

EOO_Developing Training Evaluation Instrument for Teachers

by Cek Plagiasi UT

Submission date: 12-Jan-2021 05:24PM (UTC+0700)

Submission ID: 1486246259

File name: and_Early_Childhood_Education_in_Pekanbaru_Grammarly,_Riau.docx (112.47K)

Word count: 4550

Character count: 27866



Developing Training Evaluation Instrument for Teachers of Elementary School and Early Childhood Education in Pekanbaru, Riau

Iqbal Miftakhul Mujtahid, Universitas Terbuka, iqbal@ecampus.ut.ac.id, ORCID: 0000-000-9577-8736

Mery Berlian, Universitas Terbuka, mery@ecampus.ut.ac.id, ORCID: 0000-0003-1736-2684

Rian Vebrianto*, Universitas Islam Negeri Sultan Syarif Kasim Riau, rian.vebrianto@uin-suska.ac.id,

ORCID: 0000-0002-2958-6821

Musa Thahir, Universitas Islam Negeri Sultan Syarif Kasim Riau, musa.thahir@uin-suska.ac.id,

ORCID: 0000-0001-8084-5908

Abstract. To achieve successful learning in the classroom, teachers are required to always learn and increase their potential, especially in using teaching aids. However, the lack of teaching aids facilities and lack of evaluation instrument development become the main issues teachers face. Thus, it is necessary to develop a training evaluation instrument for teachers. This research utilized a theoretical development model in instrument standardization activities. There were 30 respondents collected through an online questionnaire, then analyzed using SPSS version 23.00 for Windows. Results showed that: 1) results of validity and reliability test showed that validity of training evaluation instrument for teachers met valid criteria. Construct validity was tested through factor analysis including material content, material presentation, discussion/question and answer, group work practices; and 2) reliability of training evaluation instrument for teachers prepared and developed in this research met quite a high category as indicated by alpha reliability coefficient of 0.935.

Keywords: Instrument Development, Training Evaluation, Elementary School and Early Childhood Education Teachers, Validity, Reliability

Received:

Accepted:

Published:

INTRODUCTION

One of the elaborations of government, community, and professional organization responsibilities is providing guidance and mentoring for teachers to encourage them to carry out their duties and functions to the maximum extent. One of the primary duties and functions of a teacher is to make learning tools/teaching aids (Sudarwanto & Hadi, 2014); (Baharuddin, 2016). Teaching aids in the learning process can increase interest, motivation and make it easier for students to understand subject materials. It is in line with an opinion (Haryanto & Wahyudi, 2017), which stated that learning media could attract students' attention so that they are more motivated in a learning process that later their understanding and learning achievement can increase. It is beneficial to facilitate students in understanding a lesson.

Furthermore, it is stated that the use of teaching aids in the learning process is expected to assist teachers in demonstrating a related natural science concept, so that it is easier for students to understand the concept (Saputri & Dewi, 2014). It is supported by an opinion stating that teaching aids help teachers to convey the concept of natural science to be more meaningful (Prasetyarini et al., 2013). Results of previous research also revealed that post-test results of students in class with teaching aids increase by 12.41 or 14.79% (Andriya et al., 2013). Besides, learning by using teaching aids is a series of activities to deliver subject materials that aim to give students opportunities to actively learn to enable them to gain knowledge and develop psychomotor skills and foster their creativity to solve problems faced (Putranti, 2013).

Learning Natural Science is expected to be a tool for students to learn themselves, their natural surroundings, and prospects for further development in applying them in everyday life. To develop competencies to explore and understand the natural environment scientifically, the

learning process emphasizes providing the direct experience. Natural Science Education is directed to inquiry and as an effort to help students gain a deeper understanding of natural surroundings (Yuliyanti, 2016). In this case, practicing in learning activities is a 'spirit' of Natural Science. The critical point is that practical activities are inseparable from teaching aids and materials. This is because Educational Teaching Aids (*Alat Peraga Edukatif/APE*) has a significant role in learning, such as training children's concentration; teaching faster and effectively; overcoming issues in terms of limited time, place and language; arousing human emotions; increasing students' understanding and memory; and increasing freshness in teaching (Hijriati, 2017). It is supported by an idea that says that APE has several functions in learning, including 1) supporting the effective and pleasant implementation of children's learning; 2) as a medium that can stimulate a child's activity to learn something without realizing it and is designed multipurpose; and 3) optimizing children's development (Astini et al., 2017). Thus, the use of teaching aids related to problems in daily life is an integral part of the whole learning process. It implies that the APE of Natural Science in learning is one of the components that is integrated with other components in order to create the expected learning situation (Rosita & Eko, 2014). Accordingly, the APE of Natural Science is a necessary component.

Based on the explanation above, it is clear that a teacher must have an ability and skills to create a simple APE of Natural Science to increase the achievement of learning goals in school as required in the curriculum. However, not all schools/*madrasas* have teaching aids or laboratories is an issue in the implementation of APE. This is frequently used as an excuse by teachers that practicum in learning Natural Science cannot be conducted due to the absence of supporting teaching aids and laboratories. It is in line with results of previous research that shows that: 1) teacher chooses to use lecture method to deliver learning material because supporting aids are not yet available (Saputri & Dewi, 2014); 2) problems of using teaching aids is often ignored for various reasons (Murdiyanto & Mahatma, 2014); and 3) Ichthyology practicum learning is based on the subject of scientific disciplines, the unavailability of teaching aids that support assistant/person in charge of a particular course (Budiyanto, 2015).

Besides improving the learning process implemented, improving the quality of learning can be done through improvements to assessment used to measure learning outcomes. Improvements in the assessment aspect can be made by providing guidance and training in assessing (Kartowagiran et al., 2016). An assessment used to obtain, synthesize, and interpret information obtained from students to draw decisions about students in the classroom is known as classroom assessment. Classroom assessment used to assess student performance during learning is known as assessment for learning (Yazd, 2009). In the learning process, assessment for learning integrates with a learning implementation plan prepared or used by the teacher. One of the forms of assessment for learning is the performance assessment. Performance assessment is used to assess the ability of students to translate their understanding into real work so that it basically can show the true abilities of students. To be feasible to use, instruments used in assessment have two requirements, namely valid and reliable (Samsul & Mutmainnah, 2018); (Scholtes et al., 2010); (Sitzia, 1999). Based on these reasons, training on evaluation instrument for teachers who have been developed previously must meet both of these requirements. Consequently, it is necessary to conduct validity and reliability test on assessment instruments for training evaluation performance.

Based on the importance of using teaching aids, an appropriate assessment instrument is needed in order to evaluate and provide improvements and training to increase the use of teaching aids. Therefore, this study aimed to develop and validate training evaluation instruments for teachers to determine the effectiveness of assistance in the development of teaching aids.

METHODS

This research utilized a development model in instrument standardization activities. The research method in research uses a theoretical model that is a model that illustrates the framework of thinking based on relevant theories and is supported by empirical data (Silalahi,

2017). The following are steps of research carried out: 1) conducting theoretical studies to formulate aspects or indicators of assisting the development of teaching aids, 2) arranging instrument lines, 3) arranging instrument items, 4) conducting expert judgment, 5) conducting try-out, 6) conducting analyzes, 7) revision and 8) formulating a final instrument of research results (Susiatin, 2019); (K. Hayati & Listyani, 2010). This research was conducted at SDIT Al-Ikhwan Pekanbaru in the odd semester of the 2020/2021 academic year. For testing instruments, the population was all participants of assistance activities for teaching aids as many as 30 people. Since the population was less than 100 people, the sample used was all participants (Alwi, 2012); (Hendri, 2015). An operational variable in this research was training evaluation.

Furthermore, the specification of contents of training evaluation instrument was done by first describing concepts of training evaluation into a construct that revealed evaluation of teacher training. Each construct had different statement items. By characteristics of a type of response, format of measuring instrument used is Likert scale, in which each statement had five items of alternative answers, including Strongly Agree (SA) with a score of 5, Agree (A) with a score of 4, Neutral (N) with a score of 3, Disagree (D) with a score of 2, and Strongly Disagree (SD) with a score of 1.

To produce a quality instrument and can measure what should be measured, the level of validity and reliability of the questionnaire instrument with a scale of 5 (Li, 2013) was assessed. Data obtained from the distribution of training evaluation questionnaire instrument at SDIT Al-Ikhwan Pekanbaru was subsequently processed using Statistical Package for Social Sciences (SPSS) (Rizta & Antari, 2018); (Kusumah & Perdana, 2018); (Bashooir & Supahar, 2018) to determine the quality of instrument developed. Researchers determined the validity of this instrument by using item correlation value corrected by total score without item regarding the following dimensions or constructs. Reliability Index was obtained by using Cronbach's Alpha. Based on an analysis conducted, validity value by using correlation value of items that were corrected shall have a minimum value of 0.3 (Nunnally, 1978) and instrument reliability based on results of Cronbach's Alpha analysis needed to have value above 0.6 and below 1 (Joseph F. Hair et al., 2006). Therefore, this research could produce the right quality instruments.

RESULTS

In this research, preparation and method of developing a training evaluation instrument for teachers were carried out using a theoretical development model. The research began with a theoretical study to formulate a training evaluation construct for teachers. Based on a study of various theories about training evaluation, four training evaluation constructs for teachers have finally been compiled: 1) material contents, 2) material presentation, 3) discussion/question and answer, and 4) group work practices. The following is a guideline of a training evaluation instrument for teachers.

Table 1. Guideline of Training Evaluation Instrument for Teachers

No	Construct	Item Number
1	Material Contents	1, 2, 3, and 4
2	Material Presentation	5, 6, and 7
3	Discussion/Question and Answer	8, 9, and 10
4	Group Work Practices	11, 12, 13, 14, and 15

Table 1 shows that there are 15 statement items spread into four constructs. Researchers compiled statements using the Likert scale after compiling instrument guidelines in each construct. After the instrument was arranged, expert judgment was carried out by consulting to evaluation expert. Based on expert judgment, there were some improvements to some statements that were less precise with constructs. After revision was made, researchers conducted a try-out on 30 SDIT Al Ikhwan teachers. Based on try-out data, the next step was analyzing to find out the validity and reliability of the training evaluation instrument for teachers that had been prepared.

One of the most important research stages is measuring instruments equipped with validity and reliability tests. Construct validity is a picture that shows how far a measuring instrument shows results that are by theory (Ihsan, 2015). Emory mentioned several methods that can be used to measure construct validity: consideration of correlation between research data with existing measurement methods, convergent discriminant techniques, factor analysis, and multi-method analysis (Fahrana & Fahmi, 2017). The minimum standard of validity used by researchers was based on a comparison between the calculated individual coefficient value (r-count) and Pearson coefficient table value (r-table). Question items on questionnaire are declared valid if value of r-count > r-table (Triana & Oktavianto, 2013). The validity of this instrument utilized corrected item-total correlation value with total score without item regarding dimensions or constructs.

Moreover, Nunnally (1978) pointed out that the correlation between items with a score that exceeds 0.25 is considered a high value. In this research, researchers determined research instrument validity using item correlation values corrected by corrected item-total correlation in terms of dimensions or construction. Based on the analysis conducted, the results of the instrument validity test from data are shown in Table 2 below.

Table 2. Instrument Validity Using Item Correlation Values and Corrected item-total Correlation for Each Construct

Construct	Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Material Contents	1	.844	.973
	2	.858	.973
	3	.803	.974
	4	.882	.972
Material Presentation	5	.874	.973
	6	.719	.975
	7	.866	.973
Discussion/Question and Answer	8	.833	.973
	9	.807	.974
	10	.854	.973
Group Work Practices	11	.806	.974
	12	.881	.972
	13	.820	.973
	14	.843	.973
	15	.923	.972

Based on Table 2, the value of r-table is 0.306 obtained from tables with degrees of freedom (df) of 28 of 15 questionnaires distributed as try-out. From the overall calculation, all items were declared valid since the value of r-count > r-table. Accordingly, all items of questions could be used to measure training evaluation for teachers.

In developing a training evaluation instrument for teachers, each item was assessed for internal consistency. It was a measure of the extent to which items on a scale measure similar construct as other items on the same scale. In this case, items that were not positively correlated with their respective scales were deleted, and data were re-analyzed until all items with the lowest item scale correlation were removed, and alpha coefficients were maximized. Table 3 illustrates the reliability scale using Cronbach's alpha coefficient for a set of questionnaires based on training evaluation instrument for teachers.

Table 3. Cronbach's Alpha Reliability Index for Each Construct

Construct (N = 30)	Overall, Cronbach's Alpha Value
Material Contents	.929
Material Presentation	.935
Discussion/Question and Answer	.953
Group Work Practices	.923

Cronbach's Alpha Reliability Index values for each construct in this research and an overall alpha value obtained indicated for material contents, material presentation, discussion/question, answer, and group work practices respectively were 0.929; 0.935; 0.953; and 0.923. In this research, it was found that the reliability value (α) was more significant than 0.60 for each construct studied. This result supports the idea of Basuki and Haryanto. They firmly advocated that correlation numbers above 0.60 and less than 1 indicate that instrument has a high correlation or reliability. On the other hand, correlation numbers below 0.50 indicate that instrument has a low correlation or is not reliable (Arifin, 2017; Hair et al., 2006). Thus, four reliability analysis results above proved that all questionnaires used in this study had been declared reliable.

Results of this research indeed showed that training evaluation instrument for teachers which were declared valid and reliable still need to be reviewed in order to obtain standardized instruments. This is because try-out was only conducted once. It is better if it is done more than once so that better consistency can be achieved. The formula used does not utilize the new measurement theory, that is, item response theory, so that error or estimation error is very likely to affect results obtained.

DISCUSSION and CONCLUSION

After going through several research stages, a final product was produced in the form of a training evaluation instrument for teachers that already met the right test criteria. The product contained 15 statement items packaged in the form of an online questionnaire using Google form. This research was strengthened by previous research, which stated that assessment instruments developed had met valid criteria based on the validity test analysis of practice assessment instrument (Azzahri et al., 2017). Furthermore, findings of research conducted by Intent et al. stated that the instrument developed was appropriate for use by both teachers and students because it met standards of validity, reliability, difficulty level of questions, and a different power (Aji & Winarno, 2016); (Adamsa & Wieman, 2010). Moreover, cognitive learning achievement test instruments developed met good categories (Nurfillaili et al., 2016). Validity is defined as the instrument's ability to measure attributes of the construct under study (DeVon et al., 2007). A valid instrument has high validity. Conversely, a less valid instrument means low validity (Efendi & Widodo, 2019); (Wales et al., 2017). Results of the instrument's validation in the form of a training evaluation instrument for teachers are declared valid and appropriate to be used as a measurement tool for evaluating the quality of training evaluation instruments.

Most importantly, results also showed that a composite coefficient of reliability score achieved by training evaluation scale for teachers was included in the high category (0.935). However, it should be noted that the reliability coefficient of each construct is from 0.719 to 0.923. Based on the consensus that satisfactory reliability is achieved at a coefficient of 0.6 or more, this value indicates that the reliability of each subscale in the training evaluation scale for teachers used in this research is satisfactory (Khumaedi, 2012). Additionally, reliability measurement is very dependent on researchers in using criteria used (Khumaedi, 2012). It is supported by previous research, which claims that instruments of Active, Creative, Effective, and Fun learning (PAKEM) have validity and reliability values that suitable for use in measuring PAKEM strategy knowledge for teachers (S. Hayati & Lailatussaadah, 2016). Results of instrument reliability were also in the form of a training evaluation instrument for teachers, which was declared reliable to be used as a measurement tool for evaluating the quality of the training evaluation instrument.

Based on the analysis conducted, a questionnaire developed based on training evaluation instrument for teachers has good construct validity and high reliability to be used in research on teaching aids. Thus, the research instrument that measures training evaluation for teachers that has been tested is declared worthy of use and trusted in research that measures training evaluation for teachers. It is in line with research that believed that instruments that are valid and reliable could be used as measurement tools (Suratno, 2016). Moreover, the evaluation instrument must meet valid criteria and be appropriate for use (Pinilih et al., 2013). Results of assessment using an instrument made need to comprehensively inform training evaluation for teachers while carrying out research activities. Training evaluation instrument for teachers can prevent speculative actions from teachers to conduct the assessment, especially in determining final grade after researching the achievement of training evaluation.

Fundamentally, the development of a training evaluation instrument for teachers is a follow-up to implementing education standardization policies through Government Regulation No. 19/2005, Article 63-72 and Regulation of the Minister of National Education Number 20 of 2007 on Standards for Educational Assessment. It is stated that educational assessment at the tertiary level is regulated by each tertiary institution by applicable laws and regulations (Astuti et al., 2015). Implementation of this policy requires each researcher to produce many assessment instruments by established competency standards. Unfortunately, this instrument does not involve enough respondents from SDIT Al Ikhwan Pekanbaru teachers and may not necessarily be suitable for research instruments in other schools. Further research can be done to see the validity and reliability of respondents in other schools and with a larger sample of respondents. Additionally, further research is conducted in order to make this research instrument better, and the level of validity and reliability is getting higher by which this instrument can be used as a more precise research tool to obtain research data.

Based on the results of research and discussion, several conclusions can be drawn: 1) preparation and development of training evaluation instrument for teachers in this study are carried out using a theoretical development model with the following steps: a) carrying out theoretical studies to formulate aspects or indicators of assisting the development of teaching aids, b) compiling instrument guideline, c) compiling instrument items, d) conducting expert judgment, e) conducting try-out, f) conducting analyzes, g) revision and h) formulating a final instrument of research results, and 2) results of validity and reliability tests show that validity of training evaluation instrument for teachers meets valid criteria. Importantly, construct validity is tested through factor analysis, including material contents, material presentation, discussion/question, and answer, and group work practices; and 3) reliability of training evaluation instrument for teachers prepared and developed in this research has met a relatively high category as indicated by alpha reliability coefficient of 0.935.

REFERENCES

- Adamsa, W. K., & Wieman, C. E. (2010). Development and validation of instruments to measure the learning of expert-like thinking. *International Journal of Science Education*, 33(9), 1-24. <https://doi.org/10.1080/09500693.2010.512369>
- Aji, B. S., & Winarno, M. E. (2016). Pengembangan Instrumen Penilaian Pengetahuan Mata Pelajaran Pendidikan Jasmani Olahraga dan Kesehatan (PJOK) Kelas VIII Semester Gasal. *Jurnal Pendidikan*, 1(7), 1449-1463.
- Alwi, I. (2012). Kriteria Empirik Dalam Menentukan Ukuran Sampel Pada Pengujian Hipotesis Statistika dan Analisis Butir. *Formatif: Jurnal Ilmiah Pendidikan MIPA*, 2(2), 140-148. <https://doi.org/http://dx.doi.org/10.30998/formatif.v2i2.95>
- Andriya, K., Abdurrahman, & Yudiono, H. (2013). Peningkatan Pemahaman tentang Prinsip Kerja Differential dengan Menggunakan Media Peraga Differential Cutting. *Automotive Science and Education Journal*, 2(1), 1-4.
- Arifin, Z. (2017). Kriteria Instrumen Dalam Suatu Penelitian. *Jurnal Theorems (The Original Research of Mathematics)*, 2(1), 28-36.
- Astini, B. N., Nurhasanah, Rachmayani, I., & Suarta, I. N. (2017). Identifikasi Pemnafaatan Alat Permainan Edukatif (APE) Dalam Mengembangkan Motorik Halus Anak Usia Dini. *Jurnal Pendidikan Anak*, 6(1),

- 31–40. <https://doi.org/10.1017/CBO9781107415324.004>
- Astuti, W. P., Wibawanto, H., & Khumaedi, M. (2015). Pengembangan Instrumen Penilaian Unjuk Kerja Praktik Perawatan Kulit Wajah Berbasis Kompetensi di Universitas Negeri Semarang. *Journal of Educational Research and Evaluation*, 4(2), 8–14.
- Azzahri, C. K., Widjanarko, D., & Sudana, I. M. (2017). Pengembangan Instrumen Penilaian Praktik Rias Pengantin Jogja Paes Ageng pada Mata Kuliah Rias Pengantin Jawa. *Journal of Vocational and Career Education*, 2(1), 22–27. <https://doi.org/10.15294/jvce.v2i1.10928>
- Baharuddin. (2016). Penggunaan Alat Peraga Dengan Pembelajaran Langsung Dalam Meningkatkan Motivasi Mengajar Guru di SD Negeri 010 Pagaran Tapah Darussalam Kabupaten Rokan Hulu. *Jurnal Primary*, 5(3), 700–712. <https://doi.org/10.33578/pjr.v2i6.6545>
- Bashooir, K., & Supahar. (2018). Validitas dan Reliabilitas Instrumen Asesmen Kinerja Literasi Sains Pelajaran Fisika Berbasis STEM. *Jurnal Penelitian Dan Evaluasi Pendidikan*, 22(2), 168–181. <https://doi.org/10.21831/pep.v22i2.20270>
- Budiyanto, A. (2015). Pengembangan Alat Peraga Sederhana Struktur dan Organ Dalam Ikan untuk Mempermudah Pembelajaran Pada Praktikum Ikhtologi Perikanan. *Jurnal Kelautan*, 8(2), 83–88.
- DeVon, H. A., Block, M. E., Moyle-Wright, P., Ernst, D. M., Hayden, S. J., Lazzara, D. J., Savoy, S. M., & Kostas-Polston, E. (2007). A psychometric toolbox for testing validity and reliability. *Journal of Nursing Scholarship*, 39(2), 155–164. <https://doi.org/10.1111/j.1547-5069.2007.00161.x>
- Efendi, Y., & Widodo, A. (2019). Uji Validitas dan Reliabilitas Instrumen Tes Shooting Sepak Bola Pada Pemain Tim Persiwa FC Jatiyoso. *Jurnal Kesehatan Olahraga*, 7(2), 367–372.
- Fahrana, Y., & Fahmi, M. (2017). Validitas dan Reliabilitas Konstruk Pengukuran Perpustakaan Ideal Berbasis Pemakai dengan Pendekatan LIBQUAL. *Jurnal Ekonomi Bisnis Dan Kewirausahaan*, 6(2), 161. <https://doi.org/10.26418/jebik.v6i2.22989>
- Haryanto, M. A. K., & Wahyudi. (2017). Pengembangan Media Peraga untuk Pembelajaran Kompetensi Mengidentifikasi Final Drive Penggerak Roda Belakang. *Jurnal Pendidikan Teknik Mesin*, 17(1), 25–31.
- Hayati, K., & Listyani, E. (2010). Pengembangan Instrumen Kemandirian Belajar Mahasiswa. In *Jurnal Penelitian dan Evaluasi Pendidikan* (Vol. 14, Issue 1, pp. 84–100). <https://doi.org/10.21831/pep.v14i1.1977>
- Hayati, S., & Lailatussaadah. (2016). Validitas dan Reliabilitas Instrumen Pengetahuan Pembelajaran Aktif, Kreatif, dan Menyenangkan (PAKEM) Menggunakan Model RASCH. *Jurnal Ilmiah DIDAKTIKA*, 16(2), 169–179.
- Hendri, H. J. (2015). Survei Minat dan Motivasi Siswa Putri Terhadap Mata Pelajaran Penjasorkes di SMK se-Kota Salatiga Tahun 2013. *Active - Journal of Physical Education, Sport, Health and Recreation*, 4(4), 1729–1736. <https://doi.org/10.15294/active.v4i4.4855>
- Hijriati. (2017). Peranan dan Manfaat APE untuk Mendukung Kreativitas Anak Usia Dini. *Bunayya : Jurnal Pendidikan Anak*, 3(2), 59–69. <https://jurnal.ar-raniry.ac.id/index.php/bunayya/article/view/1699>
- Ihsan, H. (2015). Validitas Isi Alat Ukur Penelitian: Konsep dan Panduan Penilaiannya. *PEDAGOGIA Jurnal Ilmu Pendidikan*, 13(3), 173. <https://doi.org/10.17509/pedagogia.v13i3.6004>
- Joseph F. Hair, J., Black, W. C., Babin, B. J., & Anderson, R. E. (2006). *Multivariate Data Analysis*. Pearson Educational International.
- Kartowagiran, Badrun, Jaedun, & Amat. (2016). Model Asesmen Autentik untuk Menilai Hasil Belajar Siswa Sekolah Menengah Pertama (SMP): Implementasi Asesmen Autentik di SMP. *Jurnal Penelitian Dan Evaluasi Pendidikan*, 20(2), 131–141. <https://doi.org/10.21831/pep.v20i2.10063>
- Khumaedi, M. (2012). Reliabilitas Instrumen Penelitian Pendidikan (The Reliability of Education Research Instruments). In *Jurnal Pendidikan Teknik Mesin* (Vol. 12, pp. 25–30).
- Kusumah & Perdana, E. (2018). Technology Acceptance Model (TAM) of Statistical Package for the Social Sciences (SPSS) Applications. *Integrated Journal of Business and Economics*, 2(1), 1–11. <https://doi.org/10.33019/ijbe.v2i1.147>
- Li, Q. (2013). A Novel Likert Scale Based on Fuzzy Sets Theory. *Expert Systems with Applications*, 40(5), 1609–1618. <https://doi.org/10.1016/j.eswa.2012.09.015>
- Murdiyanto, T., & Mahatma, Y. (2014). Pengembangan Alat Peraga Matematika untuk Meningkatkan Minat dan Motivasi Belajar Matematika Siswa Sekolah Dasar. *Sarwahita*, 11(1), 38–43. <https://doi.org/10.21009/sarwahita.111.07>
- Nunnally, J. . (1978). *The Study of Change in Evaluation Research: Principal Concerning Measurement, Experimental Design, and Analysis*. Sage Publication.
- Nurfillaili, U., T, M. Y., & Anggereni, S. (2016). Pengembangan Instrumen Tes Hasil Belajar Kognitif Mata Pelajaran Fisika pada Pokok Bahasan Usaha dan Energi SMA Negeri Khusus Jeneponto Kelas XI Semester I. *Jurnal Pendidikan Fisika*, 4(2), 83–87. <http://repositori.uin-alauddin.ac.id/7539/1/Fitria Nengsih.pdf>

- Pinilih, Wahyu, F., Budiharti, R., & Ekawati, E. Y. (2013). Pengembangan Instrumen Penilaian Produk Pada Pembelajaran IPA untuk Siswa SMP. *Jurnal Pendidikan Fisika*, 1(2). <http://www.jurnal.fkip.uns.ac.id/index.php/%0Afpfisika/article/viewFile/2798/1914>
- Prasetyarini, A., Fatmaryanti, S. D., & R. Wakhid Akhdinirwanto. (2013). Pada Siswa Smp Negeri 1 Buluspesantren Kebumen. *Radiasi*, 2(1), 7-10.
- Putranti, N. (2013). Cara Membuat Media Pembelajaran Online Menggunakan Edmodo. *Jurnal Pendidikan Informatika Dan Sains*, 2(2), 139-147.
- Rizta, A., & Antari, L. (2018). Pengembangan Tes Kemampuan Komunikasi Matematis Pada Materi Sistem Persamaan Linear Untuk Mahasiswa Calon Guru Matematika. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, 7(2), 291-299. <https://doi.org/10.24127/ajpm.v7i2.1525>
- Samsul, P., & Mutmainnah. (2018). Pengembangan Instrumen Penilaian Autentik pada Pembelajaran dengan Pendekatan Scientific. *Edumasul - Jurnal Pendidikan*, 2(1), 1-10. <https://doi.org/10.33487/edumasul.v2i1.20>
- Saputri, V. A. C., & Dewi, N. R. (2014). Pengembangan Alat Peraga Sederhana Eye Lens Tema Mata Kelas VIII untuk Menumbuhkan Keterampilan Peserta Didik. *Jurnal Pendidikan IPA Indonesia*, 3(2), 109-115.
- Scholtes, V. A., Terwee, C. B., & Poolman, R. W. (2010). What Makes A Measurement Instrument Valid and Reliable? *Injury*, 42(3), 1-5. <https://doi.org/10.1016/j.injury.2010.11.042>
- Silalahi, A. (2017). Development Research (Penelitian Pengembangan) dan Research & Development (Penelitian & Pengembangan) Dalam Bidang Pendidikan/Pembelajaran. *Seminar & Workshop Penelitian Disertasi Program Doktor Pasca Sarjana Universitas Negeri Medan, July*, 1-13. <https://doi.org/10.13140/RG.2.2.13429.88803/1>
- Sitzia, J. (1999). How Valid and Reliable Are Patient Satisfaction Data? An Analysis of 195 Studies. *International Journal for Quality in Health Care*, 11(4), 319-328. <https://doi.org/10.1093/intqhc/11.4.319>
- Sudarwanto, & Hadi, I. (2014). Pengembangan Alat Peraga Pembelajaran Matematika Sekolah Dasar Untuk Meningkatkan Kemampuan Berpikir Matematis Siswa. *Sarwahita*, 11(1), 32-37. <https://doi.org/10.21009/sarwahita.111.06>
- Suratno, A. (2016). Pengembangan Instrumen Penilaian Kompetensi Praktikum Engine Siswa SMK Program Keahlian Teknik Otomotif Developing Assessment Instruments in Competence Practice Engine Student in SMK Automotive Engineering Program. *ANOS Journal Of Mechanical Engineering Education*, 11(1), 2528-2700.
- Susiatin. (2019). Meningkatkan Kemampuan Guru Dalam Menyusun Kisi-Kisi Soal dengan Metode Pendampingan Pola "OCF" di SDN Yanti Jogoroto. *Jurnal Dinamika Manajemen Pendidikan*, 4(1), 17-24. <https://doi.org/10.26740/jdmp.v4n1.p17-24>
- Triana, D., & Oktavianto, W. O. (2013). Relevansi Kualifikasi Kontraktor Bidang Teknik Sipil terhadap Kualitas Pekerjaan Proyek Konstruksi di Provinsi Banten. *Jurnal Fondasi*, 1(1), 182-190.
- Wales, G. V., Mandey, S. L., & Wenas, R. S. (2017). Pengaruh Budaya Organisasi, Gaya Kepemimpinan, Dan Disiplin Kerja Terhadap Kinerja Karyawan Pt. Bank Tabungan Negara (Persero) Tbk. Kantor Cabang Manado. *Jurnal EMBA: Jurnal Riset Ekonomi, Manajemen, Bisnis Dan Akuntansi*, 5(3), 4435-4444. <https://doi.org/10.35794/emba.v5i3.18645>
- Yazd, T. J. (2009). The Importance of Classroom Assessment and Evaluation in Educational System. *Proceedings of the 2nd International Conference of Teaching and Learning*, 1-9. http://teachingonpurpose.org/btp/summer2014/thomsen_2014.pdf
- Yuliyanti, N. (2016). Pengaruh Model Inkuiri Terbimbing Berbasis Lingkungan terhadap Kemampuan Pemahaman Konsep dan Karakter. *Cakrawala Pendas*, 2(2), 1-10.

EOO_Developing Training Evaluation Instrument for Teachers

ORIGINALITY REPORT

4%

SIMILARITY INDEX

2%

INTERNET SOURCES

5%

PUBLICATIONS

2%

STUDENT PAPERS

PRIMARY SOURCES

- 1** Tuan Soh, Tuan Mastura, Kamisah Osman, and Nurazidawati Mohamad Arsad. "M-21CSI: A Validated 21st Century Skills Instrument for Secondary Science Students", Asian Social Science, 2012. **2%**
Publication
- 2** Muhammad Iwan, Agus Suyatna, Warsito. "DEVELOPMENT OF STATIC FLUID LEARNING PROPS TO IMPROVE STUDENTS' ARGUMENTATION SKILLS", International Journal of Research -GRANTHAALAYAH, 2018 **1%**
Publication
- 3** Submitted to London School of Commerce **1%**
Student Paper

Exclude quotes On

Exclude matches < 1%

Exclude bibliography On