

# Development of Mathematics Teaching Materials Assisted by Powerpoint Media to Improve Literacy and Numeracy Skills in Statistics Material in Vocational Schools

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**Abstract:** *This development research aims to produce mathematics teaching materials assisted by PowerPoint media that meet valid, practical and effective criteria for improving literacy and numeracy skills in statistics material. Researchers took the research location at SMK Negeri 1 Tondano with the subject of phase E Health Services B for the 2023/2024 academic year. The design of this research is the ADDIE Research Develop Model (Branch, 2009). Development can be declared to be terminated if the development product meets the criteria of being valid, practical and effective according to the criteria (Nieveen, 1999). The instruments used to obtain data regarding these criteria are interviews, validation sheets, teacher ability observation sheets, student response questionnaires and student learning outcomes tests. The results of the research show that it is valid based on the results of the validation of teaching materials, namely 96.47% and the results of the validation of the learning outcomes test, namely 95.87%, both of which are in the very high predicate. The results of the interview validation were 93.13%, the results of the validation of the teacher ability observation sheet were 95%, and the results of the validation of the student response questionnaire were 91.25%, all three of which were ranked very high. The practicality of the teaching materials developed is based on the teacher's level of ability which is taken through observational data assessed by the observer, getting a total average score of 4.77 with very high criteria. Meanwhile, the effectiveness of teaching materials is based on the level of student response and the completeness of classical learning outcomes. For students' responses to the products developed, researchers received a positive response of 91.79% and classical completion of 84.62%, which is in very good criteria. Based on these data, according to the criteria, it can be concluded that the teaching materials developed to improve students' literacy and numeracy skills meet the valid, practical and effective categories.*

**Keywords:** Development, Teaching Materials, Powerpoint, Literacy Skills and Numeracy, ADDIE Model, Nieveen Criteria

## 1. Preliminary

Based on the 2023 Tondano State Vocational School Education Report Report, the achievement of moderate literacy skills was 42.22% and poor numeracy skills were 37.78%. One of the factors that influences improving students' literacy and numeracy skills is the teaching materials prepared by the teacher. The results of observations at SMK Negeri 1 Tondano show that the teaching materials prepared and used by teachers do not fully support improving students' literacy and numeracy skills. Teaching materials are all forms of materials used in carrying out teaching and learning activities (Majid 2008: 173). One simple software program that can be used to create teaching materials is Microsoft Powerpoint. Using PowerPoint does not require special skills, so teachers and students don't need to worry when operating it. One of the materials that often appears in AKM questions is statistics, a collection of data that has been processed can produce accurate data analysis. In everyday life, statistics has many benefits, including calculating the average age level in an area. Literacy ability is an individual's ability to manage and interpret various information and knowledge obtained through the process of reading and writing. In the process, literacy requires several

competencies, namely cognitive competence (intelligence), written and spoken language competence, cultural competence, and knowledge competence about genres. In its development, the definition of literacy is the ability to read, write, speak and listen (Ekowati, 2019). The Ministry of Education and Culture (2016) defines literacy, especially in schools, as the ability to access, understand and use information intelligently. From the description above, it can be concluded that literacy and numeracy skills are very necessary in mathematics because mathematics is not only always related to formulas, but also requires students' analytical skills in answering each problem presented. Learning resources are the foundation of knowledge in learning (Thaariq, 2020). One part of learning resources is teaching materials (Surahman, 2020). Teaching materials are all forms of materials used to assist teachers or instructors in carrying out the learning process in class according to the National Center for Competency Based Training (Praswoto, 2011). According to Kurniasih, Sujadi, & Subanti (2016) stated that teaching materials are learning materials which contain stages of description of the material and activities carried out so as to direct learning activities according to the learning objectives to be achieved, these teaching materials contain the substance of the competencies that must be

achieved, and as evaluation tools improve the ability of learning outcomes, the benefits that teachers get in developing teaching materials are that they obtain teaching materials that are in accordance with the demands of the curriculum and the needs of students, the learning process becomes more interesting, while the benefits that students get are that they have the opportunity to learn independently and reduce dependence on the presence of the teacher, making it easier to learn each competency that students must master (Trianto, 2011). The characteristics of teaching materials are in accordance with the book writing guidelines issued by the Directorate of Vocational Secondary General Primary and Secondary Education, Department of National Education in 2003, that "teaching materials have characteristics, namely: Self - instructional (self - instructional), Self - contained (independent), namely all subject matter from one unit of competency or sub - competency being studied is contained in one complete teaching material, Stand alone, namely teaching material that is developed not depending on other teaching materials or does not have to be used together with other teaching materials, Adaptive (adaptive), namely Teaching materials should have high adaptive capacity to developments in science and technology, be user friendly (easy to use), that is, every instruction and information presented is helpful and friendly to the user, including the ease of the user responding and accessing as desired. Apart from having character in the manufacturing process, there are other types of teaching materials to support the process of learning activities in the classroom according to Daryanto and Dwicahyono (2013), including: visual teaching materials, audio teaching materials such as cassettes, radio, vinyl records and audio compact disks, audio visual teaching materials such as video compact disks and films, interactive multimedia teaching materials such as CAI (computer assisted instruction), CDs (compact disks), interactive multimedia learning, and web - based teaching materials (web - based learning materials). The development of teaching materials has planned objectives, including: preparing learning activities in various situations so that they can take place optimally, increasing teacher motivation to manage teaching and learning activities, and preparing teaching and learning activities by filling in materials that are always new, presented in new ways and implemented with new learning strategies too. The Ministry of National Education (2008) formulated three objectives for developing teaching materials, namely: (1) Clarify and simplify the presentation of messages so that they are not too verbal, (2) Overcome limitations of time, space and sensory abilities, both students and teachers, (3) Can used appropriately and varied. The development of teaching materials must be based on certain principles so that the above objectives can be realized. Olivia in (Mbulu and Suhartono, 2004) provides principles for developing teaching materials, namely: (1) Curriculum changes are requested and absolutely necessary. (2) The curriculum is a product of its time. (3) Curriculum changes in the more recent period are always related to overlap with previous curriculum changes, curriculum changes are one of the results of changes in society. (4) Curriculum development is based on a process of making choices from a number of alternatives. (5) Curriculum development never ends. (6) Curriculum development is more effective when carried out comprehensively, not as a part - by - part process. This technology - based teaching

material also consists of several types, one of which is interactive teaching material using Microsoft Powerpoint software. Microsoft Powerpoint is software that is commonly used in preparing teaching materials. According to Fitriana in Maulida (2022), PowerPoint teaching materials can be presented attractively because it is possible to combine various colors, letters and animations according to the taste of the creator, so that it can further stimulate students to pay attention to the material presented. The features that are usually needed and used in Microsoft PowerPoint when creating teaching materials include: New Slide, Shapes, Backsound, Insert movie. In the current independent curriculum, statistics material is studied in phase E. Statistics is a branch of science that studies how to plan, collect, analyze, interpret and present data as well as draw conclusions based on the data collection and analysis carried out.

## 2. Research Procedure

This research is a type of research and development. Research and development is research that refers to efforts to develop a new product or improve an existing product in a responsible manner.

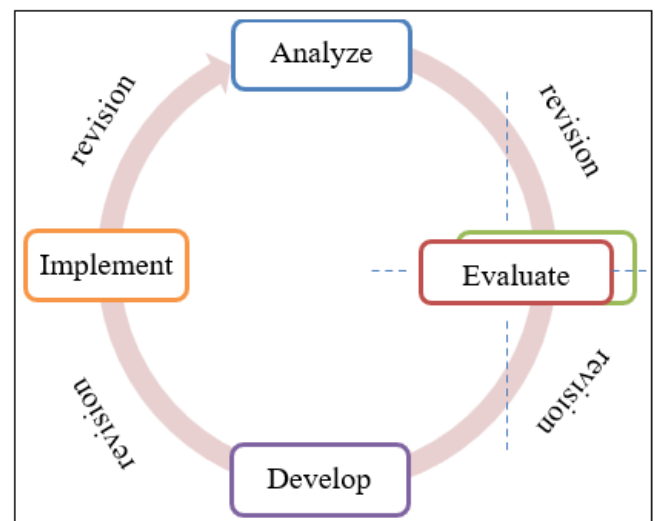


Figure 1: ADDIE Model Development Stage

According to Sugiyono (2019) development research is a research method used to produce certain products at certain stages and through expert tests and trials in the field to determine the effectiveness of the product being developed. The model used is ADDIE (Branch, 2009). There are five stages in the ADDIE development model, namely: 1) analysis, 2) design, 3) development, 4) implementation, and 5) evaluation. The stages of the ADDIE development model can be seen in **Figure 1.1**. The goal (1) of the Analyze Stage is to identify possible causes of performance gaps. (2) The Design Phase is to verify the desired performance and appropriate test methods. (3) The Develop stage is to produce and validate the selected learning resources. (4) The Implementation stage is to prepare a conducive learning environment and involve students. (5) The Evaluate stage is to assess the quality of the product and instructional process both before and after implementation. According to Nieveen (1999) the quality of a product being developed must meet the criteria of being valid, practical and effective. Data

collection techniques in this research obtained initial data through interviews to determine conditions and gaps in the research location, interview validation sheets, teaching materials, observations of teachers' abilities to use teaching materials, questionnaires on student responses to teaching materials, and learning outcomes tests by validators, observation sheets the teacher's ability to use teaching materials, questionnaire sheets for student responses to teaching materials, and the completeness of student learning outcomes. After the data is collected, data analysis is then carried out using descriptive statistical analysis techniques. The analysis carried out includes: analysis of validation data, analysis of student responses to teaching materials, and analysis of the completeness of learning outcomes. Analysis of data from the validation of Teaching Materials was carried out using value criteria (Susanti, 2021) given by the validator with a value weight of 1 - 5 and then analyzed according to the steps and criteria for valid decision making (Susanti, 2021). Data analysis on the practicality of teaching materials was carried out through the results of analysis of teachers' abilities in using the teaching materials that had been developed. The observation data obtained was analyzed by looking at the average value of the observation results at each meeting with the criteria quoted in (Ilyas, 2015). Analysis of the effectiveness of teaching materials is carried out through student response data and learning outcomes test completion data using appropriate steps and decision - making criteria (Fauzi, 2021).

### 3. Results and Discussion

#### Description of Results of Teaching Material Development:

Stage I (a) Performance Analysis: In interviews conducted with 2 mathematics teachers at SMK Negeri 1 Tondano and 5 Phase E students, almost the same problems were obtained. The results of the interview showed that: (1) The teaching materials prepared by the teacher did not attract the attention of students. Teachers only use textbooks from publishers on certain materials which are less effective in improving students' literacy and numeracy skills. (2) Student responses in implementing learning are less than optimal and less motivated. Students are less active in learning because their understanding of the material is not optimal. (3) The material that is difficult to teach specifically for phase E is the measurement of data centrality, especially the median, then continues with the material on measuring the location of data, both quartiles, deciles and percentiles. Median data center size material is a prerequisite material for students to understand data location size material. The causal factors that allow students to experience difficulties in the learning process are: (1) The use of teaching materials is less than optimal and uninteresting. (2) Lack of student motivation in the learning process, especially mathematics subjects. (a) Needs analysis: (1) Student analysis, Phase E students are aged between 15 - 16 years. At this stage, children already have the ability to reason and think abstractly and can then draw conclusions in the learning process.

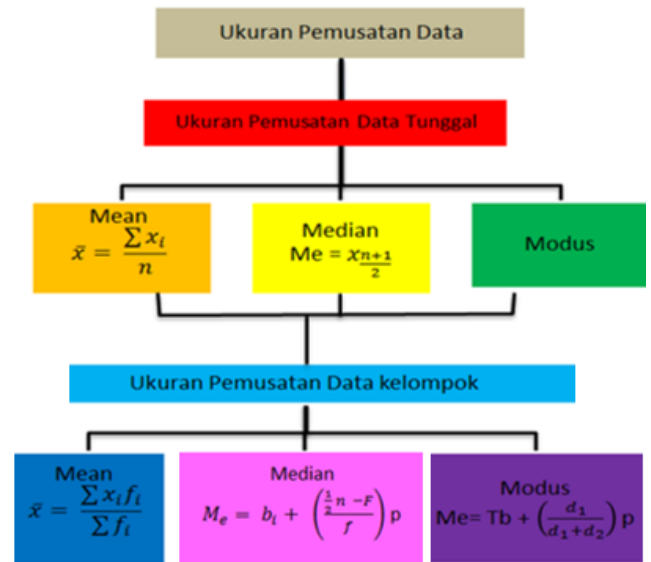


Chart 1: Concept Map of Data Centralization Measures

Utilizing technology can be an alternative solution to increase children's learning motivation and overcome children's boredom in learning so that children can use their reasoning and thinking skills to draw conclusions that help them in the learning process optimally. (2) Material Analysis, Needs analysis obtained from the interview results shows the material that will be used in the Design stage to develop teaching materials, namely material on data centering measures of mean, median and mode. The material will be presented systematically, namely from simple to complex material. The systematics of the material can be seen in the concept map below. Based on the analysis above, the identification of the problems that have been described is obtained. The researcher provides an alternative solution based on the needs analysis that has been described. To minimize and overcome these problems, it is necessary to renew and develop teacher performance in the learning process. One of them is by developing good quality teaching materials that meet the criteria of being valid, practical and effective. Powerpoint media - assisted teaching materials on measures of mean, median and mode data concentration can be an alternative choice that can be used and applied in learning that can minimize the performance gaps that occur. Stage II After the Analyze Stage has been carried out, the researcher will create a teaching material product with the help of PowerPoint media, material measuring data centering of mean, median and mode. The aim of this research is to obtain good quality PowerPoint - assisted teaching material products that meet the criteria of being valid, effective and practical, preparing practical instruments, namely observation sheets on teachers' abilities in using teaching materials that have been developed, preparing effectiveness instruments, namely student response questionnaires and tests. The learning outcomes are described as follows: (a) Designing Teaching Materials: Meeting 1, teaching materials are prepared using Microsoft PowerPoint 2019. The final form of teaching materials is in the form of a PowerPoint file in. pptx format which can be shared with students via WhatsApp or Bluetooth. The material discussed is measures of data centering, mean, median, and mode. Problems are presented in a real context that can improve students' literacy and numeracy skills.



(b) Designing Learning Outcomes Tests (THB): (1) Developing a grid with learning objectives in accordance with the analysis. The results of the grid development are contained in the attached sheet and the development of the question items is in accordance with the formulation of learning objectives that have been analyzed in the Needs Analysis for Identifying Learning Objectives. The questions prepared were 22 questions consisting of 5 multiple choice questions, 5 true and false questions, 5 matching questions, 5 completion questions and 2 description questions. (2) Writing questions in accordance with the AKM question criteria. (3) Rational analysis, namely validating questions that have been prepared by experts at the Develop stage. (4) Carrying out empirical analysis, empirical analysis refers to the quality of the questions regarding the validity of the question items and the reliability of the questions. (5) Analyze the questions based on the results of the empirical analysis and then revise them so that the learning outcomes test questions can be used at the Implementation stage in Phase E of Health Services B as a research subject. (c) Teaching Material Validation Sheet: Teaching materials are categorized as good if they fulfill 3 aspects, namely valid, practical and effective. For the validity of the teaching materials developed, the researchers used expert validation. The aspects assessed in the validation sheet are the display characteristics of the learning PowerPoint, the functions and benefits of the learning PowerPoint, and learning materials. (d) Observation Sheet on Teacher's Ability to Use Teaching Materials: The observation sheet on teacher's ability to use teaching materials will be filled in by observers to observe the Implementation stage. The aspects assessed in this observation sheet are knowledge and understanding of PowerPoint, slide design and layout, content presentation, presentation skills, and use of PowerPoint for learning. (e) Student Response Questionnaire Sheet: The student response questionnaire is used to determine student responses to the learning process that uses the development of teaching materials assisted by PowerPoint media. The aspects assessed by students are about the learning process and teaching materials assisted by PowerPoint media. Analysis of student response questionnaire data to determine the effectiveness of the teaching materials developed. (f) Research instrument validation sheets: Interview instrument sheets, student questionnaire sheets, observation sheets on teachers' abilities in using teaching materials, and learning outcome test sheets are research instruments that are first validated by the validator so that the instruments are suitable for measuring practicality and effectiveness teaching materials at the Implementation stage. The aspects assessed in the research instrument validation sheet include 3 aspects, namely Format, Content and Language. Stage III: In the Develop stage, the teaching materials and research instruments that have been designed in the previous stage will be developed by researchers by carrying out formative revisions according to the assessments of experts. The stages carried out by the researcher at the Develop stage are as follows: (1) Expert Validation: At this stage the researcher produces a product that has been revised after being validated by the validator based on comments and suggestions from the validator. Teaching materials that have been validated will then be revised according to the comments and suggestions recorded on the teaching material validation sheet. At the Design Stage, researchers have compiled and designed teaching

materials that are validated by validators at the Develop stage. (2) Validation Results: (a) Validation results of the interview instrument. Interviews were carried out at the analysis stage in accordance with the interview guideline and validated by experts with the results of each aspect of the assessment declared to be very valid.

Based on Table 2. Aiken's Formula Validation Category in Chapter III, the results of the average percentage of the total validation value of the interview instrument were  $V = 0.93$ , in the range  $0.80 < V \leq 1.00$  with a very high predicate. So it can be concluded that the interview instrument that the researcher has prepared is valid and can be used without revision. (b) Teaching Material Validation Results. Based on the validation sheet for teaching materials attached to the attachment sheet, validation results were obtained for each assessment aspect by 4 validators with the scores for each aspect falling into the very valid category. Based on Table 2. Aiken's Formula Validation Category in Chapter III, the average percentage result of the total Teaching Material Validation value obtained is  $V = 0.96$ , which is in the range of  $0.80 < V \leq 1.00$  with a very high predicate. So it can be concluded that the teaching materials that have been prepared by researchers are valid and can be used in the Implementation Stage with revisions based on suggestions in the comments column. (3) Validation Results of the Observation Sheet on Teacher Ability in Using the Teaching Materials developed: The practicality of teaching materials can be measured by looking at the level of teacher ability in using teaching materials through observation. Observation validation results for each aspect of the assessment are in the very valid category.

The results of the total average percentage value of the validation score for the teacher's ability to use the teaching materials developed were  $V = 0.95$ , in the range  $0.80 < V \leq 1.00$  with a very high predicate. So it can be concluded that the observation sheet on the teacher's ability to use the teaching materials that the researcher has prepared is valid and can be used without revision. (4) Validation Results of the Student Response Questionnaire Sheet: The student response questionnaire sheet was used to analyze the effectiveness of the teaching materials that the researcher developed. Validated by 4 validators producing data with the results of each aspect of the assessment declared to be very valid. The results of the total average percentage value of the Student Response Questionnaire Validation were  $V = 0.91$ , in the range  $0.80 < V \leq 1.00$  with a very high predicate. So it can be concluded that the Student Response Questionnaire that the researcher has prepared is valid and can be used without revision. (5) Validation Results of the Learning Outcomes Test: The validity of the learning outcomes test consists of construct validity and content validity followed by a reliability validity test of the test items. Construct validity and content validation use experts as validators who will assess each aspect of the learning outcomes test in the validation sheet. The validation results carried out by experts for each aspect of the assessment are in the very valid category. Previously, it was explained about the calculation of the total average for the assessed aspects and the validity predicate by looking at the presentation in table 2. For the Aiken's Formula Validation Category, the results of the total average percentage of the THB Validation value obtained

were  $V = 0.96$  in the range  $0.80 < V \leq 1.00$  with very high distinction. So it can be concluded that the THB that the researchers have prepared is valid and can be used. (3) Empirical Analysis of Learning Outcome Tests (THB). (a) Validity of question items: From this table it can be concluded that the test instrument has valid question items because the  $r_{pbi}$  value  $> r_{Table}$ , namely  $0.686$  and the  $r_{pbi}$  value is in the sufficient category. (b) Reliability of Learning Results Test Questions (THB): By calculating using Microsoft Excel to find the reliability of the test instrument using the Kuder Richardson (K - 20) formula, a reliability coefficient value of  $0.892$  was obtained in the very high category. Based on the results of the empirical analysis carried out by the researcher, it was obtained: (a) The validity of all test items met validity because the  $r_{pbi}$  value  $> r_{Table}$  and the  $r_{pbi}$  value, namely  $0.686$ , was in the sufficient category. (b) The reliability of the test instrument using the Kuder Richardson (K - 20) formula obtained a reliability coefficient value of  $0.892$  in the very high category so it can be said that the test is reliable. Stage IV: Teaching material products that have passed the Develop stage are ready to be used by researchers for the Implementation stage on research subjects carried out limited to one particular school and class where the location of the research is at SMK Negeri 1 Tondano in Phase E Health Services B class with 26 participants as subjects education and implemented from April to May. Final stage: Evaluate, the researcher analyzes student learning outcomes to determine the achievement of learning objectives after the Implement stage to see the level of effectiveness in using the teaching materials that the researcher developed. Apart from that, in the Evaluate stage the researcher conducted an evaluation of data on the teacher's ability to use the developed teaching materials and student responses to see the effectiveness and practicality of the teaching materials. Analysis of the Validity of Teaching Materials and Research Instruments: (1) Analysis of the Validity of Teaching Materials. At the Develop stage, validation of teaching materials was explained by 4 Validators. The development of teaching materials assisted by PowerPoint media meets the Valid criteria by obtaining a total average percentage value of  $V = 0.96$  which is in the range of  $0.80 < V \leq 1.00$  with a very high predicate. (2) Analysis of the Validity of the Student Response Questionnaire Sheet. The results of the total average percentage of the Student Response Questionnaire Validation scores obtained were  $V = 0.91$  which is shown in table 4 in the range  $0.80 < V \leq 1.00$  with a very high predicate. So it can be concluded that the Student Response Questionnaire that the researcher has prepared is valid. (3) Analysis of the Validity of the Observation Sheet on Teachers' Ability in Using Teaching Materials. The results of the total average

percentage of validation scores on the observation sheet on teacher's ability in using teaching materials were obtained  $V = 0.95$  in the range  $0.80 < V \leq 1.00$  with a very high predicate. So it can be concluded that the observation sheet on the teacher's ability to use the teaching materials that the researcher has prepared is valid. (4) Analysis of the Validity of the Learning Results Test, the results of the total average percentage of THB Validation scores obtained were  $V = 0.96$  in the range  $0.80 < V \leq 1.00$  with a very high predicate. So it can be concluded that the THB that the researcher has prepared is valid and is continued with validity and reliability tests. The results of the analysis of the validity of the question items and the reliability of the questions are as follows: (a) Validity of the Question Items, (b) Reliability of the Questions. Analysis of the Practicality of Teaching Materials: The practicality of teaching materials can be seen from the level of the teacher's ability to use teaching materials that have been developed by analyzing the results of observations or observations. Analysis of observation results for 3 meetings by the Observer is shown in Table 3.1.

**Table 3.1:** Observation Results Observing Teachers' Ability in Using Teaching Materials

No	Aspek yang di amati	Rata - rata Setiap Aspek
A.	Pengetahuan dan Pemahaman <i>Powerpoint</i>	4, 75
B.	Desain dan Tata Letak Slide	4, 58
C.	Penyajian Konten	4, 83
D.	Keterampilan Presentasi	4, 75
E.	Penggunaan <i>Powerpoint</i> untuk Pembelajaran	4, 92
JUMLAH SKOR		23, 83
RATA - RATA ASPEK YANG DI AMATI		4, 77

The observation data obtained a total average score for 3 meetings, namely  $4.77$  and with the criteria quoted from Nurdin in Ilyas (Ilyas, 2015) which is explained in Chapter III, the observation results were at very high criteria. This criterion shows that the teacher's level of ability in processing learning is very high. So it can be concluded that the teaching materials developed by researchers with the help of PowerPoint media meet the Practical criteria. Analysis of the Effectiveness of Teaching Materials: Measuring the effectiveness of teaching materials based on the results of analysis of student response questionnaires and the completeness of student learning outcomes. The student response questionnaire sheet was given at the fourth meeting after the implementation of the Learning Outcomes Test to 26 students in Phase E class Health Services B. The results of filling in the student response questionnaire regarding the learning process using teaching materials assisted by PowerPoint media can be seen in Table 3.2.

**Table 3.2:** Student Response Questionnaire Results

Aspek yang dinilai	Jumlah Siswa yang memilih			
Bagian I. Bagaimana perasaanmu terhadap:	Senang	Persentase (%)	Tidak Senang	Persentase (%)
Rata - rata aspek yang dinilai		91, 03		8, 97
Bagian II. Bagaimana pendapatmu tentang proses pembelajaran?	Berminat	Persentase (%)	Tidak berminat	Persentase (%)
Rata - rata aspek yang dinilai		90, 38		9, 62
Bagian III. Bagaimana Pendapatmu tentang bahan ajar berbantuan media <i>powerpoint</i> ?	Ya	Persentase (%)	Tidak	Persentase (%)
Rata - rata Aspek yang dinilai		93, 96		6, 04
Total		91, 79		8, 21

The calculation of the percentage of student responses has been explained in Chapter III with the criteria for interpreting student response scores adapted from Riduwan in Alex Haris (Fauzi, 2021). Table 13 shows the percentage of students' responses to the implementation of learning using teaching materials assisted by PowerPoint media with a percentage of 91.79% with interpretation criteria being in the strong criteria, namely in the interval 81% - 100%. Therefore, the conclusion from the results of the questionnaire analysis of student responses to teaching materials assisted by PowerPoint media is that learning using teaching materials assisted by PowerPoint media received a positive response from students. The completeness of the learning outcomes test is viewed from individual completeness and classical completeness. Individual Completion is determined when the score obtained reaches the KKM with the KKM set at 70 according to the results of the mathematics MGMP at SMK Negeri 1 Tondano. The results of the student learning outcomes test can be seen in the attached sheet and the calculation of classical completeness is described as follows:  $KK = \frac{N_i}{N} \times 100\% = \frac{19}{26} \times 100\% = 73,08\%$ . Obtained  $KK \geq 70\%$  and meets good criteria based on table 5. Criteria for Completeness of Learning Outcomes because it is in the interval  $70\% \leq KK < 80\%$ . Classical completeness determined by the Mathematics MGMP of SMK Negeri 1 Tondano is that if the  $KK$  is  $> 70\%$  then it can be said that classical completeness for the learning outcomes test has been achieved. Thus, completion of the learning outcomes test has been achieved because it meets good criteria and fulfills the classical completion requirements that have been set.

#### 4. Conclusions and Suggestions

Based on the results of the research and discussion, it was obtained: (1) The development of teaching materials obtained an average percentage of the total validation value of  $V = 0.98$  which was in the range of  $0.80 < V \leq 1.00$  with a very high predicate so that it met the Valid criteria through a value of 4 Validators. The Learning Outcomes Test (THB) obtained a total average percentage of Validation scores of  $V = 0.96$  in the range of  $0.80 < V \leq 1.00$  with a very high predicate so that it can be concluded that the THB that the researchers have developed is Valid. Then proceed with validity and reliability tests. The validity of the test items for 5 multiple choice questions is valid, 5 true and false questions are valid, 5 matching questions are valid, 5 completing questions are valid, and 2 description questions are valid with the  $r$  coefficient pointing at 0.892 so that the test can be said to be reliable. (2) Practicality Criteria for the developed teaching materials, seen from the level of the teacher's ability to use the teaching materials taken through data from observations of the teacher's ability to use the developed teaching materials as assessed by the Observer, obtaining a total average score of 4.77 with very high criteria. So it can be concluded that the teaching materials developed by researchers meet the Practical criteria. (3) Criteria for the effectiveness of the teaching materials developed, seen from the level of student response and the completeness of classical student learning outcomes. Student responses to teaching materials obtained a percentage of 91.79% with positive answers and were in the strong criteria. For Classical Completeness, the percentage obtained was 73.08% which is in very good criteria and it can

be concluded that classical completeness has been achieved. Based on the positive response from students and the achievement of students' classical learning completeness, it is concluded that the learning tools that have been developed meet the criteria for effectiveness. (4) The results of the development of teaching materials assisted by PowerPoint media to improve literacy and numeracy skills in the Data Concentration Measure material are in the good category because they meet the criteria of Valid, Practical and Effective according to Neiveen in Purboningsi (2015).

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