International Journal of Evaluation and Research in Education (IJERE)
Vol. 13, No. 3, June 2024, pp. 1363~1374
ISSN: 2252-8822, DOI: 10.11591/ijere.v13i3.26805

Development of the noise questionnaire in the online learning process and implications for counseling

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Article Info

Article history:

Received Feb 8, 2023
Revised Aug 10, 2023
Accepted Sep 29, 2023

Keywords:

Counseling
Higher education
Noise
Online learning
Questionnaire

ABSTRACT

Starting with online learning requires a lot of attention such as focus, comfortable sitting, and avoiding distractions such as noise. A noise questionnaire instrument is an evaluation tool designed to identify the experience of students in the online learning process. This instrument was developed based on a literature review on noise and online learning. The instrument first stage was given to 110 students and the instrument second stage was given to 460 students in seven universities in Indonesia, 99 male and 361 female respondents aged 18-30 years. The instrument was designed based on DeVito's noise theory: physical noise, physiological noise, psychological noise, and semantic noise. The statistical test of the instrument used confirmatory factor analysis (CFA) to find the goodness of fit index model. The results of the noise instrument factor analysis show a fit model, acceptable validity, and high internal consistency (α=0.86). The findings of this study produce valid and reliable instruments for identifying noise indicators that are dominant in online learning activities. The results of identifying noise in online learning can be used to design guidance and counseling programs or plan actions to deal with noise in online learning according to the data obtained.

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1. INTRODUCTION

Information technology, which has been seen as a threat, is now playing a vital and strategic role in various aspects of life, including education. No one can avoid information technology in this digital era [1]. Information technology is a powerful and valuable tool to support learning [2]. Learning that is supported or utilizes information technology is known as online learning. Many academic programs are developing online [3]. Online learning has become a mainstay in many universities [4]. Solving various problems in the current online learning conditions requires an interdisciplinary approach to adapt quickly [5]. The increase in online learning due to coronavirus disease (COVID-19) also requires educators and students to be prepared to face different learning conditions. Various challenges are faced by educators and students, especially in the use of technology and network connectivity in the online learning process. Noise in online learning can occur due to technology and poor network connectivity [6]. Cossaboon's research [7] states that the learning environment during online learning can affect students' educational achievement. Many factors cause noise in learning, and the noise experienced by students will badly impact learning [8].

To measure the amount of noise in learning, many devices have been employed in earlier investigations. To the author's knowledge, no one has employed noise instruments in online learning in a wider context; instead, all studies have focused on evaluating physical noise or noise in the school setting during face-to-face learning [9], [10]. In order to increase the quality of online learning, there is a rising necessity for strong support and pertinent studies in basic education and higher education. Therefore, it is crucial to provide tools for detecting noise in online learning and suitable ways for mitigating its detrimental effects on the processes and results of online learning. The purpose of this project is to provide a tool to detect noise in the online learning environment, particularly for students. Online learning is developing, which is a new thing for students, especially in Indonesia. Students need to adapt to modern technology when online learning is implemented [11]. Teachers need to choose the best strategy for implementing online learning. Academic attainment declines while procrastination rates are higher in online learning than in face-to-face learning [12], [13]. Another study discovered that in online learning, the dropout rate was higher than in face-to-face learning due to various problems such as not having the required technology, difficulties in using modern technology, weak signal reception, and environmental noise [14], [15].

A survey of the literature on noise reveals that the idea of noise is not new. On the other hand, the evolution of the dimensions and varieties of noise in online learning is still very recent. Noise is not just outside noise that interferes with message transmission. DeVito [16] defined four types of noise, i.e., physical noise, physiological noise, psychological noise, and semantic noise. Noise is defined as unwanted and disturbing sound with high energy waves, which negatively affect learning quality [17]. Another definition of noise is anything that distorts or interferes with the reception of a message [16]. Noise is a serious problem in life and health. Noise interferes with the performance of complex tasks [18]. In particular, most of the findings show that noise negatively affects academic achievement and affects students' comfort in learning and teachers' comfort in teaching; thus, the learning process is not carried out properly [19]–[23]. For example, poor environmental acoustics will yield noise that negatively affects the learning process [24], [25].

The objective of this research is to instruments for measuring noise during the online learning process. Various noise studies have been carried out, such as noise studies in face-to-face learning. Meanwhile, researchers did not find any research on noise in online learning. The conditions for online learning improved when the COVID-19 virus emerged. The current condition of online learning is increasing even though COVID has subsided, it necessitates pertinent research to create instruments that can investigate different issues with online learning, and the result is to determine which students need in-depth guidance and counseling services in tertiary institutions as a planned aid effort systematic, and programmed to facilitate students' participation in online learning effectively.

2. RESEARCH METHOD

This study uses a research and development (R&D) approach. R&D is a type of research that has been successfully used to create educational products [26], [27]. R&D in this study uses a 4D model (define, design, development, and dissemination) [28].

2.1. Procedures of 4D

2.1.1. Define the stage

The initial stage, the researcher collected and analyzed the theory of noise and other theories relevant to this research topic. The collection involved gathering the results of previous research on noise. Subsequently, the researcher observed noise conditions in the online learning process, reactions to noise, and strategies for responding to noise online learning.

2.1.2. Design stage

Stage of making instruments: designing instrument grilles. The instrument grid consists of dimensions, indicators, and items. The instrument grid is designed based on Devito's theory [16].

2.1.3. Development stage

The instrument that has been designed according to Devito's theory [16] goes through several stages. First, five professionals in the fields of psychology, guidance, and counseling were provided with instruments to assess their validity and practicality. Judgment is a person who has the experience and a reputation in conducting research [29], [30]. Second, after the instrument was validated by judgment, the instrument was then given to 110 student respondents. Third, the instrument was again given to 460 student respondents.

Validity and practicality data from the judgment were analyzed using Aiken's V formula [31], it is shown in Tables 1-3. Instrument data of 110 student respondents were analyzed using structural equation model (SEM) with the Lisrel application (Figure 1). Then the instrument data of 460 student respondents were also analyzed using SEM with the Lisrel application (Figure 2). SEM analysis was carried out to produce an instrument fit model because this analysis is capable of producing comprehensive and complex tests [32].

Table 1. Descriptive data validation judgment

Aike's V symbol	Item number										Mean
	1	2	3	4	5	6	7	8	9	10	
∑s	9	9	12	9	9	9	9	8	9	9	0.77
V	0.75	0.75	1.00	0.75	0.75	0.75	0.75	0.67	0.75	0.75	0.77

Table 2. Descriptive data practicality judgment

Aike's V symbol	Item number					Mean
	1	2	3	4	5	
∑s	12	12	12	10	10	11.2
V	1.00	1.00	1.00	0.83	0.83	0.93

Table 3. Categorization of practicality data for noise questionnaire instruments

No	Assessment aspect	Average score (%)	Category
1	Question items	100	Very practical
2	Ease of use	100	Very practical
3	Usage time	100	Very practical
4	Easy to interpret	88	Very practical
5	Functionality and usability	92	Very practical
	Average	96	Very practical

2.1.4. Dissemination stage

At this stage, the researchers collaborated with guidance and counseling lecturers at the selected universities to instruct their students to fill out the instrument and obtained 460 student respondents. Respondents in the second stage (N=460) have a larger scale than in the first stage (N=110). The quantitative data collected were analyzed using SEM. The validity criteria were set: the loading factor value (≥0.50) [33]. Reliability criteria provisions: construct reliability value (≥0.60). Next, confirmatory factor analysis (CFA) testing was done to see how well the noise questionnaire instrument met the model fit requirements [32].

2.2. Participants

Simple random sampling was the method of sampling that was utilized [34]. Respondents in the first stage were 110 undergraduate students. Undergraduate and graduate students (N=460) from seven institutions in Indonesia who participated in online lectures as a result of the COVID-19 epidemic were the respondents in the study's second stage. The quantity of respondents was sufficient and satisfied the requirements [34]. Respondents were enrolled in Guidance and Counseling, Islamic Psychology, Islamic Education Management, Islamic Religious Education, Islamic Broadcasting Communication, and Islamic Community Development. Male respondents=99 and female respondents=361, aged 18-19 years (17.4%), 20-21 years (51.5%), 22-23 years (18.3%), 24-25 years (1.5%), 26-27 years (1.3%), 28-29 years (1.7%) and ≥ 30 years (8.3%).

3. RESULTS AND DISCUSSION

3.1. Results

3.1.1. Results of defining

From the results of the collection and analysis of theories about noise and various theories that are relevant to the topic of this research, the researchers selected the theory of DeVito [16] in compiling the instrument, taking into account the dimensions of the theory that are relevant to online learning situations and conditions. To gather information on the levels of noise that students encounter when studying online, it is necessary to build instrument for recognizing noise. Then, guidance and counseling programs for improving online learning may be built on this data.

3.1.2. Results of design

The instrument design made was the noise questionnaire instrument (NQI) used to collect data about the noise experienced by students during the online learning process. The instrument was based on DeVito's theory with four indicators: physical noise, physiological noise, psychological noise, and semantic noise. Results of the first draft of the NQI instrument consist of 29 items: physical noise with 12 items, physiological noise with 9 items, psychological noise with 4 items, and semantic noise with 4 items. This instrument is used to measure and investigate noise levels throughout the online learning process; For example, "The use of Zoom, Google Meet, and other video calling platforms for online learning feels clamorous or loud/deafening."

Measurement of data using a Likert scale, with four alternative answer choices, with the value of each answer choice predetermined from 0 to 3 [35], [36]. The answer choices are divided into two categories: first, the top answer choices are given a value of 0 in descending order 1, 2, and 3. The second category, answer choices: Never (0), Sometimes (1), Often (2), Always (3). A low score implies that there is little or no noise in the classroom, whereas a high number suggests that there is more or more noise.

3.1.3. Result of development

The noise questionnaire instrument in learning was given to the validator and the validation results were processed using Aiken's V. The analysis results of the validation data by experts using Aiken's V can be seen in Table 1. Aiken's V coefficient values are between 0-1. If the value of the instrument validation coefficient is greater than 0.5, then the instrument is adequate or feasible to use [31]. From the analysis results, it can be seen in Table 1 that all instrument validation items have a value greater than 0.5, and the average Aiken's V value is 0.77, meaning that the noise questionnaire instrument has adequate content validity. Furthermore, the results of the practical analysis can be seen in Tables 2 and 3.

The research sample in the first stage was 110 students. According to the Kaiser-Meyer-Olkin (KMO) test, the sample size was 0.818 (>0.8). These findings show that the sample size satisfied the prerequisites for both the Bartlett Sphericity test and the factor analysis test [37]. The validity criteria are set to obtain a simple measurement structure: the loading factor value (≥0.50).

Figure 1 shows the SEM, consisting of 29 items. The findings of the SEM analysis show 15 items that are more than 0.50: i) the physical noise dimension consists of seven statements of items 1, 4, 5, 6, 7, 8, and 10; ii) the physiological noise dimension consists of two statements of items 13, 14, 16, and 17; iii) the psychological noise dimension consists of two statements of items 22 and 24; and iv) the semantic noise dimension consists of two statements of items 26 and 27.

According to the findings of the first stage of SEM analysis, among the 29 first design items, 14 items were eliminated (items 2, 3, 9, 11, 12, 15, 18, 19, 20, 21, 23, 25, 28 and 29) because the loading factor did not exceed 0.05. In the second stage, trials were again carried out on more student respondents, namely N=460, and the data was re-analyzed using SEM to obtain a valid instrument.

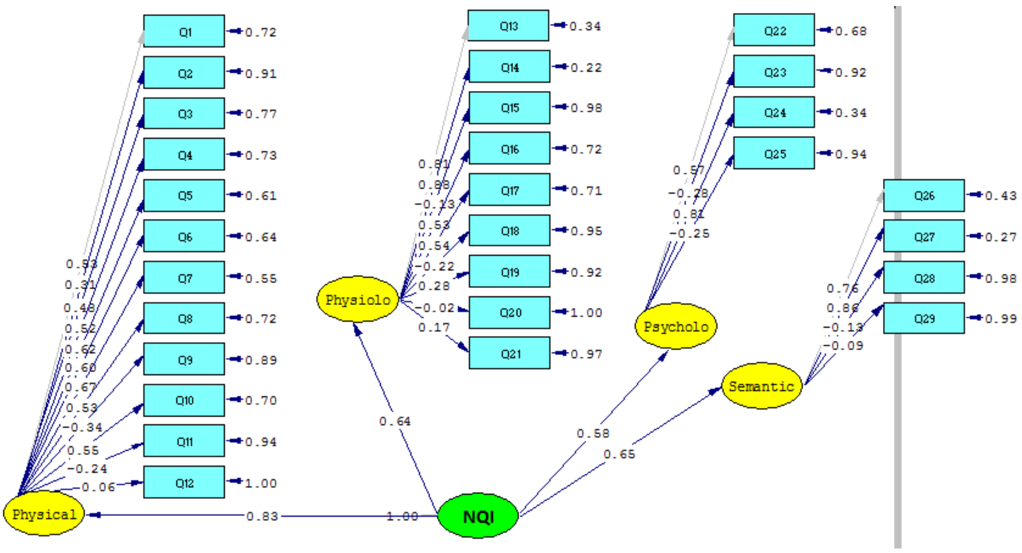

Figure 1. Analysis SEM for instrument data of 110 student

3.1.4. Result of dissemination

The collaboration of the researcher with guidance and counseling lecturers at several universities in Indonesia in informing filling out the noise questionnaire instrument has resulted in data originating from 460 students. In the second step of the SEM study of the 29 designed objects, as shown in Figure 2, 13 items were found to be valid or meet the criteria for factor loading (>0.50). Then 16 invalid items were found, 14 items were the same item numbers as invalid items in the first stage plus item numbers 16 and 17. The SEM results were the final results and 13 valid items were the final NQI instrument items.

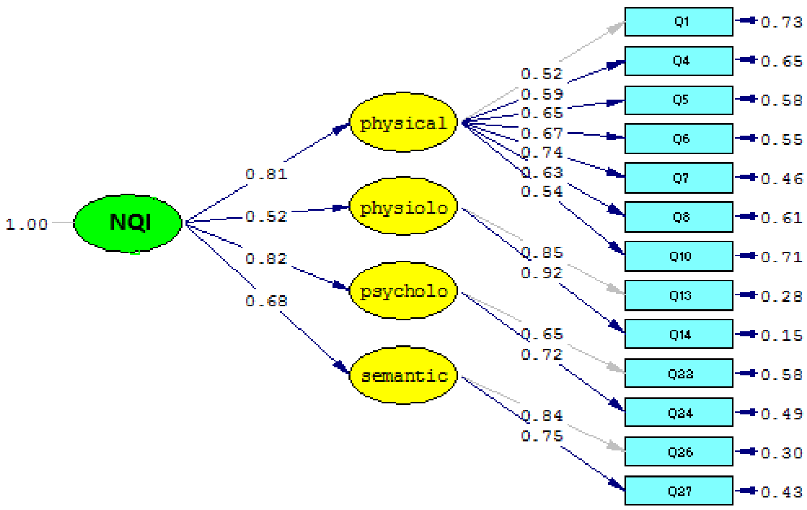

Figure 2. Analysis SEM for instrument data of 460 student

Table 4 provides a comprehensive overview of the NQI. It includes the overall score, the number of indicator items, the mean, standard deviation, and the range of values for each component. Additionally, Table 4 presents the reliability values of the NQI.

Table 4. Descriptive statistic of the NQI

Noise questionnaire instrument (NQI) (13 items)	Number of items	Mean	Standard deviation	Range	Reliability
Physical	7	6.87	3.47	0-21	0.81
Physiological	2	1.65	1.37	0-6	0.88
Psychological	2	2.15	1.11	0-6	0.62
semantic	2	1.43	1.06	0-6	0.77
Total	13	12.11	7.01	0-39	0.86

Based on Table 4, 13 items that meet the validity criteria are divided into four dimensions: i) the physical noise dimension consists of seven statements of items 1, 4, 5, 6, 7, 8, and 10 with an acceptable reliability value (α=0.81); ii) the physiological noise dimension consists of two statements of items 13 and 14 with a high-reliability value (α=0.88); iii) the psychological noise dimension consists of two statements of items 22 and 24 with an acceptable reliability value (α=0.62); and iv) the semantic noise dimension consists of two statements of items 26 and 27 with an acceptable reliability value (α=0.77). The consistency value of each dimension is particularly good, and all reliability values are above 50 (>50). The overall reliability value of the NQI is (α=0.86) with a high-reliability value [38].

Table 5 shows the critical rate and t value, which show that all path coefficients are significant. Table 6 shows that the instrument model meets the FIT model criteria with GFI 0.89, AGFI 0.84, CFI 0.92, RFI 0.88, IFI 0.92, NFI 0.91, PGFI 0.60, PNFI 0.71, and NNFI 0.90. However, in Table 6 it is found that the SEM instrument noise questionnaire model is poor (RMSEA=0.105). Therefore, modifications were made to the previous model to find a better fit for the data. The model was modified based on a number of modification indices (MI) suggestions [39].

Table 5. Direct standardized and non-standardized coefficients path in the confirmatory model

Path in confirmatory model	Non-standardized coefficient (B)	Critical rate (C.R)	T-values	P-value
1) Physical	Q1	0.33		
2) Physical	Q4	0.42	9.11	<0.001
3) Physical	Q5	0.53	9.65	<0.001
4) Physical	Q6	0.51	9.8	<0.001
5) Physical	Q7	0.57	10.28	<0.001
6) Physical	Q8	0.44	9.45	<0.001
7) Physical	Q10	0.35	8.65	<0.001
8) Physiological	Q13	0.63		
9) Physiological	Q14	0.65	12.47	<0.001
10) Psychological	Q22	0.46		
11) Psychological	Q24	0.41	9.45	<0.001
12) Semantic	Q26	0.50		
13) Semantic	Q27	0.44	11.15	<0.001
14) NQI	Physical	0.81	9.46	<0.001
15) NQI	Physiological	0.52	8.49	<0.001
16) NQI	Psychological	0.82	10.08	<0.001
17) NQI	Semantic	0.68	11.16	<0.001

Table 6. Model fit indices

							Normed Chi-square						
Model	X2	df	GFI	AGFI	CFI	RFI	IFI	NFI	PGFI	PNFI	NNFI	RMSEA	χ2/df
	370.65	61	0.89	0.84	0.92	0.88	0.92	0.91	0.60	0.71	0.90	0.105	6.076

Figure 3 shows the SEM, which consists of four dimensions: physical noise (7 items), physiological noise (2 items), psychological noise (2 items), and semantic noise (2 items), and has been modified based on the recommendation of MI. The standard coefficient values can be seen on the arrow that points to the box for each item.

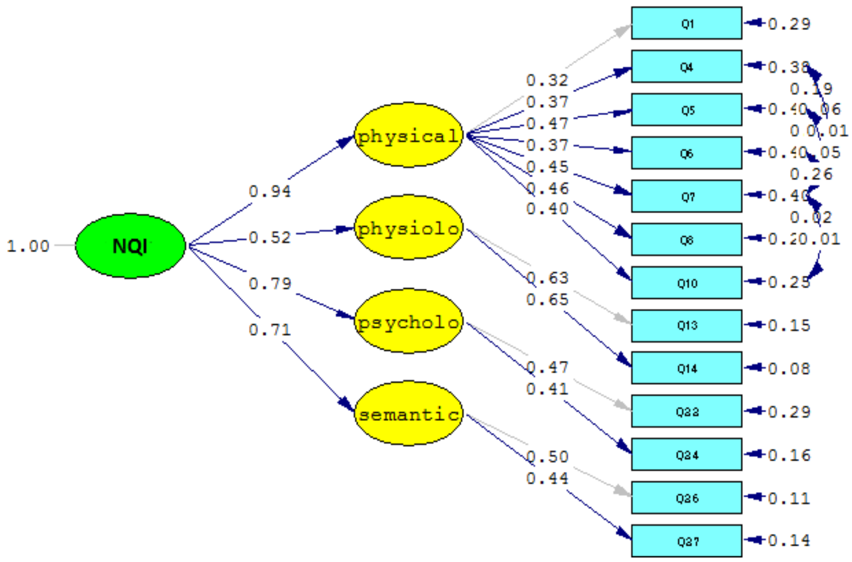

Figure 3. Confirmatory factor analysis (CFA)

Modifications were performed in order to identify a data match based on multiple MI suggestions, the outcomes of the modification analysis are shown in Tables 7 and 8. The outcomes of the model are displayed in Tables 7 and 8. The four dimensions (physical noise, physiological noise, psychological noise, and semantic noise) are quite consistent with the data and structure of a good model, according to the CFA results. Model fit was seen from RMSEA=0.037, GFI=0.97, AGFI=0.95, CFI=0.99, and statistically significant Chi-squared 2/df=1.639 [34], [40]–[42]. In general, the CFA analysis results are: significantly consistent with the research model, and the instrument model has met the theoretical requirements.

Table 7. Direct standardized and non-standardized coefficients path in the final model

Path in confirmatory model	Non-standardized coefficient (B)	Critical rate (C.R)	T-values	P-value
1) Physical	Q1	0.32		
2) Physical	Q4	0.37	7.88	<0.001
3) Physical	Q5	0.47	8.40	<0.001
4) Physical	Q6	0.37	7.46	<0.001
5) Physical	Q7	0.45	8.21	<0.001
6) Physical	Q8	0.46	9.14	<0.001
7) Physical	Q10	0.40	8.85	<0.001
8) Physiological	Q13	0.63		
9) Physiological	Q14	0.65	12.83	<0.001
10) Psychological	Q22	0.47		
11) Psychological	Q24	0.41	9.51	<0.001
12) Semantic	Q26	0.50		
13) Semantic	Q27	0.44	12.01	<0.001
14) NQI	Physical	0.94	9.66	<0.001
15) NQI	Physiological	0.52	8.73	<0.001
16) NQI	Psychological	0.79	10.14	<0.001
17) NQI	Semantic	0.71	11.83	<0.001

Table 8. Overall model fit indices

						Normed Chi-square							
Model	X2	df	GFI	AGFI	CFI	RFI	IFI	NFI	PGFI	PNFI	NNFI	RMSEA	χ2/df
	86.89	53	0.97	0.95	0.99	0.97	0.99	0.98	0.57	0.66	0.99	0.037	1.639

3.2. Discussion

The noise questionnaire instrument developed based on DeVito’s theory [16] was used to identify and explore the noise level experienced by students in online learning. The identification and exploration data from this noise instrument can be followed up to evaluate online learning and set the right strategy to create a more effective and conducive online learning process. The noise questionnaire instrument has four subscales, according to the findings of CFA: physical noise (the sound of airplanes, passing cars, the hum of computers, foreign messages, illegible writing, and too small or blurry fonts), physiological noise (visual impairment, hearing loss, and memory problems), psychological noise (dreaming thoughts and closed thoughts), and semantic noise (language or dialectical differences and the use of terms that are too complex), with a high goodness of fit index and loading factor has met the criteria (>0.50). Theoretically, the noise questionnaire instrument's SEM model has complied with the requirements that make it appropriate for use in gathering noise data throughout the online learning process. The findings of this study support those of other studies that demonstrate that exposure to sound causes noise [43].

The four components of the noise questionnaire have different internal consistency values (reliability). Physical noise components: seven of the items had strong internal consistency (α=0.81) and a total score of 21. Seven of the items had strong internal consistency (α=0.81) and a total score of 21. Physiological noise component: there are two items with a total score of 6 and high internal consistency (α=0.88). The overall score of the two psychological noise components is 6, and their internal consistency is satisfactory (α=0.62). The two questions in the semantic noise component have a combined score of 6, and their internal consistency is satisfactory (α=0.77). Overall, the noise questionnaire instrument has a high internal consistency (α=0.86). Thus, the instrument model, validity, and reliability have met the criteria theoretically.

The study results discovered that noise is a dangerous factor in learning. Students who realize that noise has a negative impact will proactively anticipate the occurrence of noise in learning or react when the noise occurs, for example, by requesting noisy students to be quiet, or sitting in front of the class when the writing of a presentation is less clear [44]. Noise with high sound levels can interfere with health. Data were discovered from 404 parents and 475 children’s participants: 93.9% of parents and 87.4% of kids thought that loud noises hurt the hearing. They didn't have enough information, though, to change their behavior and avoid loud noises that may impair their hearing [45].

Other research also shows that high noise levels can have a very bad impact on learning because it interferes with the concentration in learning, and inhibits the arrival of information conveyed by the teacher [46], [47] affects cognitive function [48]. Noise is also experienced by teachers who have complaints or problems with sounds; therefore, they are less comfortable with their voice when teaching [49], [50]. The problem of unclear voices of educators will also impact students as recipients of the information. For example, students do not understand what the teacher says or get bored because the learning process is uninteresting.

Other studies have shown that one of the causes of noise is traffic. Traffic can trigger stress and trigger the emergence of bad behavior in response to noise conditions that occur [51], can lead to hypertension [18], and can provoke cognitive disorders that cause impaired reading and speaking [52], [53]. Environmental conditions and self-preparedness in the learning process will determine the noise level that will appear, such as the study room, physical condition, and completeness of learning tools [54]. In online learning conditions, the noise level will be higher if students cannot control the condition of the study room, are less able to use modern technology, and have poor online learning methods.

The results of the observation data that have been collected found that various factors that cause noise in online learning, such as weak signal reception, inadequate technological devices, unfavorable home environment conditions, and uninteresting discussion interactions in online learning. Following the results, Lyakhova *et al.* [55] stated that many factors complicate concentrating in the process of implementing online lectures. Noise is a dangerous factor in decreasing the quality of learning [26]. Research by Chung *et al*. [54] stated that noise caused by sound exposure could interfere with hearing, and a higher risk can cause permanent hearing damage: for example, very loud music.

The limited skills of educators and learners in the use of online tools are barriers to improving the quality of online learning, and a more significant problem is maintaining attention and listening in online learning [56], [57]. In vocational schools in Malaysia, academics are highly prepared to face the industrial revolution, meaning that educators at Malaysian Vocational Schools are ready to follow developments in the industrial revolution in the field of education [58]. Concentration will increase in online learning when students pay attention to the material and engage in discussion interactions [59]. Even though the conditions and learning situations are different (online or face-to-face) should not be a problem, it is hoped that educators will optimize the learning that will be carried out [60]. Research by Wang *et al.* [11] explained why students who take examinations online do worse than those who take exams in person. Various challenges and obstacles in online learning need to be a concern, especially regarding noise, because online learning conditions are a new normal condition in today's learning.

Face-to-face instruction is presently regarded as outdated or ineffective, hence blended learning must be used to impart knowledge [61]. Therefore, online learning must always be evaluated so that it can minimize obstacles that occur during online learning such as noise during online learning. Online learning techniques currently need to be improved because online learning is an effect of the development of the education system and is no longer caused by a pandemic. The study's findings revealed that blended learning is now an efficient technique of instruction: face-to-face learning can provide student motivation because it can interact directly with educators and other students while online learning can be carried out flexibly and increase independence [62]. Additionally, online learning strives to instruct or prepare students for using technology, which is expanding in many areas of life, particularly in the field of education. At this time, most activities are carried out online. Therefore, online learning with face-to-face learning must complement each other with their respective advantages. Students may find online learning to be satisfying for a variety of reasons, including the effectiveness of a strong online learning system, transformational leadership, and high student self-efficiency [63].

The development of the NQI has produced a valid and practical instrument to be used to identify the noise experienced by students when learning online. This noise identification data can be the basis for conducting online learning evaluations and guidelines for creating programs in guidance and counseling services that suit student needs for the realization of effective and efficient online learning. The counseling service that is considered appropriate for this condition is comprehensive because a comprehensive counseling service includes four service program components [64] that suit the various needs of students. The comprehensive counseling service program is not only aimed at facilitating troubled students which is carried out responsively. Comprehensive counseling services are aimed at all students and are visionary and anticipatory counseling services carried out in a planned, systematic, and programmed manner with four service program components namely; basic guidance services, responsive services, individual planning services, and systems support services [64]. In the context of this study, basic guidance services are intended for all students to meet online learning needs in the form of tips and strategies for preparing online learning to be effective, learning independence exercises, learning motivation, preparation of online learning devices such as representative computers or laptops, adequate internet packages, increasing understanding of digital literacy, and the ability to choose strategic places for online learning, and more. These basic guidance services can be realized through classical guidance strategies, group guidance, and guidance media.

Responsive services are intended for students who experience problems in online learning including strategies to deal with noise in online learning, lack of motivation and awareness in online learning, problems in using technology, and others [65]. Responsive services are realized through individual counseling services and group counseling with various counseling approaches and techniques, for example, counseling with cognitive behavior therapy approaches, rational emotive behavior therapy, reality approaches [66], *muhasabah* approaches [67], virtual-based counseling [68], [69] and others. Meanwhile, individual planning services are intended for students who have superior potential to support online learning and system support services. These services are realized through individual counseling services, study guidance, career guidance, and others. The intended system support service is support from policymakers, facility assistance, for example, free internet for learning, and skills training assistance provided for smooth online learning. Parental support, for example, financial support and attention and supervision from parents to students in online learning, and environmental support, for example, care and wisdom from people around the situation of students who are studying online so it doesn't cause noise. System support services can be carried out through case conferences, home visits, training, and so on.

4. CONCLUSION

This study has created a valid, reliable, and practical instrument for detecting and diagnosing noise in the online learning process with Aiken's V validity value of 0.77 (valid) and Aiken's V practicality value of 0.93 (very practical). In addition, from the results of the SEM analysis, this instrument has also met the validity criteria reliability: the construct reliability value is more than 0.60, which is equivalent to (α=0.86), and the loading factor value for all elements is greater than 0.50 ($\geq$0.50). This instrument model also meets the FIT model with the criteria of RMSEA=0.037, AGFI=0.95, GFI=0.97, CFI=0.99, and statistically significant Chi-squared 2/df=1.639. To have systematic sustainability as an instrument to measure noise in the online learning process, this instrument must be used as a non-cognitive assessment tool to identify student needs in online learning. The instrument developed is a larger research study to study student needs as a basis for consideration in designing tutoring programs in particular and guidance and counseling programs in universities. This study proposes a comprehensive counseling theory that includes four components of a counseling service program to prevent, overcome, and enhance students' ability to participate in online learning so that the process is more qualified and efficient. the four components of a comprehensive guidance and counseling service program, which include individual planning services, system support services, responsive services for students with problems with online learning, and basic guidance services for students to effectively study online.

ACKNOWLEDGEMENTS

The researcher expresses gratitude to everyone who took the time and agreed to take part in the study. We appreciate the assistance provided by Mahmud Yunus Batusangkar State Islamic University's University for Research and Community Service (URCS) for this research endeavor.

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