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DEVELOPMENT OF E-LKPD *LIVEWORKSHEET* WITH AN INTEGRATED DIFFERENTIATED APPROACH OF PANCASILA STUDENT PROFILES ON ROW AND SERIES MATERIALS

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ABSTRACT

The development of E-LKPD *Liveworksheet* with an Integrated Differentiated Approach to Pancasila Student Profiles is based on observations and interviews that in SMA Negeri 4 Padangsidimpuan the variety of learning methods is still teacher-centered so that students' understanding is not optimal, and still implementing the manual LKPD has not used a differentiated approach. This research aims to improve students' learning outcomes in mathematics learning, especially in row and row materials. The research method used is *Research and Development* (R&D), with the ADDIE model, namely *analysis, design, development, implementation*, and *evaluation*. The location of the research is in class X of SMA Negeri 4 Padangsidimpuan. Data collection techniques are observation, interviews, questionnaires, learning outcome tests and documentation. The data collection instruments are in the form of validation sheets, E-LKPD user questionnaires, and learning outcome tests. The results of the study showed that the E-LKPD *Liveworksheet* with an Integrated Differentiated Approach of Pancasila Student Profiles on Row and Series Materials reached 92.16% of the very valid category, and the practicality test of 92.31% of the category was very practical. Furthermore, the learning outcome effectiveness test of 57.13% is in the medium criteria. The development of E-LKPD is an effective solution to improve student learning outcomes that have been adapted to the student's learning style and integrated with the Pancasila student profile and have been tested for validity, practicality, and effectiveness.

Keywords: E-LKPD Development, *Liveworksheet*, Differentiated, Pancasila Student Profile

INTRODUCTION

The development of science, technology, and communication in the 21st century opens up opportunities to improve the implementation of the quality of education.(Khotimah 2019) Along with the development of all fields, there are also changes in the field of education. The change in question is a change in the use of the curriculum in the learning process. The latest curriculum initiated by the Ministry of Education, Culture, Research and Technology is the Independent Curriculum with the Independent Learning program to improve the quality of learning.(Khotimah 2019)

The curriculum is focused on essential discussions and character development of the Pancasila Student Profile. In the implementation of the curriculum, there are dimensions that are benchmarks in the Pancasila Student Profile, including 1) faith, fear of God Almighty, and noble

character; 2) global diversity; 3) mutual cooperation; 4) independent; 5) critical reasoning; and 6) creative.(Ministry of Education and Culture 2022)

Based on the preliminary study of the observation results of the mathematics learning process at SMA Negeri 4 Padangsidimpuan, it can be observed that most of the teaching methods are still teacher-centered. Teachers tend to use conventional approaches and students only use manual LKPD, which does not support differentiated learning approaches. In addition, the results of structured interviews during pre-research on 3 mathematics teachers stated that in the mathematics learning process so far, students were still not activated. Students' understanding of mathematics material is still somewhat less than optimal. As a result, students' critical thinking skills are less honed, and the learning process starts from a lower level, namely with the explanation of basic material by the teacher.

The LKPD used in class X of SMA Negeri 4 Padangsidimpuan has not met the actual LKPD components. The LKPD used by students only contains instructions for doing questions and a number of row and row questions. The LKPD component which contains a description of the main material, the purpose of the activity, the tools/materials needed in the activity, and the work steps are not contained in the LKPD at SMA Negeri 4 Padangsidimpuan. However, there has not been a liveworksheet E-LKPD with an integrated differentiated approach to Pancasila student profiles, so far it has only focused on solving problems on the worksheet, so that the LKPD does not stimulate the learning process of students and does not direct students to solve mathematical problems related to daily life. (Interview results from a mathematics teacher at SMA Negeri 4 Padangsidimpuan, December 6, 2023).

In the educational process, E-LKPD serves as a tool to assist and streamline learning activities, fostering effective interactions between students and educators, thereby enhancing students' engagement and academic performance. The benefits of E-LKPD are to activate students in the learning process, help develop concepts, practice finding and developing process skills, as a guideline for educators and students in carrying out the mathematics learning process.(Umbaryati 2016) So that the teacher needs an innovation to develop E-LKPD based on *Liveworksheet* which not only contains questions but also contains material that must be found by students.(Sari, Hutapea, and Suanto 2023)

Based on previous research by I Dewa Putu Juwana and Aidan Fitriana that Implementation of Assisted Differentiated Learning *Liveworksheet* can increase motivation to learn mathematics Learners. The background of the research is the level of motivation to learn mathematics Learners less, even there are only 3 people Learners who love math. Where are the product specifications *Liveworksheet* contains materials and videos so that they provide interesting

activities so that students do not quickly get bored of participating in mathematics learning.(I Dewa Putu Juwanaa 2023)

On the other hand, a number of previous studies have not reviewed liveworksheet-based E-LKPD in accordance with students' learning styles, namely visual, auditory, and kinesthetic. So that the novelty of this research focuses on the development of a liveworksheet-based *E-LKPD* with an integrated differentiated learning approach of Pancasila student profiles on rows and rows of materials. This research aims to develop a more interactive E-LKPD in accordance with the learning style of students, and integrated Pancasila student profiles so that it can help students be more active and motivated in learning mathematics which is a characteristic or attraction of the existing E-LKPD. Therefore, the researcher is interested in conducting a research entitled **"Development of E-LKPD *Liveworksheet* with an Integrated Differentiated Approach of Pancasila Student Profiles on Row and Series Materials"**.

RESEARCH METHODS

A. Types and Models of Development

This study employs Research and Development (R&D) as its research methodology. The development framework adopted is the ADDIE model, formulated by Reis and Mollenda in 1990, which consists of five stages: analysis, design, development, implementation, and evaluation.(Robert Maribe Branch, n.d.) The research steps for the development of the ADDIE model are as follows:

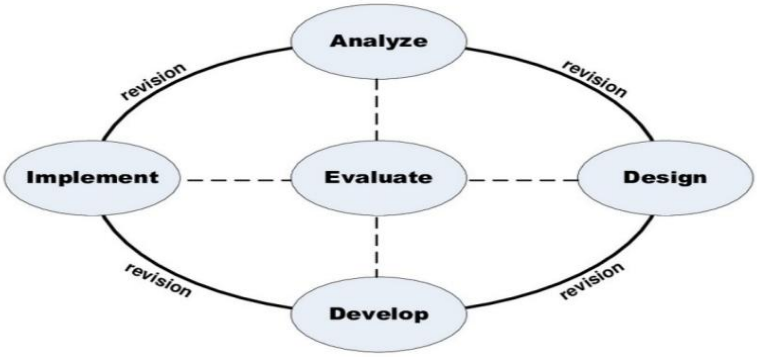

Figure 1. ADDIE Model Development Research Steps

The reason this model was chosen is because the ADDIE model offers a structured, flexible, and adaptable framework to research needs in various teaching contexts. The development of this model is easy to do in the field thanks to its simple and systematic work stages. Evaluation and revision are carried out continuously in each phase, so that the products produced are in accordance with the needs and have high validity.(Sugiyono, n.d.)

B. Location and Time of Research

This study was carried out at SMA Negeri 4 Padangsidimpuan, located on Sutan Soripada Mulia Street No. 38, in Sadabuan Village, North Padangsidimpuan District, Padangsidimpuan City, North Sumatra Province. The time of this research will be carried out from April 25, 2024 to June 7, 2024 in the even semester in class X of SMA Negeri 4 Padangsidimpuan T.A 2023/2024.

C. Research Subject and Object

This population was determined based on the fulfillment of criteria for research respondents. The population of class X at SMA Negeri 4 Padangsidimpuan is 353. The test subjects in this study were selected in class X-7 which amounted to 35 students, using a sampling technique, namely *purposive sampling*. The object in this study is a liveworksheet-based E-LKPD with an integrated differentiated learning approach of Pancasila student profiles.

D. Development Procedure

The procedure for developing E-LKPD carried out in this study is explained as follows:

1. *Analysis*

The analysis stage carried out by the researcher includes four things, namely characteristic analysis, teaching material analysis (E-LKPD), curriculum analysis, and material analysis.

a. Analysis of student characteristics: At the stage of analyzing student characteristics, it is carried out to identify student characteristics with the aim of making an appropriate E-LKPD.

b. Teaching material analysis (E-LKPD): An evaluation process that aims to assess the quality and effectiveness of digital teaching materials used in the learning process.

c. Curriculum analysis: Curriculum analysis is carried out to find out the type of curriculum used by the school that is the object of research. Based on the results of an interview with a mathematics teacher at SMA Negeri 4 Padangsidimpuan, the school has implemented an independent curriculum for grades IX and X.

d. Material analysis: Material analysis is related to the content of the E-LKPD, namely the material used according to the Independent curriculum. The learning objectives contained in the E-LKPD are based on the Learning Outcomes that have been determined.

2. ***Design***

The design stage is the stage of making the E-LKPD design to be developed or product design which includes several stages, including: assessment of learning materials, the process of designing E-LKPD on *the Storyboard*.

3. ***Development***

At this stage of development, it includes various activities in realizing the previously designed E-LKPD design. The following are the activities at the development stage that are carried out, namely making a draft I product (E-LKPD). The improvement process is carried out when the E-LKPD has been validated by experts, namely material experts, media experts (E-LKPD), linguists, and assessment experts.

4. ***Implementation***

The implementation stage is the process of using E-LKPD in the classroom according to the teaching module. The implementation stage is the stage where E-LKPD is used in the classroom according to the teaching module. Teachers and students who take part in the implementation of E-LKPD fill out a practicality questionnaire about the response to the use of E-LKPD to find out the practicality of using the product developed or to assess the extent to which E-LKPD is useful and practical, the level of effectiveness of the use of liveworksheet-based E-LKPD productsWith an integrated differentiated learning approach, the Pancasila student profile was obtained through a learning outcome test on learning materials in order to determine the effectiveness of the E-LKPD developed which was measured using *N-Gain* through *pretest* and *posttest results*. Furthermore, to see the difference in the average learning outcomes of students before and after using E-LKPD, it was measured using *One Group Pretest Posttest Design*.

5. ***Evaluation***

The development evaluation stage after implementation. The E-LKPD products that have been developed will be assessed so that the advantages and disadvantages of the E-LKPD are known. This can be known through responses from students and teachers. The criticism and suggestions from these respondents will be based on suggestions for improvement in the development of E-LKPD which is not optimal. Through several stages of evaluation, the data obtained from the E-LKPD is revised so that it becomes feasible and becomes the final product in research activities.

E. Data Collection Instruments and Techniques

1. Data Collection Instruments

Research instruments encompass all tools utilized to collect, manage, and interpret information from respondents using a consistent measurement approach. These instruments are specifically designed for a single purpose and are not applicable to other research studies.(Moch. Bahak Udin By Arifin & Aunillah 2021) This research instrument is in the form of validation sheets from material experts, media experts (E-LKPD), linguists, assessment experts, questionnaires, and tests.

Table 1. Research Instruments

It	Measurement	Instruments
1	Validity	Expert Validation Sheet 1. Material Expert 2. Media Specialist (E-LKPD) 3. Linguist 4. Assessor
2	Practicality	Questionnaire 1. Teacher Questionnaire 2. Student Questionnaire
3	Effectiveness	Learning Outcome Test

2. Data Collection Techniques

To obtain the necessary data, the researcher uses the following data collection techniques:

a. Observation

The observation in this study was carried out at SMA Negeri 4 Padangsidimpuan. This observation process was carried out on December 5, 2023 when the researcher conducted a preliminary study to determine the needs of students in the learning process, so research and development of student worksheets were needed.

b. Interview

The researcher conducted structured interviews with 3 teachers of SMA Negeri 4 Padangsidimpuan, namely Mrs. Ani Sahrinida Putri, S.Pd., Gr; Mrs. Raudatul Jannah Harahap, S.Pd; and Mrs. Febrina Wanty Hasibuan, S.Pd. Interviews are conducted to collect real data about activities that occur in the classroom and identify the needs needed in the classroom.

c. Questionnaire

A questionnaire is a form of a list of questions that have been prepared by the researcher to be asked to respondents.(Abubakar 2021) The questionnaire in this

study namely the validation questionnaire and the practicality questionnaire. The validation questionnaire is aimed at validators and the practicality questionnaire is aimed at teachers and students who aims to assess and find out the response of the expert team, teachers, and students to the E-LKPD *Liveworksheet* with an integrated differentiated approach to the Pancasila student profile that has been developed. Validation questionnaire and E-LKPD practicality questionnaire using scale modification *Likert*. The alternative answers consist of 4 categories, namely 1 category "strongly disagree", 2 categories "disagree", 3 categories "agree" 4 categories "strongly agree".

d. Test

The test is used to obtain accurate data on the learning outcomes of each individual, so that the difference between before using the liveworksheet-based E-LKPD and the integrated differentiated learning approach of the Pancasila student profile and after using the liveworksheet-based E-LKPD is knownwith an integrated differentiated learning approach to the Pancasila student profile. The test used is a subjective test in the form of a description with a total of 5 questions.

e. Documentation

The documentation process is carried out with the aim of fulfilling the data needed in the development of E-LKPD, the documentation in this study is in the form of photos of students' activities while working on the E-LKPD and a list of students' names. Documentation collection was carried out during the trial process of the E-LKPD product.

3. Data Analysis Techniques

In this development research, there are two data analysis techniques applied, namely, qualitative descriptive analysis techniques and quantitative descriptive analysis. Quantitative descriptive analysis techniques are used to process the data derived and the assessment of material experts, media experts, linguists and assessment experts, teacher response questionnaires and student response questionnaires. This analysis process involves grouping information from qualitative data, such as criticisms and suggestions for improvement recorded in the questionnaire.

a. Validity Data Analysis

The validity of the media was measured using *a likert scale* with a scale interval of 1-4, then processed using a percentage formula, the results were interpreted in the following eligibility criteria table:

Table 2. Range and Validity Assessment Criteria

Score	Information
76% - 100%	Highly Valid
51% - 75%	Valid
26% - 50%	Invalid
0% - 25%	Highly Invalid

b. E-LKPD Practicality Data Analysis

The practicality of Liveworksheet-based E-LKPD with an Integrated Differentiated Learning Approach of Pancasila Student Profiles on Row and Row Materials, was obtained from the results of teacher response questionnaires and the results of student response questionnaires on the use of E-LKPD learning.

The final result of the combined student response is calculated using the mean formula, namely:

$$R_{pd} = \frac{R_{pd_1} + R_{pd_2} + R_{pd_3} + \cdots + R_{pd_n}}{N}$$

Information:

R_{pd} = Combined average of all students' responses

R_{pd_n} = Students' responses with n= 1, 2, 3,....,35

N = Many students

The results of practicality after the percentage is obtained, are grouped according to the following criteria:

Table 3. Practicability Assessment Range and Criteria

Score	Information
76% - 100%	Very Practical
51% - 75%	Practical
26% - 50%	Impractical
0% - 25%	Very impractical

c. Analysis of the Effectiveness of E-LKPD Development

The effectiveness test is a test carried out on products that have been developed by involving prospective users of the researcher*'s product using the N-Gain* Test to determine the effectiveness of student learning outcomes after the use of a liveworksheet-based E-LKPD with an Integrated Differentiated Learning Approach of Pancasila Student Profile.

Categories of value acquisition *N-Gain score* can be determined based on the form of percent (%) or category of effectiveness interpretation *N-Gain*. The

division of the category of value acquisition *N-Gain* can be seen in the following table:(Gito Supriadi 2021)

Table 4. *N-Gain Score Distribution*

N-Gain Value	Category
N-Gain > 0.7	Tall
0,30 - 0,70	Keep
0,00 - 0,29	Low

Table 5. Categories Interpretation of *N-Gain Effectiveness*

Percentage (%)	Interpretation
< 40	Ineffective
40 – 50	Less Effective
56 75	Quite Effective
> 76	Effective

F. RESEARCH RESULTS AND DISCUSSION

1. Research Results

The development procedure used in this study is the ADDIE model which consists of 5 stages of development. The stages of development include:

a. Analysis

Here is a detailed explanation of each stage of the analysis:

1) Analysis of Student Characteristics

In the analysis of student characteristics, based on the observation results , some materials are considered easy to understand, while others are considered complicated by students. This is due to a lack of understanding in the use of formulas which results in students experiencing difficulties in solving problems. So that students do not focus when mathematics lessons take place, such as in rows and rows of materials.

2) Teaching Materials Analysis (E-LKPD)

The results of interviews with mathematics teachers revealed that the Student Worksheets (LKPD) that are currently used are still in manual format, even though internet facilities are already available to support the use of electronic-based LKPD (E-LKPD). Teachers also observed that students have difficulty understanding row and row materials, which is an important concept in math lessons.

3) Curriculum Analysis

According to interviews with mathematics teachers at SMA Negeri 4 Padangsidimpuan, the school has adopted an independent curriculum for students in grades X and XI.

4) Material Analysis

At this stage, the material analysis is based on Learning Outcomes (CP). Learning Objectives (TP) that will be contained in the E-LKPD in achieving learning objectives. The Learning Outcomes and Learning Objectives that must be achieved by students in the row and series materials are sourced from the Ministry of Education and Culture No.008/H/KR/2022 in Phase-E.

b. Design

The process of designing the E-LKPD is carried out in a structured manner, starting with an analysis of the characteristics of students to understand the specific needs of each individual. In addition, an analysis of the teaching materials (E-LKPD) that was previously used was also carried out to identify shortcomings or problems that need to be improved. Researchers also conduct an analysis of the curriculum applied in schools to ensure that the products designed are in accordance with applicable learning standards. Not to forget, the researcher analyzed the subject matter, especially on the topic that is currently the focus of the research, namely Rows and Rows. One way to maintain the alignment and smoothness of the design process is to compile a design in the form of *a storyboard.*

c. Development

The development stage is carried out after the product is designed. *Product* drafts that have been created are input into *the liveworksheet* by creating an account first to access as a teacher. After successfully *logging in*, the researcher inputs the *product draft* per submaterial in pdf form for editing such as adding audio, *youtube links*, and adjusting the features used and filling in the answer key. After that*, product drafts can be saved and shared with students in the form of* a link. The E-LKPD link that was developed after going through the validation and trial stage is https://bit.ly/E_LKPD_BERDIFERENSIASI_PROFIL_PELAJAR_PANCASILA.

Figure 2. Initial View of Developed Products

The products that have been developed are then validated to validators who are competent in their respective fields to get criticism and suggestions for improvement on the Liveworksheet-Based *E-LKPD* with an Integrated Differentiated Learning Approach of Pancasila Student Profiles on Row and Row Materials. The overall validation results of materı experts, media experts, linguists, and assessors can be seen through tables and graphs of the validity percentage as follows:

Table 6. Overall Validation Result Data

It	Validation	Percentage		Average Percentage	Category
		Member 1	Member 2		
1	Material Validator	90,00 %	93,33 %	91,67 %	Highly Valid
2	Validator Media (E-LKPD)	96,43 %	94,64 %	95,54 %	Highly Valid
3	Language Validator	94,44 %	91,67 %	93,06 %	Highly Valid
4	Assessment Validator	89,29 %	87,50 %	88,40 %	Highly Valid
Overall Average				**92,16 %**	**Highly Valid**

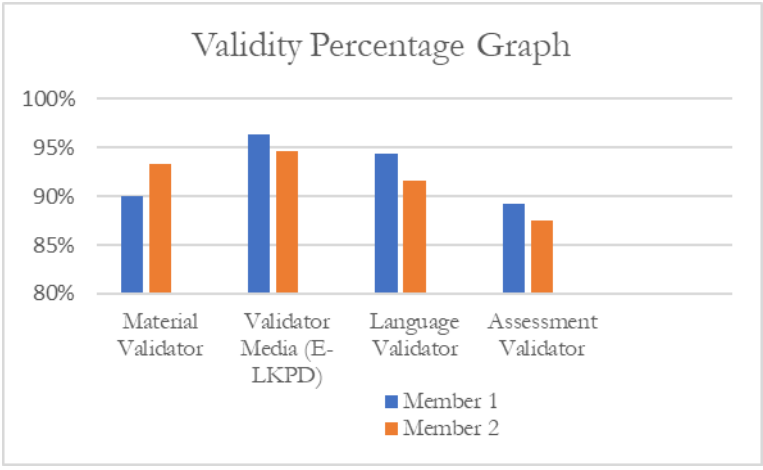

Figure 3. Validity Percentage Graph

The overall average of all validators shows that the validation instrument is in the "Highly Valid" category with an average of 92.16%. Therefore, the development of Liveworksheet-Based E-LKPD with an Integrated Differentiated Learning Approach of Pancasila Student Profiles on Row and Series Materials was declared very valid and suitable for use according to the assessment results.

d. Implementation

In the implementation stage, the researcher conducted a trial stage for 35 students in grades X-7 of SMA Negeri 4 Padangsidimpuan. The implementation of the E-LKPD trial was carried out by the researcher by teaching directly in the classroom. The E-LKPD trial was carried out 3 meetings on May 4, 2024, May 07, 2024 and May 11, 2024, each meeting consisted of 2 x 40 minutes of lesson hours. Learning is carried out with an integrated differentiated approach to the Pancasila student profile.

The average results from the student response questionnaire revealed a percentage of 89.82%, categorized as very practical. The practicality of the E-LKPD, as reflected in the average responses from teachers and students regarding its usage, is detailed in the following table:

Table 7. Average Results of Practicality of E-LKPD

Response	Percentage of Practicality	Information
Teacher's Response	94,79	Very Partik
Student Response	89,82	Very Partik
Average	**92,31**	**Very Partik**

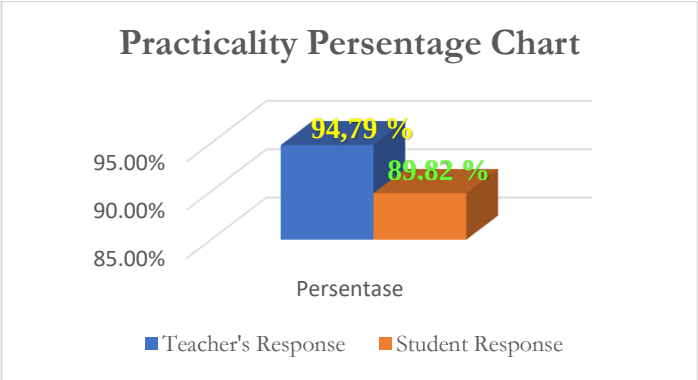

Figure 4. Graph of Practical Results of Teachers and Students

Based on the data above, that the percentage of practicality of E-LKPD users by teachers is 94.79% and the percentage of practicality of E-LKPD users by students is 89.82%, it can be concluded that the results of the acquisition of grades for the practicality of Liveworksheet-Based E-LKPD with an Integrated

Differentiated Learning Approach of Pancasila Student Profile on Row and Row Materials, the average percentage of practicality 92.31% means E-LKPD in terms of use and providing benefits for E-LKPD users.

e. *Evaluation*

In the design model of ADDIE's development research, the evaluation lies in the last order. However, this research involves evaluation at each stage. The following is the effectiveness of product development, the analysis of *the N-Gain value of* the Pretest-Posttest *learning outcome test* based on the learning style of students can be seen in the table below:

Table 8. *N-Gain Test Pretest-Posttest* Learning Outcomes

Type	Pretest	Posttest	Post-Pre	Ideal Score (100-Pre)	N Gain Score	N-Gain Score (%)
Visual	871,25	1263,75	392,50	628,75	9,36	936,46
Auditory	757,50	925,00	167,50	342,50	5,48	547,92
Kinesthetics	538,75	750,00	211,25	361,25	5,15	515,26
Total	**2167,5**	**2938,75**	**771,25**	**1332,5**	**19,99**	**1999,64**
Combined Average	**61,93**	**83,96**	**22,04**	**38,07**	**0,57**	**57,13**
Category	**Keep**					

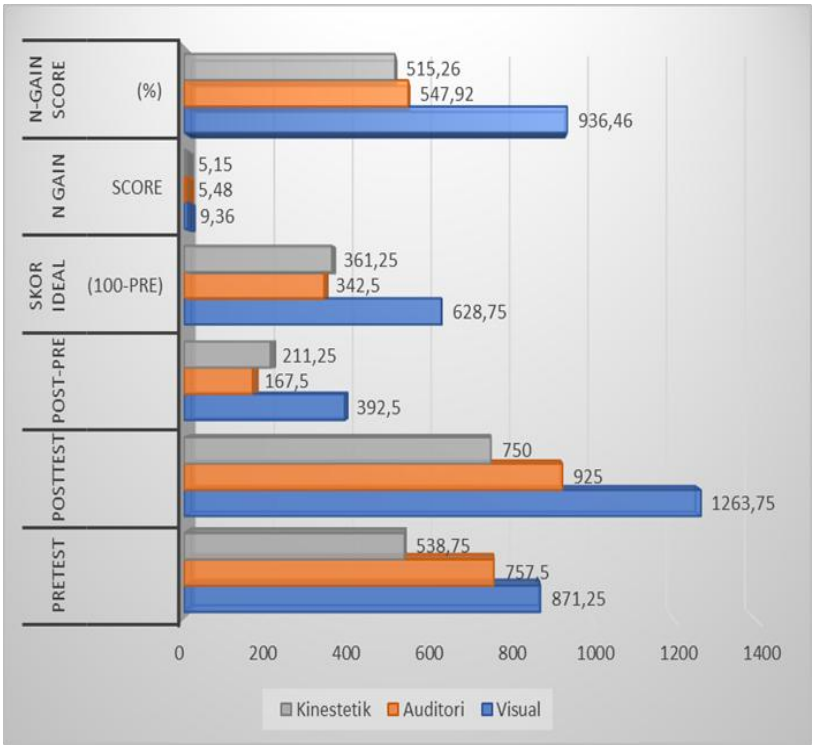

Figure 5.
N-Gain Chart of Student Learning Outcome Test Based on Learning Style

Table 9. Average value *N-Gain Score*

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
NGain_Score	35	0	1	.57	.226
NGain_Persentase	35	21	100	57.13	22.622
Valid N (listwise)	35				

Based on the results of the calculation displayed in the table, the average value of the *N-Gain Score* is 57.13%. This shows that the *N-Gain* level is in the medium category according to the criteria table. Thus, it can be concluded that the Liveworksheet-Based E-LKPD with an Integrated Differentiated Learning Approach of Pancasila Student Profiles on Rows and Rows of Materials is quite effective in improving the learning outcomes of students in Rows and Rows in class X at SMA Negeri 4 Padangsidimpuan.

2. Research Discussion

a. Validity of E-LKPD

Material expert validators assessed that this E-LKPD effectively presents relevant and quality content, and is in accordance with the applicable curriculum. The interactive and attractive display of E-LKPD makes learning more enjoyable and encourages students to be actively involved. In addition, integrating Pancasila student profiles in every learning activity is very important to shape the character of students. Thus, students not only understand the material academically, but also develop good attitudes and values. This shows that E-LKPD can be used as a tool in learning mathematics to meet academic standards and also help shape the profile of Pancasila students.

Media expert validators provided an assessment of Liveworksheet-Based E-LKPD with an Integrated Differentiated Learning Approach of Pancasila Student Profiles on Row and Row materials. Interactive features such as Let's answer quizzes, discussion activities and Let's practice (independently) provide opportunities for learners to apply their knowledge directly. In addition, the integration of Pancasila student profiles in learning is considered very effective in supporting the development of students' character. For auditory learning styles, this E-LKPD provides sound elements, such as explanations of questions in the form of videos made on *YouTube*.

The linguist validator explained that the Liveworksheet-Based E-LKPD with an Integrated Differentiated Learning Approach of Pancasila Student Profile on the Rows and Rows material has been designed with the use of clear and easy-to-understand language. In addition, the assessment expert validator assessed that this E-LKPD has various types of questions that vary, ranging from easy, medium, to difficult questions. The goal is to evaluate the understanding of students thoroughly.

This indicates that the E-LKPD developed shows alignment with the theory presented by Tjeerd Plomp and Nienke Nieveen, namely that an E-LKPD is considered valid if experts or validators judge it to be valid based on evaluation criteria through validity tests.(Tjeerd Plomp & Nienke Nieveen, n.d.) Ruhsoh Triyani, et al. also stated that E-LKPD mathematics is based on *Liveworksheet* It is very feasible to be used as one of the learning tools in supporting differentiated learning.(Triyani et al. 2024) Therefore, the use of E-LKPD is very suitable for learning.

b. Practicality of E-LKPD

Based on the response of teachers and students to the use of E-LKPD is beneficial and practical for the learning process. Through positive responses from teachers and students in writing and clarified through interviews with several student representatives. Students stated that E-LKPD makes mathematics learning easier to understand, interesting, easy to use and equipped with various features such as quizzes, discussion activities, and independent exercises. Students can access it anytime and anywhere, so learning becomes more *flexible*. This positive response provides strong support for the results of the practicality analysis.

The results of this study show alignment with the theory that practicality refers to the extent to which users find the device attractive and easy to use in normal situations. (Tjeerd Plomp & Nienke Nieveen, n.d.) In line with Hanny Firtsanianta's opinion and Imroatul Khofifah students do not feel bored in participating in learning, as well as to learn more about the material they have learned. This E-LKPD can be accessed in the format *Link* and does not have a specific time limit to access it, only requires a network *internet*.(Firtsanianta, Khofifah, and Surabaya 2019) The relationship between theory and facts in the field shows that the use of E-LKPD is an important thing that must be considered by teachers when teaching.

c. Effectiveness of E-LKPD

Based on the results of the analysis, there are differences in students' learning outcomes before and after using Liveworksheet-Based *E-LKPD* with an Integrated

Differentiated Learning Approach of Pancasila Student Profiles on Row and Row Materials. This has proven to be effective in increasing students' understanding of Row and Series materials and this E-LKPD is also effective in improving student learning outcomes.

This is in line with Hadi Hardiansyah stated that there was a significant difference between the field tests conducted before and after the use of the interactive LKPD. (Hardiansyah and Febriyanti 2022). Meanwhile, Hanny Firtsanianta's opinion and Imroatul Khofifah, besides its attractive appearance, *Liveworksheet* It is easy to use. LKPD functions to connect teaching and learning activities so that there is an effective interaction between students and teachers, which can increase student activities to improve academic achievement.(Firtsanianta, Khofifah, and Surabaya 2019)

Based on previous research and discussion, it can be concluded that E-LKPD has successfully met the criteria of validity, practicality, and effectiveness in improving student learning outcomes. As well as meeting the criteria of E-LKPD, namely the accuracy/suitability of E-LKPD with teaching purposes, ease of use of E-LKPD, and adjusted to the learning needs of students. The difference between this E-LKPD and other research is adjusted to differentiated learning and integrated Pancasila student profiles according to the needs of students assisted *by the liveworksheet platform.*

The advantage of this E-LKPD felt by teachers is that teachers feel helped in the learning process automatically through individual reports and group reports. The features in *the liveworksheet* make learning more interesting and fun.

G. Conclusion

The results of the Development of Liveworksheet-Based *E-LKPD* with an Integrated Differentiated Learning Approach of Pancasila Student Profiles on Rows and Rows Material have met the validity criteria in instilling the concept of rows and rows by material experts, media experts, linguists and assessment experts. The results of expert validation stated that the development of Liveworksheet-Based *E-LKPD* with an Integrated Differentiated Learning Approach of Pancasila Student Profile on Row and Series Materials "Very Valid" in the validity test with a validity percentage of 92.16%. The results from the teacher response questionnaire during the field trial showed an average overall percentage of 94.79%, falling under the very practical category. Similarly, the student response questionnaire in the field test

yielded an average score of 89.82%, also categorized as very practical. Therefore, overall the E-LKPD developed is declared "Very Practical", which is 92.31% of the average combined percentage. Results of the effectiveness of using Liveworksheet-Based *E-LKPD* with an Integrated Differentiated Learning Approach of Pancasila Student Profiles on Rows and Rows "Effective in instilling an understanding of the concept of Rows and Rows of Lines. Based on the acquisition of *N-Gain, the* learning outcomes of students, namely 57.13%, are in the "Moderate" criterion.

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