32 of 2009 concerning Environmental Protection and Management, which requires a study to control the adverse impacts of these activities.

METHODS

The data collection method can be done in several ways such as by giving questionnaires, conducting interviews, conducting direct observations and also a combination of all of them. In this study, the researcher used a questionnaire as a method and instrument for data collection. The researcher will ask a set of questions to the research respondents. The questions that will be given are in the form of closed questions, where closed questions are questions that direct respondents to give short answers or choose one of the answer options that have been provided. Respondents may only show one answer that is considered to be in accordance with the respondent's perception and attitude.

The total population in this study is 10,145. The number of samples obtained was 100 samples calculated from the slovin formula. The characteristics of the respondents in this study can be described as follows. The target respondents are Malikussaleh University students, employees and lecturers of Malikussaleh University, project workers, and the community located around the project work area affected by the project implementation. The Likert Scale was used in this questionnaire to measure the attitudes, opinions, and perceptions of respondents towards the impact of project noise. This study uses the Likert scale which has a minimum score of 1 and a maximum score of 5, to find out whether respondents tend to agree or disagree with their answers. The results of the respondent questionnaire will later be processed using SPSS software.

RESULTS

Validity Test Results

Based on the results of the analysis, all statements were declared valid because they had a significance level below 5%. Meanwhile, if it is done manually, the correlation value obtained by each statement must be compared with the critical value of the correlation of the product moment where the results show that all statements have a correlation value above the critical value of 5%, which is above 0.1981 (see Table of Critical Values of R Product–Moment Correlation for n = 100), so that the statements contained in the questionnaire are significant and have construct validity, Or in statistical language there is internal consistency (internal consistence) which means that the statements measure the same aspect.

Table 1. Validity Test Results

Statement No.		Correlation Coefficient	Critical Value 5% (N=100)	Ket
1	P1	0,719	0,1981	Valid
2	P2	0,736	0,1981	Valid
3	P3	0,671	0,1981	Valid
4	P4	0,726	0,1981	Valid
5	P5	0,815	0,1981	Valid
6	P6	0,817	0,1981	Valid
7	P7	0,881	0,1981	Valid
8	P8	0,867	0,1981	Valid
9	P9	0,899	0,1981	Valid
10	P10	0,900	0,1981	Valid

11	P11	0,758	0,1981	Valid
12	P12	0,850	0,1981	Valid
13	P13	0,707	0,1981	Valid
14	P14	0,870	0,1981	Valid
15	P15	0,796	0,1981	Valid
16	P16	0,851	0,1981	Valid
17	P17	0,878	0,1981	Valid
18	P18	0,894	0,1981	Valid
19	P19	0,858	0,1981	Valid
20	P20	0,918	0,1981	Valid
21	P21	0,675	0,1981	Valid
22	P22	0,864	0,1981	Valid

Source: Primary Data 2023, (processed)

Based on the table above, it can be explained that all the variables used in this study are all declared valid, because they have a correlation coefficient above the critical value of product moment correlation, which is 0.1981 so that all questions contained in this research questionnaire are declared valid to continue more in-depth research. Thus, all instrument items from each variable in this study have been qualified for further testing.

Reliability Test Results

The use of items as indicators of research variable data requires a consistency test through a reliability test, so that the data used is reliable or meets the reliability aspect for further analysis. The reliability test of the question items of a questionnaire uses the Cronbach Alpha score. This was only done once on a group of respondents on each variable. The reliability measure is considered reliable based on Cronbach Alpha (a), so the measurement results can be considered as a measuring tool with a level of precision and consistency. Good thoughts. The results of the reliability test can be seen in the following table:

Table 2. Reliability Test Results

No	Number of Items	Cronbach's Alpha		Information
		Count	Standard	
1	22	0,974	0,600	Handal

Source: 2023 data (processed)

From the table above, Cronbach's Alpha values are 0.974 each. Thus, all question items used in the research variable are said to be reliable because they have a Cronbach's Alpha value of more than 0.100.

Descriptive Respondent Perception Data

Respondent perception analysis is useful for analyzing respondents' perceptions in answering each question item in the questionnaire. Data analysis tools to test respondents' perceptions by calculating the average value and then grouping them into categories of respondents' perception assessments. The score range is calculated by dividing the difference between the highest score and the lowest score by the number of questionnaire answer score choices. Mathematically it is written:

$$\text{Score range} = \frac{5-1}{5} = 0.8 \quad \text{..... Suryana (2015)}$$

Furthermore, the classification of respondents' perceptions will be classified into several categories. More details can be seen in the following table:

Table 3. Perception Based on Score Interval

Average Score	Category
1,00 – 1,79	Very bad
1,80 – 2,59	Bad
2,100 – 3,39	Not good
3,40 – 4,19	Good
4,20 – 5,00	Excellent

To provide an overview of the achievement of each variable of this study, the average score criterion range of the respondents' answers was used. If the average score is above 3.41, it can be concluded that in general respondents gave a favorable or good response to each question item in the questionnaire. Respondent perception analysis is useful for analyzing respondents' perceptions in answering each question item in the questionnaire.

The recapitulation of the results of the respondents' perceptions can be seen in the table below.

Table 4. Recapitulation of Respondents' Perceptions

No	Statement	Alternative Answer					Sum	Rata-rata
		5	4	3	2	1		
1.	Do you know about noise?	15	45	37	3	0	372	3,72
2	Do you know about regulations or laws related to noise?	23	16	39	18	4	336	3,36
3	Do you know the impact of noise?	18	16	43	22	1	328	3,28
4	Do you know the noise threshold value?	0	16	25	29	30	227	2,27
5	Do you use earplugs/earmuffs?	0	2	3	39	56	151	1,51
6	Before the construction project, was the environment around you noisy?	0	2	3	46	49	158	1.58
7	Is the place where you work/study/live currently noisy due to ongoing construction work?	0	1	47	20	32	217	2,17
8	During a construction project, do you feel distracted when communicating/talking to colleagues?	0	1	61	11	27	236	2,36
9	Do you have to raise your voice/shout if you are talking to colleagues, especially when you are around the construction project area?	0	12	15	31	42	197	1,97
10	Do construction project noises make you feel dizzy/headaches?	0	5	58	14	23	245	2,45
11	Does the noise/noise of a construction project make you feel deaf?	0	9	29	29	33	214	2,14
12	Do you feel bothered by the noise?	0	10	64	9	17	267	2,67
13	Do you have a desire to move to a quieter location?	0	2	78	7	13	269	2,69

No	Statement	Alternative Answer					Sum	Rata-rata
		5	4	3	2	1		
14	Do you often find it difficult to sleep because of noise?	0	0	11	41	48	163	1,63
15	Do you not like that?	0	6	21	19	54	179	1,79
16	Do you feel disturbed or uncomfortable in doing work/study/rest activities with the existing noise?	0	1	59	27	13	248	2,48
17	Does the noise at your workplace make you angry and emotional more often?	0	3	35	18	44	197	1,97
18	Do you think it has enough effect on your productivity in studying/working?	0	4	56	20	20	244	2,44
19	Does this construction work have a big impact on your daily activities?	0	2	52	23	23	233	2,33
20	Does noise in the classroom reduce the grades and quality of your study/work?	0	5	42	15	38	213	2,13
21	What is your attitude if you feel disturbed or uncomfortable in doing work/study/rest activities with the existing noise?	0	3	58	13	26	238	2,38
22	What are your expectations if you feel disturbed or uncomfortable in doing work/study/rest activities with the existing noise?	0	1	26	18	55	173	1,73
	Rata-Rata							2,35

Source: Primary Data, 2023 (processed).

Based on Table 29, it was obtained that the average value of the overall result of the respondents' perception of noise was 2.35. This figure shows that the current place of work/study/living feels quiet due to ongoing construction work.

CONCLUSION

The conclusion of the results of this study shows that the place of work/study/residence of the research respondents is currently not noisy due to the construction work of the ADB AKSI project at Malikussaleh University which is shown by the results of the overall average value of the respondents' perception of noise which is 2.35. This is inseparable from the contractor's efforts to manage noise around the research area, including by ensuring that there is a work permit before starting activities, placing K3 signs, and also trying to arrange work times that cause high noise to be done at night (for locations that are not close to residential areas) and also on holidays when there are no lecture activities.

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