JHSS (Journal of Humanities and Social Studies) *Volume 07, Number 03, November 2023, Page 887-892*
https://journal.unpak.ac.id/index.php/jhss *e-ISSN: 2598-120X; p-ISSN: 2598-117X*

VALIDITY AND RELIABILITY OF SENIOR HIGH SCHOOL STUDENTS' PERFORMANCE ASSESSMENT IN WORD PROCESSING MATERIALS ON ANDROID-BASED INFORMATICS LEARNING

Dwi Marwati[a*)], Muhammad Khafid [a)], Wahyu Lestari [a)]

[a)] *Universitas Negeri Semarang, Semarang, Indonesia*

[*)]*Corresponding Author: dwimarwati83@students.unnes.ac.id*

Article history: *received 02 September 2023; revised 16 September 2023; accepted 02 October 2023* *DOI: https://doi.org/10.33751/jhss.v7i3.8237*

Abstract. This research is part of the research on the Development of Performance Assessment Instruments for Grade VII Junior High School Students on Word Processing Materials in Android-Based Informatics Learning. The purpose of this study was to reveal the content validity, and the reliability of the content and the reliability of the performance assessment instrument for class VII junior high school students' word processing materials that had previously been compiled. The instrument developed is an observation sheet. Content validity analysis was analyzed using Aiken's V formula. Instrument content reliability was analyzed using Ebel's formula with the help of Two Way Anava analysis through SPSS V.26. The results of this study indicate that (1) the observation sheet in the form of a scoring and self-assessment rubric proved valid with an average coefficient of V Aiken 0, 95; (2) the instrument is also stated to be reliable in terms of content with a value of rxx = 0.703; (3) The test instrument proved to be reliable with a Cronbach's Alpha value = 0.929 for the Cronbach's Alpha value before being standardized and 0.931 for the Cronbach's Alpha value after being standardized for 15 statement items, after being tested on 163 class VII students of SMPN 2 Mejobo Kudus for use on students . Based on the results of this study, the instrument for evaluating the performance of Grade VII junior high school students using word processing is appropriate.

Keywords: informatics; word processing; student learning

I. INTRODUCTION

Assessment instruments are always related to the assessment process in learning, including informatics learning in junior high schools (SMP). The assessment process is inseparable from the stages of developing an assessment instrument, so testing validity and reliability is the most important stage in developing an assessment instrument. The development of invalid and unreliable instruments will greatly affect the results of research/learning assessment**[1]**. Assessment instruments including performance assessment in informatics learning that are valid and reliable are considered important because they can describe the assessment indicators to be measured**[2]**, so it can be said that the instrument was good**[3], [4] [5].** Teachers are aware that performance appraisal instruments in informatics learning that have been tested for validity and reliability are very important, but they cannot be separated from various obstacles which, if left unchecked, will become a problem in the learning process. The process of developing a simple performance appraisal instrument without testing the validity and reliability of the instrument is the root of the failure of the learning process **[6], [7] [8]**, because it will affect the subject being measured. Even though using a good instrument when taking measurements, educators can find out the level of ability of students in certain subjects**[9] [10]**. Another problem that often arises in the development of assessment instruments is the teacher's lack of knowledge in developing assessment instruments[6]so that not all educators provide assessment instruments to measure student learning outcomes**[11] [12]**. there are 53% of educators at the SMA/MA and SMK levels who have not revised the assessment instruments which are not yet good. Not only that, in the practicum assessment process, especially in Web programming subjects, there are no assessment instruments used so that educators cannot provide evaluations of competencies that students have not mastered**.[13] [14]**. Facts in the field also show that informatics teachers give assignments that are still tied to the assignments on the worksheet and require students to do exactly the same as the examples on the worksheet (Observation results in the field August 22, 2022). Sulastri (Results of field interviews, 24 August 2022) said that the teacher in giving assessments still refers to traditional assessments, namely by using assessments on paper sheets. Teachers are also still limited in understanding how to make standard assessment instruments. Informatics teachers rarely equip themselves with knowledge about assessment. Peni (Interview Results 25 August 2022) said that the assessments carried out so far had been good, but an analysis of the validity and reliability of the assessment instruments had never been carried out.

In addition to the lack of development of valid and reliable assessment instruments by the teacher, another problem that arises is the problem within the students. In reality, based on observations for Informatics subjects in

Volume 07, Number 03, November 2023, Page 887-892
e-ISSN: 2598-120X; p-ISSN: 2598-117X

several junior high schools in Kudus, students' ability to master practice is still very low. This is because: 1) students are still very minimal in mastering word processing material, and 2) most of the students at home do not have computers so that students can only study computers at school (Observation results on 24 August 2022)

Through the various problems that exist in the development of assessment instruments in general and the instrument for evaluating the performance of word processing materials in Informatics learning for junior high schools in particular those tested for validity and reliability are considered important, because they have the function of expressing a fact into data, which means that if the quality of the instrument used well, then the data obtained is in accordance with the actual facts.**[15]**argues that assessment is the process of collecting and discussing information from various sources to develop a deep understanding of what is known, understood and what students can do with the knowledge they have as a result of learning experiences. Assessment of learning outcomes can be in the form of test and non-test assessments, in word processing learning the assessment that is often carried out includes evaluating the performance of seventh grade junior high school students or performance assessments such as in informatics practice assessments. Performance appraisal is one method of assessment that is widely used in determining student abilities such as in learning informatics material for word processing software.**[16]**.

Previous research has never carried out development related to word processing material in informatics learning in junior high school. However, Si Luh Made Intan Pebriyanti 2021 conducts research related to multimedia-based learning media with 100% content validity test results being one of the effective learning factors**[17]**. The results of the validity test were carried out by 2 lecturers at UIN Bukittinggi, namely Mr. Ririi Okra, M.Pd and Mrs. Yulifda Elinn Yuspita, M.Kom and 1 teacher in Informatics, namely Mr. Idriansyah, S.Pd. The average result is 0.79 with the "Valid" category. Aspects of effectiveness with a value of 0.57 with the "Moderate" category. And the practicality test results with a value of 0.77d with the category "Practical".**[18]**. The reliability test analyzed using the Cronbach alpha formula obtained a result of 0.56, so the case study portfolio assessment instrument in class VII ICT subjects discussing hardware, software, and the use of application programs, has a moderate reliability value. The reliability test between raters analyzed using the Ebel formula obtained a result of 0.99. The practicality of using the instrument by the rater was analyzed using an ideal theoretical reference assessment and obtained an average rating of 32.5, then the case study portfolio assessment instrument in class VII ICT subjects discussed hardware, software, and the use of application programs, have very practical level criteria**[19]**. Based on the development of competency-based instruments in web programming practicum at SMK which refers to the development of competency-based assessment instrument grids according to Djemari Mardapi in order to obtain assessment instruments consisting of practical tests, competency-based assessment rubrics and affective aspect assessment rubrics. After testing and analyzing the data it was concluded that the components of the assessment instrument developed were valid, practical and effective and could be used in the assessment**[13].** Through the description of the previous research above, it shows that the development of performance assessment instruments for word processing materials in informatics learning in junior high schools that have been tested for validity and reliability has never been carried out, therefore with the development of performance assessment instruments in word processing materials in informatics learning in junior high schools which are valid and reliable can be used by teachers in conducting learning assessments in measuring student performance in word processing material in informatics learning in junior high schools. Therefore the objectives of this study are, 1) to prove the validity of the content validity of the performance assessment instrument for seventh grade junior high school students on word processing in informatics learning; 2) Estimating the reliability of content and test instruments for evaluating the performance of seventh grade junior high school students on word processing in informatics learning.

II. RESEARCH METHODS

This research leads to development research which is part of the research on the development of performance assessment instruments for seventh grade junior high school students in word processing materials on android-based informatics learning, but this article will explain the results of measuring parametric properties, namely validity (content) and reliability (test and reter). instrument for evaluating the performance of class VII junior high school students on word processing in informatics learning. Instruments that have met the validity and reliability standards can be used for the measurement stage. The research subjects in the research on developing test instruments for the Performance Assessment of Class VII Middle School Students on Word Processing Materials in Android-Based Informatics Learning were 163 class VII students of SMP 2 Mejobo Kudus Academic Year 2022/2023

The instrument for evaluating the performance of seventh grade junior high school students for word processing in informatics learning was prepared based on 9 domain indicators on word processing material for seventh grade junior high school informatics learning such as: (1) work area display, (2) word processing menus, (3) the buttons used in word processing, (4) presenting simple information, (5) saving and opening documents, (6) creating new documents, (7) editing text, (8) inserting objects, and (9) printing document.

The data used to prove the validity and reliability of the instrument were obtained through several stages, namely: The validity of the contents of the instrument was obtained by giving questionnaires to 5 experts, namely 2 assessment experts, 2 learning practitioners, 1 computer science expert. To calculate the content validity of the instrument, it is based on the assessment of n experts on an item, namely by using the Aikens'V formula with the following formula:

Volume 07, Number 03, November 2023, Page 887-892
e-ISSN: 2598-120X; p-ISSN: 2598-117X

$$V = \frac{\Sigma s}{n\,(c-1)}$$

Information:
S = r – lo
lo = the lowest validity assessment score (in this case = 1)
c = the highest validity assessment number (in this case = 4)
r = number assigned by an appraiser
n = number of appraisers

Assessment is done by selecting one of the five categories of 4 statements, namely: (1) Very good, Score = 4; (2) Good, score = 3 ; (3) Enough, score = 2; (4) Less, score = 1.

On proving the validity of the content**[20]**, researchers can determine the desired number of rating categories. The number of rating categories affects the content validity standards set by Aiken. The smallest number of rating categories formulated by Aiken is 2 and the highest is 7**[21]**whether or not the content validity of an instrument using the Aiken index is formulated in the Aiken's V index calculation table based on the number of raters and the number of statements/items**[21].** Then estimate the reliability of the reter (content) of the instrument using the intereter reliability technique by calculating using the Ebel formula for skills and product assessment and combined with the Two Way Anova test. The Ebel formula can be seen as follows:

$$\text{rxx} = 1 - \frac{s2r}{s2s}$$

Information:
S2r = residual variance which in treatment x subject analysis is the mean square of the interaction between the item and the subject MKs
S2s = subject variance is the square between subjects, namely MKs Reliability.

The instrument is said to be reliable in terms of content if the coefficient value is ≥ 0.7, the instrument used by experts has been declared consistent in giving an assessment**[22], [23]** Then the estimated reliability of the test was analyzed using internal consistency calculations with the Cronbach Alpha formula, after a large-scale trial was carried out on class VII students of SMP 2 Mejobo Kudus for the 2022/2023 academic year. The Alpha Cronbach's formula is as follows:

$$\alpha = \left[\frac{k}{(k-1)}\right]\left[1 - \frac{\sum s_i^2}{s_t^2}\right]$$

α = Cronbach's Alpha Reliability
K = Number of grains/slices in the instrument
Σs2t = Total variance of all items
S2t = Variant of total score

The raw data obtained through large-scale testing was then processed using the SPSS program version 16.0 to estimate the reliability of the test instrument for Class VII Middle School Students' Performance Assessment on Word Processing Materials in Android-Based Informatics Learning. Obtain appropriate critical values in order to prove the estimated reliability of the Android-Based Student Performance Assessment instrument based on expert judgment. According to Khumaedi,[24]And[25]reliability coefficient of 0.50 and above is sufficient to be accepted as good reliability.

III. RESULTS AND DISCUSSION

The results of the reliability analysis of Cronbach's Alpha through the Reliability Statistics output table in the SPSS V.26 application described 15 items/statements after being tested on 163 students who were declared reliable in the high category. This is based on expert judgment according toKhumaedi, **[22]a**nd Lisufiana et al., **[25]** reliability coefficient of 0.50 and above is sufficient to be accepted as good reliability. The output results of the Reliability Statistics meet the reliability requirements of the experts, namely above 0.5, this shows that the 15 statements are stated to be consistent. Analysis of the reliability test with Cronbach's Alpha = 0.929 for the Cronbach's Alpha value before standardization and 0.931 for the Cronbach's Alpha value after being standardized for 15 statement items. Reliability measurement indicators according to Guilford, 1956 level of reliability with a reliability value criterion of 0.929 is very high. It can be concluded that the instrument points for developing performance assessment instruments in informatics learning for class VII SMP word processing materials are acceptable.

Content Validity

Instrument content validation is validity or constancy by estimating the instrument through testing with the aim of testing the feasibility or relevance of the instrument content through rational analysis by panelists or through Expert Judgment (Azwar, **[20]**). The results of the assessment of the content of the instrument were carried out by 5 experts to prove the validity of the content of the performance assessment instrument in informatics learning class VII SMP word processing material and found that all instrument statement items based on 5 categories of instrument content assessment were declared valid**[21]**with an average of 0.95 which is categorized as valid**[26]**Appropriate and in line with research on the development of assessment instruments for Assessment of Learning Skills/performance**[27]**that statement items that have been declared valid can be used as a good assessment instrument in assessing the skills and performance of students when implemented in the field**[27]–[30]**

However, research on the development of online skills lab learning assessment instruments does not prove content validity using the Aiken'V index but uses the Product Moment formula with Corrected Item-Total Correlation so that it is more precise to prove the validity of the items so that the feasibility of the content is still questionable. However, overall performance/skill assessment indicators in developing

Volume 07, Number 03, November 2023, Page 887-892
e-ISSN: 2598-120X; p-ISSN: 2598-117X

instruments should be based on assessment indicators**[27].**Then the assessment of content validity for the development of performance appraisal instruments should be assessed based on aspects of the construction of the instrument, materials and language used in the instrument**[31]** the aspects of instrument construction, material and language used in the instrument to prove the validity of the contents of the instrument have similarities with research on the development of performance assessment instruments in informatics learning class VII SMP word processing materials, namely assessment categorized based on several indicators, namely 1) Instructions for using a questionnaire are stated clearly; 2) Statement sentences are easy to understand and do not lead to multiple interpretations; 3) Sentences use good and correct language; 4) Conformity of statements with indicators.

So that the accuracy of the expert's assessment to prove the validity of the content can be assessed accurately and the coefficient of proving the validity is truly valid**[31]–[33].**research on performance assessment instruments in informatics learning class VII junior high school word processing materials has similarities with research on the development of practicum performance assessment instruments to measure (KPS) grade VIII junior high school students on the theme my food my health on the aspect of content validity that obtains results with an overall average predicate of 93.3% in the "very valid" category, so the performance assessment instrument developed is very valid to be applied as an alternative practicum assessment to assess (KPS) the theme of my food is my health.**[34]**.

Content Reliability (Intereter)

Interrater reliability is the result of reliability analysis based on the results of expert agreement. In the research on the development of performance assessment instruments in informatics learning for class VII junior high school word processing materials, the Interrater reliability analysis data used was based on expert judgment on content validity with 5 criteria for assessing 15 statement items for performance assessment instruments in informatics learning for class VII junior high school material word processing. The results of the Interrater instrument reliability using the Ebel formula above show that the average result of the six raters has a fairly high reliability coefficient of 0.703. Referring to the results of research conducted by Rahmah**[35]**The Performance Assessment instrument is said to be reliable and consistent if the reliability coefficient is ≥ 0.6, other opinions also say that if the coefficient value is ≥ 0.7, the instrument used by experts has been declared consistent in giving an assessment**[22], [23], [36]–[38].**With regard to content validation and content reliability (Intereter), work performance assessment instruments in informatics learning for class VII junior high school word processing materials are in line with several studies, namely research conducted by Siagian**[39]And**Chan & Luk**[40]** explained that the development of instruments for character education needs to be developed because assessment does not have to emphasize hard skills but also must prioritize soft skills which are elements of character education. So the instrument with content validity criteria with the lowest score between 0.67-1 and the highest score 0.93 and Cronbach's alpha value above 0.7 shows that the instrument with validity and reliability. Overall, being able to measure the psychometric properties of the instrument shows that the instrument is sufficient reliably used in practice and educational research.

Test Reliability

The reliability of the test is the result of a calculation that shows the level of consistency of the test on the variable and population being measured. Calculation of test reliability for performance assessment instruments in informatics learning class VII SMP word processing materials using Alpha Cronbach's coefficient. The analysis was carried out through the SPSS V. 26 program with the results of estimated reliability with Cronbach's Alpha = 0.929 for the Cronbach's Alpha value before being standardized and 0.931 for the Cronbach's Alpha value after being standardized for 15 statement items. This research on the development of performance assessment instruments in informatics learning for class VII junior high school word processing has similarities with several studies that have developed performance instruments and performance assessments and estimated the reliability of the instruments. Research conducted by I Ketut Susila**[41]**that the performance appraisal instrument should have a reliability coefficient above 0.6 so that it can be stated reliably for conducting field assessments. Then the research conducted by Sri Rahayu**[42]** that performance appraisal instruments should be developed based on indicators and lead to non-test instruments with the calculation results obtained a reliability level of 0.87 in the "Very High" category. So it can be seen that the instrument for assessing students' writing abilities is reliable because the reliability coefficient value obtained is greater than 0.60.

IV. CONCLUSION

Refer to the resultsResearch on the development of performance appraisal instruments in informatics learning for class VII junior high school word processing materials can be drawn as follows: Proof of content validity for the development of performance assessment instruments in informatics learning for class VII junior high school word processing materials was carried out by 5 experts. Verifying the validity of the development of performance assessment instruments in informatics learning class VII SMP word processing materials obtained an average score of 0.95 so that it was declared suitable for use as a form of assessment. Overall the results of the estimation of the reliability of the performance assessment instrument in informatics learning for class VII junior high school word processing materials are as follows: intereter reliability of assessment instruments for teachers on character education Pancasila student profiles elementary school students get a price of 0.703 which is said to be reliable so that the performance assessment instruments in informatics learning for class VII junior high school word processing materials have sufficient stability/consistency. The test reliability of the performance assessment instrument

Volume 07, Number 03, November 2023, Page 887-892
e-ISSN: 2598-120X; p-ISSN: 2598-117X

in informatics learning for class VII junior high school word processing material obtained a value with Cronbach's Alpha = 0.929 for the Cronbach's Alpha value before standardization and 0.931 for the Cronbach's Alpha value after it was standardized for 15 statement items so that it was categorized as reliable.

REFERENCES

[1] F. Fatayah, I. F. Yuliana, and L. Muf'idah, "Analisis Validitas Dan Reliabilitas Dalam Mendukung Ketuntasan Belajar Model STEM," *J. Buana Pendidik.*, vol. 18, no. 1, pp. 49–60, 2022.

[2] T. Musayaroh, I. F. Yuliana, and Fatayah, "Pengembangan Instrumen Tes Literasi Kimia Berbasis Hots Yang Layak Ditinjau Dari Validitas Isi Oleh Ahli," *UNESA J. Chem. Educ.*, vol. 10, no. 3, pp. 243–251, 2021.

[3] B. Utomo, "Analisis Validitas Isi Butir Soal sebagai Salah Satu Upaya Peningkatan Kualitas Pembelajaran di Madrasah Berbasis Nilai-Nilai Islam," *J. Pendidik. Mat.*, vol. 1, no. 2, pp. 145–159, 2019, doi: 10.21043/jpm.v1i2.4883.

[4] W. M. Sari, R. Riswanto, and P. Partono, "Validitas Mobile Pocket Book Berbasis Android Menggunakan Adobe Flash Pada Materi Suhu Dan Kalor," *Berk. Ilm. Pendidik. Fis.*, vol. 7, no. 1, p. 35, 2019, doi: 10.20527/bipf.v7i1.5728.

[5] S. Hardinata, Y. Suchyadi, and D. Wulandari, "Model of Strengthening Technology Literacy for Junior High School Teachers in the Era of the Industrial Revolution 4.0," *Proc. Int. Conf. Ind. Eng. Oper. Manag. Monterrey, Mex.*, pp. 3645–3654, 2021, [Online]. Available: http://ieomsociety.org/proceedings/2021monterrey/637.pdf

[6] M. F. Uyun, H. Haryono, and N. Hudallah, "Pengembangan Instrumen Penilaian Pendidikan Karakter Profil Pelajar Pancasila Siswa SD Berbasis Android," *Al Qalam J. Ilm. Keagamaan dan Kemasyarakatan*, vol. 17, no. 3, pp. 1781–1804, 2023.

[7] M. F. Uyun, S. Sudirman, and K. Nisa, "The Strategy Of Developing Character Education With School-based Management in SDN 1 Batu Kumbung," *J. Ilm. Pendidik. Indones.*, vol. 2, no. 2, 2020.

[8] Y. Suchyadi, O. Sunardi, E. Suhardi, and L. P. Martha, "the Use of Multimedia As an Effort To Improve Elementary Teacher Comprehension Ability and Creative Thinking Skills in Following Science Study Courses," *Jhss (Journal Humanit. Soc. Stud.*, vol. 6, no. 2, pp. 262–267, 2022, doi: 10.33751/jhss.v6i2.5392.

[9] I. H. Ismail, "Estimation of Measurement Errors Based on CTT and IRT of the 2018 SBMPTN Tryout Questions for Academic Potential Tests in Makassar City," *ChemEdu*, vol. 2, no. 1, pp. 1–9, 2021.

[10] Y. Suchyadi, T. Muhajang, R. S. Indriani, and M. Mirawati, "Implementation Of Supervision In Improving The Learning Process And Character Education In Elementary Schools," *J. Soc. Stud. Arts Humanit.*, vol. 2, no. 2, pp. 143–146, 2022, doi: 10.33751/jssah.v2i2.6152.

[11] N. Alfianika and K. Sitohang, "Validitas Pengembangan Rubrik Penilaian Menulis Paragraf Narasi Dan Deskripsi Dalam Pembelajaran Bahasa Indonesia," *Fon J. Pendidik. Bhs. dan Sastra Indones.*, vol. 18, no. 2, pp. 223–235, 2022, doi: 10.25134/fon.v18i2.5592.

[12] Y. Suchyadi and R. S. Indriani, "Improving the Ability of Elementary School Teachers Through the Preparation of Competency-Based Assessment Instruments," *J. Community Engagem.*, vol. 04, no. 2, pp. 47–51, 2022, doi: 10.33751/jce.v4i2.6154.

[13] H. Haryati, "Pengembangan Instrumen Penilaian Berbasis Kompetensi Pada Praktikum Pemrograman Web Di SMK," *J. Pendidik.*, vol. 6, no. 2, pp. 1–13, 2018, doi: 10.36232/pendidikan.v6i2.33.

[14] Y. Suchyadi, M. Mirawati, F. Anjaswuri, and D. Destiana, "Supervisi Akademik Dalam Meningkatkan Kompetensi Guru Sekolah Dasar," *J. Manaj. Pendidik.*, vol. 10, no. 01, pp. 67–71, 2022, doi: 10.33751/jmp.v10i1.6155.

[15] M. E. Huba and J. E. Freed, *Learner-Centered Assessment on College Campuses: Sifting the Focus from Teaching to Learning*, vol. 24. Allyn and Bacon, 2000.

[16] U. A. Saefullah, "Dampak Penilaian Kinerja dan Pengembangan Karir terhadap Kepuasan Kerja Karyawan Perbankan," *Technomedia J.*, vol. 6, no. 2, pp. 223–235, 2021, doi: 10.33050/tmj.v6i2.1761.

[17] S. L. M. Intan Pebriyanti, "Pengembangan Media Pembelajaran Interaktif Berbasis Multimedia pada Mata Pelajaran Informatika Kelas VII di SMP Negeri 1 Seririt," Universitas Pendidikan Ganesha, 2021.

[18] H. Rahmi, S. Derta, S. Zakir, and L. Efriyanti, "Pengembangan Lembar Kerja Peserta Didik (LKPD) Digital Mata Pelajaran Informatika Kelas VII SMPN 7 Bukittinggi," *JATI (Jurnal Mhs. Tek. Inform.*, vol. 7, no. 1, pp. 707–711, 2023.

[19] I. Gusti *et al.*, "Pengembangan Instrumen Penilaian Portofolio (Studi Kasus Pada Mata Pelajaran Teknologi Informasi dan Komunikasi (TIK) Kelas VII Bahasan Perangkat Keras, Perangkat Lunak, dan Kegunaan Program Aplikasi, Siswa SMP Negeri 1 Selat Karangasem)," *Kumpul. Artik. Mhs. Pendidik. Tek. Inform.*, vol. 3, no. 1, pp. 83–88, 2014.

[20] S. Azwar, *Reliabilitas dan Validitas*, 4th ed. Yogyakarta: Pustaka Pelajar, 2012.

[21] L. R. Aiken, "Three Coefficients For Analyzing The Reliability And Validityof Ratings," *Educ. Psychol. Meas.*, vol. 45, no. 1, pp. 131–142, 1985, doi: http://doi.org/10.1177/0013164485451012.

[22] M. Khumaedi, "Reliabilitas Instrumen Penelitian Pendidikan," *J. Pendidik. Tek. Mesin Unnes*, vol. 12, no. 1, pp. 25–30, 2012.

[23] A. Rusilowati, "Pengembangan Instrumen Peneltian,"

Volume 07, Number 03, November 2023, Page 887-892
e-ISSN: 2598-120X; p-ISSN: 2598-117X

Semin. Nas. Eval. Pendidik. Tahun 2013, pp. 7–21, 2013.

[24] F. A. P. Pradana and M. Mawardi, "Pengembangan Instrumen Penilaian Sikap Disiplin Menggunakan Skala Likert dalam Pembelajaran Tematik Kelas IV SD," *Fondatia*, vol. 5, no. 1, pp. 13–29, 2021, doi: 10.36088/fondatia.v5i1.1090.

[25] D. Lisufiana, T. Supriyanto, and M. Khumaedi, "Validity and Reliability Content of Instrument of Assessments Mengalihaksarakan Serat Wulangreh Pupuh Gambuh Class Viii," *J. Res. Educ. Res. Eval.*, vol. 8, no. 2, pp. 165–170, 2019, doi: 10.15294/jere.v8i2.39628.

[26] H. Retnawati, "Validitas dan reliabilitas konstruk skor tes kemampuan calon mahasiswa," *J. Ilmu Pendidik.*, vol. 23, no. 2, pp. 126–135, 2018.

[27] M. Jefri, D. Anggraini, and M. Zulyati Oktora, "Validitas dan Reliabilitas Kuesioner Penilaian Pembelajaran Skills Lab Secara Daring pada Mahasiswa Fakultas Kedokteran Universitas Baiturrahmah Padang," *Sci. J.*, vol. 1, no. 1, pp. 36–45, 2022, doi: 10.56260/sciena.v1i1.16.

[28] M. Agustina, P. Pujiati, and R. Perdana, "Pengembangan Instrumen Penilaian Kinerja Berbasis Model Project Based Learning untuk Meningkatkan Keterampilan Berbicara Peserta Didik di Sekolah Dasar," *J. Basicedu*, vol. 6, no. 4, pp. 6900–6910, 2022, doi: 10.31004/basicedu.v6i4.3281.

[29] A. Maulana, "Analisis Validtas, Reliabilitas, dan Kelayakan Instrumen Penilaian Rasa Percaya Diri Siswa Article Info ABSTRACT," *J. Kualita Pendidik.*, vol. 3, no. 3, pp. 2774–2156, 2022.

[30] N. D. Gunawan, Y. Suchyadi, and Sumardi, "The Effect Of Online Learning On Interest In Learning Mathematics In Elementary Schools," *J. Soc. Stud. Arts Humanit.*, vol. 2, no. 2, pp. 110–113, 2022, doi: 10.33751/jssah.v2i2.6585.

[31] F. W. Wijaya, Taufiqqurrachman, and M. A. Sutisna, "Pengembangan Instrumen Penilaian Kinerja Berbasis Keterampilan Proses Sains Pada Materi Getaran Harmonis," *Exp. J. Sci. Educ.*, vol. 2, no. 1, pp. 19–28, 2022.

[32] Mulyadi and K. I. Nursetyo, "Pengembangan Instrumen Literasi dan Numerasi Berbasis TIK Untuk Siswa Sekolah Dasar," *J. Pembelajaran Inov.*, vol. 5, no. 2, pp. 75–86, 2022, doi: 10.21009/jpi.052.11.

[33] E. B. M. S. Ningrum, S. B. Waluya, and S. Ridlo, "Development of Assessment Instrument Android-Based Students' Interest In Learning Mathematics SMP With CPS Model," *J. Res. Educ. Res. Eval.*, vol. 7, no. 2, pp. 181–188, 2018, doi: 10.15294/jere.v7i2.25436.

[34] S. Fajrina, L. Nulhakim, and A. N. Taufik, "Pengembangan Instrumen Performance Assessment Praktikum untuk Mengukur Keterampilan Proses Sains (KPS) Siswa SMP Kelas VIII pada Tema Makananku Kesehatanku," *PENDIPA J. Sci. Educ.*, vol. 6, no. 1, pp. 105–112, 2021, doi: 10.33369/pendipa.6.1.105-112.

[35] A. Muasa, A. Rusilowati, and S. S. Bambang, "Development of Performance Assessment of Learning Instruments Apply Daily Make-Up for Make Up Department at Vocational High School," *J. Educ. Res. Eval.*, vol. 1, pp. 109–116, 2018.

[36] S. Sahrul, M. Khumaedi, and M. Masrukan, "Development of Instruments to Measure Self-Confidence and Creative Thinking in Mathematics Learning for Vocational High School Students," *J. Res. Educ. Res. Eval.*, vol. 11, no. 1, pp. 81–92, 2022.

[37] Z. A. Hamid, "An Evaluation Study of Prospective Teachers' Competences in Teaching Elementary School Students," no. 14.

[38] Z. C. Isa and N. Azid, "Multimedia constructivism instrument: Validity and reliability analysis," *Int. J. Eval. Res. Educ.*, vol. 11, no. 4, pp. 1818–1824, 2022, doi: 10.11591/ijere.v11i4.22730.

[39] S. Siagian, H. Hariadi, and P. N. J. M. Sinambela, "The Development of Assessment Instrument for the Character Education at the State University of Medan," *Adv. Soc. Sci. Educ. Humanit. Res. 3rd Annu. Int. Semin. Transform. Educ. Educ. Leadersh. (AISTEEL 2018)*, vol. 200, no. Aisteel, pp. 889–895, 2018, doi: 10.2991/aisteel-18.2018.195.

[40] C. K. Y. Chan and L. Y. Y. Luk, "Development and Validation af An Instrument Measuring Undergraduate Students' Perceived Holistic Competencies," *Assess. Eval. High. Educ.*, vol. 46, no. 3, pp. 467–482, 2021, doi: 10.1080/02602938.2020.1784392.

[41] I. K. Susila, "Pengembangan instrumen penilaian unjuk kerja," *Tesis*, pp. 1–16, 2012.

[42] R. R. Y. Srirahayu and I. S. Arty, "Validitas dan reliabilitas instrumen asesmen kinerja literasi sains pelajaran Fisika berbasis STEM," *J. Penelit. dan Eval. Pendidik.*, vol. 22, no. 2, pp. 168–181, 2018, doi: 10.21831/pep.v22i2.20270.