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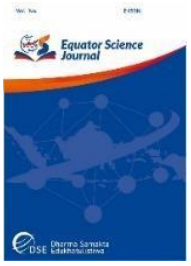

Validity of Handout Development Based on Guided Note Taking (GNT) on Mechanical Wave Material

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ABSTRACT
The purpose of this study is to determine the validity of guided note taking (GNT)-based handouts on mechanical wave materials. This research is a type of Research and Development (R&D) development research using a 4D development model consisting of four stages, namely: the defining stage (define), the design stage (design), the development stage (develop), and the dissemination stage (disseminate). The instrument used is a handout validity questionnaire. Validity assessments are carried out by media, language, and material experts. The results of the validity of media experts were 0.86 with a very valid category, the validity of linguists was 0.87 with a very valid category and the validity of material experts was 0.9 with a very valid category, while the validity of all experts was 0.87 with a very valid category. From the results of research that has been done, it was found that handouts based on guided note taking are feasible to be used to increase students' interest in learning. So it can be concluded that handouts based on guided note taking (GNT) on the resulting mechanical wave material are good and valid and can be used in learning.

INTRODUCTION

Education is a communication process that involves the transformation of knowledge, skills and values, both inside and outside the classroom, which lasts a lifetime and is passed down from generation to generation. The lives of individuals, communities and nations benefit greatly from education (Sappaile et al., 2021). As stated in Law No. 20 of 2003, concerning the National Education System (SISDIKNAS), education is a conscious and planned effort to improve the learning atmosphere and the learning process of students is more active in developing the ability of religious spiritual strength, self- control, personality, intelligence, noble character and skills needed by society, nation and state.

The learning atmosphere and learning process have a very important role in education, because they are interrelated to form understanding and mastery of the material. Therefore, to improve the quality of education, teachers and students have important elements to achieve the desired success in education (Muaziyah et al., 2023; Wugaje et al., 2023). Success in learning can be influenced by several factors such as the use of learning media. Learning media is a media used to integrate the objectives and content of lessons in order to improve the qualityof lessons (Agni et al., 2023; Nurmalasari et al., 2022).

Handouts are print media that have been prepared in advance to help and facilitate students in following learning activities derived from relevant sources so that they can be used as functional and efficient media in improving student learning outcomes (Desi et al., 2023; Henukh et al., 2022). Handouts are media that have previously been created by teachers that contain comprehensive material so that they can be used as functional and efficient teaching materials (Jauharati et al., 2022). Handouts have functions including to help students no longer need to take notes, as student reference materials, teacher explanation assistants, student motivation materials to be more active and enthusiastic in learning, be able to remember the subject matter taught, give feedback, and evaluate student learning outcomes. There are several advantages of handouts including the following: (1) Assisting students in increasing knowledge, (2) Containing the subject matter, (3) Sourced from relevant sources, (4) As a supportingtool from the teacher (Laela & Rinaningsih, 2021).

Guided note taking contains important points with blank sections filled in by students during learning. Guided note taking (GNT) learning strategy is a strategy where teachers prepare teaching materials to assist students in taking notes when the teacher delivers the material (Yutika et al., 2022; Supriyadi et al., 2018). The guided note taking method is a teaching strategy where the teacher creates a chart by omitting important points to help students take notes while the teacher is teaching (Fatoni et al., 2022; Diana et al., 2021). The learning objectives using guided note taking strategies are: (1) Improve listening or listening skills, (2) Study terms and facts about science, (3) Develop learning skills and strategies, (4) Develop the ability to concentrate (Lestari et al., 2021).

The teacher is not only a teacher, but has several main roles in this learning model, namely: (1) Questioner, inspiring students to believe in themselves and admit the mistakes they have made, (2) Director, directing students to achieve the desired goals, (3) Facilitator, providing a way out of students' thought processes that are hampered, (4) Motivator, encouraging students to think more actively, (5) Administrator, responsible for all student activities in class, (6) Rewarder, giving awards to outstanding students to increase student heuristic enthusiasm.

The guided note taking method has the following learning steps: (1) Take notes that describe the learning material, (2) leave some blank as important so that there is a blank space in the handout, forexample by emptying terms or definitions, (3) Explain to students that the blanks in the handout areremoved with the intention that students fill them in, (4) Students can fill in the blanks when the teacher delivers the material, (5) Explain to students that the purpose of taking these notes is for students to concentrate on listening to the lesson (Nasariyah et al., 2021).

Handouts based on guided note taking (GNT) are teaching materials that are made by removing or leaving out important sections to provide a place for students to take notes on omitted points. During learning, students are required to be more active in listening, writing and reading. Guided note taking (HGNT)-based handouts encourage students to fill in blanks during the learning process (Syahra et al., 2021). Handouts based on guided note taking have advantages, namely: (1) Encouraging students to develop 1B4M abilities (concentrating, listening, listening, writing and reading), (2) Directing students to construct their own knowledge based on what is heard and read during learning, (3) Can be used as an evaluation guide for teachers, because through handouts based on guided notetaking teachers can find out whether the material can be responded to by students well or not. Because students who can respond well are proven by them

being able to fill in the blanked sections in the handouts (Mein & Setiawan, 2018).

In this study, researchers want to explain physics material using the Guided Note Taking (GNT) method so that students do not need to record the entire physics material but there are blanks left blank for student notes during learning.

METHOD

The type of research used is research and development. Research and Development is a research method that can be used to create a product and then tested for effectiveness (Sugiyono, 2017). The purposeof this development research is to be able to develop new products or perfect existing products so that they can produce more attractive products (Lestari et al., 2021).

The model in this study is a 4D development model for developing handouts based on guided note taking (GNT). The 4D development model has four stages, namely: the define stage, the design stage, the development stage, and the dissemination stage. The picture of the stages of the 4D development model can be seen in figure 1.

Fig 1. Stages of 4-D Development(Sumber: Amini & Zakir, 2022)

Researchers use a 4D development model consisting of 4 stages, but here researchers only use three stages, namely only until the development stage. At the dissemination stage it is not carried out because researchers do not aim to spread the developed products in classrooms, schools and other teachers because it requires more costs and a long time.

The data collection technique in this study was a validation questionnaire from media experts consisting of 11 statements, a linguist questionnaire consisting of 6 statements and 10 statements for material expert questionnaires. The questionnaire used for product validation developed is in the form of an open questionnaire by providing comments and suggestions openly from each validator. The questionnaire used contains several questions related to guided note taking (GNT)-based handouts. The questionnaireuses a Likert scale type 5. The assessment given in the questionnaire is given information such as, SB = Very Good, B = Good, C = Sufficient, K = Less and SK = Very Less.

Validation of guided note taking (GNT)-based handouts is carried out in three ways, namely language validation, media validation and material validation. The validation value is given using Aiken's V formula, namely:

$$V = \frac{\Sigma s}{[n(c-1)]} \qquad \text{(Azwar, 2022)}$$

Remarks:
V = Validity
S = Score = r – l0
c = Highest assessment numberlo
= Lowest assessment numbern =
Number of question items
r = Rater award number

Once the expert validation scores are known, convert them using the validity guidelines by looking at Table 1.

Table 1. Validity Guidelines

No	Validity Index	Category
1	$0{,}80 \leq V \leq 1{,}00$	Highly Valid
2	$0{,}60 \leq V < 0{,}80$	Valid
3	$0{,}40 \leq V < 0{,}60$	Quite Valid
4	$0{,}20 \leq V < 0{,}40$	Less Valid
5	$0{,}00 \leq V < 0{,}20$	Invalid

(Sumber: Qirom et al., 2021)

In this study a physics teacher is more needed to understand the content and formulas used from the material to be taught in physics lessons.

RESULTS AND DISCUSSIONS

Handout validation based on guided note taking (GNT) aims to improve handouts developed by researchers in terms of media, language and material so that the handouts can be said to be valid or worthy of being tested on students. This validation was carried out by lecturers at PGRI Silampari University, namely Mr. Dr. Leo Charli, M.Pd who was chosen as a media validator, Mrs. Dr. Satinem,M.Pd who was chosen as a language validator, and a physics teacher, Mrs. Dwi Yunita, S.Pd who waschosen as a material validator. The three validators were appointed through recommendations to provide assessments as well as criticisms and suggestions to the media developed by researchers.

Media Expert Validation

Media validation is used to determine the accuracy of minimum standards that are useful in compiling guided note taking (GNT)-based handouts and to determine the attractiveness, feasibilityof the media. The results of the media validation assessment conducted by Mr. Dr. Leo Charli, M.Pdon guided note taking (GNT)-based handouts can be seen in table 2.

Table 2. Media Expert Validation Results

Statement	R	$s = r\text{-}I_0$
To-1	5	4
To-2	5	4
To-3	5	4
To-4	4	3
To-5	5	4
To-6	4	3
To-7	4	3
To -8	4	3
To -9	4	3
To -10	5	4
To -11	4	3
Total		38
$V = \Sigma s/[n\ (c\text{-}1)]$		0,86
Category		Highly Valid

Linguist Validation

This language validation is used to determine the feasibility of using words, language that is in accordance with the EYD and also from loanwords in guided note taking (GNT)-based handouts.The results of the assessment of linguist validation by Mrs. Dr. Satinem, M.Pd on handouts basedon guided note taking (GNT) can be seen in table 3.

Table 3. Linguist Validation Results

Statement	R	$s = r-I_0$
To-1	5	4
To-2	4	3
To-3	4	3
To-4	5	4
To-5	4	3
To-6	5	4
Total		21
$V = \Sigma s/[n\ (c-1)]$		0,87
Category		Highly Valid

Material Expert

Validation Material validation aims to know, test and provide an assessment of the completeness and correctness of the material from guided note taking (GNT)-based handouts whether it is in accordance with the curriculum used. The results of the material expert validation assessment conducted by the physics teacher, Mrs. Dwi Yunita, S.Pd, on guided note taking (GNT)-based handouts can be seen in table 4 below.

Table 4. Material Expert Validation Results

Statement	r	$s = r-I_0$
To-1	5	4
To-2	4	3
To-3	5	4
To-4	5	4
To-5	4	3
To-6	5	4
To-7	4	3
To-8	5	4
To-9	4	3
To-10	5	4
Total		36
$V = \Sigma s/[n\ (c-1)]$		0,9
Category		Highly Valid

Based on the calculation results of all validators, namely media, language and material validationcan be seen in table 5.

Table 5. Recapitulation of Validation Results

Validation	Σs	Category
Media Expert	38	Highly Valid
Linguists	21	Highly Valid
Material Expert	36	Highly Valid
Total	95	
$V=\Sigma s/[n\ (c-1)]$		0,87
Category		Highly Valid

CONCLUSION AND SUGGESTION

Based on the results of data analysis, calculations by media experts obtained Aiken's V value of 0.86 with a score range of $0.80 \leq V \leq 1.00 = 0.80 \leq 0.86 \leq 1.00$ included in the Very Valid category. Fromthe results of analysis of calculation data by linguists obtained Aiken's V value of 0.87 with a score range of $0.80 \leq V \leq 1.00 = 0.80 \leq 0.87 \leq 1.00$, the language validator is included in the Very Valid category. Based on the results of data analysis of calculations by the material by physics teachers obtained Aiken's V scores of 0.9 with a score range of $0.80 \leq V \leq 1.00 = 0.80 \leq 0.9 \leq 1.00$ with the Very Valid category.

From the recapitulation of the validation results of all validators, it can be concluded that handouts based on guided note taking (GNT) on mechanical wave material obtained validation results of 0.87 with the Very Valid category. With a very valid category, guided note taking (GNT)-based handouts are worth testing to the next stage. Based on the validation results from the validators above, guided note taking (GNT)-based handouts can be used at a later stage. Handout-based guided note taking (GNT) has several advantages including: 1) the guided note taking method can be used in both small and large classes (less than 20 students in small classes and more than 20 students in large classes), 2) Students can learn more actively and antusia in lessons with this approach.

Based on the results of research and discussion, it can be concluded that this research design uses 4D design where the application is only up to the 3D stage, namely the define stage, design stage, development stage. While the dissemination stage is not carried out due to time and cost limitations.

Based on the results of validator assessment, the quality of guided note taking (GNT)-based handouts developed based on media expert validation obtained a score of 0.86 with a very valid category, linguist validation obtained a score of 0.87 with a very valid category and material expert validation obtained a score of 0.9 with a very valid category. From the results of the recapitulation of the validation assessment of media, language, and material experts on handouts based on guided note taking (GNT) obtained a score of 0.87 with a very valid category. From these results, it shows that the guided note taking (GNT)-based handouts that have been developed are very feasible to be used in learning.

Based on the quality of the products that have been produced, researchers provide several suggestions for further product utilization. Future research can be examined using ADDIE design, and can be usedto test the influence of student learning motivation.

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