

# Computer-Based Performance Assessment and the Effectiveness on Student Performance in Completing Web Development Assignments

**I Nyoman Laba Jayanta**

*Universitas Pendidikan Ganesha, Singaraja, Indonesia, laba.jayanta@undiksha.ac.id*

**Komang Setemen**

*Universitas Pendidikan Ganesha, Singaraja, Indonesia*

**I Ketut Purnamawan**

*Universitas Pendidikan Ganesha, Singaraja, Indonesia*

## Abstract

The era of industrial revolution 4.0 is more emphasis on how to position computers more dominant than humans in completing all existing activities, including activities in the field of education. So far, student assessment is still dominant in the form of tests or assignments that do not involve computers in the process. This study aims to develop a computer-based performance appraisal. This type of research is an implementation research of student performance appraisal that adopts the 4D model (Define, Design, Develop and Disseminate). The expert test sample consisted of 1 person from an informatics expert and 1 person from the education sector, especially in the field of educational evaluation. The number of samples from students was taken 20 students who will use the existing system. The data collection method uses a questionnaire. Data analysis is using quantitative and qualitative analysis. The results showed that all teachers had planned student assessment activities. Teacher collaboration in planning assessments is still low, namely only 30%. In addition, the instruments used by teachers were mostly tests in the form of multiple choice or essays (60%). The other part is the teacher's domination in assessing students is very large, namely 90%. This means that the assessment process is still centered on the teacher and has not involved students in the assessment. So, the strategy for assessing student performance by utilizing a computer, in this case, is Google form, has a good impact on the learning process.

**Keywords:** *Student Performance; Performance Assessment; Computer Based Assessment.*

## 1 INTRODUCTION

One important factor in achieving student learning outcomes is the implementation of the learning assessment process (Chanafi & Mursal, 2016; Pakpahan & Fitriani, 2020). It is important to carry out an assessment to uncover or obtain information related to the achievement of student competence as a whole (Arikunto, 2012). Thus the target assessment of students concerns all components of the

process and results of students in learning activities (Uno & Koni, 2012). Assessment of student competency achievement is carried out during the learning process. For this reason, data is needed as a basis for making decisions related to the success or failure of students in achieving competence (Sudirman et al., 2020; Wahyono, 2019). The assessment process requires evidence that is carried out intentionally, systematically, and continuously which is used to assess student competence

(Uno & Koni, 2012). The process of collecting this evidence can be done by providing opportunities for students to demonstrate their competence, collecting and recording evidence of demonstrations of student competencies, and using the evidence to make an overall assessment of student demonstrations/performance in the competencies. The assessment of the process of achieving student competence involves many things, such as variations in assignment models, assessment instruments, and also includes variations in assessment models of the assignments given (Nafisah & Ghofur, 2020; Putra, 2021). For this reason, it is necessary to innovate in the assessment process so that it is more accountable, effective and efficient and involves students in it. This can be done by utilizing products from the development of Information and Communication Technology (ICT).

However, the rapid development of ICT and its derivative products has triggered major changes in human life. The presence of computers as an integral part of the development of ICT (Hudayati et al., 2021; Utomo et al., 2020). Currently, the computer is no longer as a tool in all human activities, but has become an integral part of human life. This gave birth to machine (computer) collaboration innovations with humans. In completing a job, humans only function as triggers, the rest is done by the computer. Therefore, in the era of the industrial revolution 4.0. more emphasis on how to position computers more dominant than humans in completing all existing activities, including activities in the field of education. So far, student assessment is still dominant in the form of tests or assignments that do not involve computers in the process. For this reason adopting some of the advantages possessed by ICT can be integrated in learning, especially with regard to student assessment. Moreover,

there is already a lot of software that is open source, making it easier for the integration process in learning.

Solutions to overcome these problems require proper assessment. Assessing the process and learning outcomes of students, educators can use several assessment tools. Broadly speaking, the various assessment tools can be classified into two, namely assessment with tests and non-tests (Uno & Koni, 2012). Assessment by test is usually used to assess the ability of learning outcomes and the level of intelligence of students (Arwanda et al., 2020; Hutapea, 2019). While non-test assessment is used to assess the attitudes and behavior of students. Non-test assessment can also be used to assess student learning outcomes (Subagia & Wiratma, 2016; Sukmasari & Rosana, 2017). In the competency-based curriculum, the assessment system carried out by educators is a class-based assessment model. Class-based assessment is a teacher's activity related to making decisions about competency achievement or student learning outcomes following a particular learning process (Uno & Koni, 2012). Therefore data is needed as a basis for making decisions related to the success or failure of students in achieving competence. The assessment process requires evidence that is carried out intentionally, systematically, and continuously which is used to assess student competence. This evidence-gathering process includes providing opportunities for students to demonstrate their competencies, collecting and recording evidence of demonstrations of student competencies, and using the evidence to make an overall assessment of student demonstrations/performance in these competencies.

Previous findings state that the achievement of student competence can be seen from the completion of the tasks given by educators

(Fadlilah, 2021; Zulkifli, 2018). Through the completion of the tasks given, educators can assess how capable students can apply their knowledge and skills in completing assignments in accordance with learning targets and objectives. For this reason, it is necessary to determine competency targets in learning that must be achieved by students. The concept of an assessment is generally referred to as a performance assessment (Performance Assessment). Performance assessment is a procedure by giving assignments to obtain information about how well students have learned (Koyan, 2011). Types or forms of performance assessment, including structured forms (exercise) both individually and in groups, special action tests, long-term projects, both individually and in groups, or their combinations, port-folios, demonstrations, experiments, oral presentations and simulations. This study aims to develop a computer-based performance appraisal. Through this research, ICT integration will be carried out in student assessment so that it is more accountable, effective and efficient in each process.

## 2 METHODS

This research is an implementation research on student performance assessment that adopts the 4D model (Define, Design, Develop and Disseminate). The Define and Design phases aim to design a computer-based student performance assessment concept that is designed online/online (in a network). At this stage, a needs analysis will be carried out, identification of potential and supporters, assessment and selection of the open source software used, assessment of the suitability of the selected software with the characteristics of the teacher and teaching materials. Analysis of needs related to assessment and identification of supporters, discussions have been carried out

with the research team and have been socialized to students in learning. Considering the distance learning that makes the entire process of learning activities and assessments is carried out online. This is very possible because students and lecturers have obtained quotas for online learning sourced from the ministry of education and culture. After conducting a study of the convenience and features of various open source software, the team decided to use an online learning service based on Google Classroom. This application was chosen because it is easy to use, rich in features, and has been integrated with Google Suite-based undiksha mail services, Google Drive features for cloud storage, Google forms for assessment services, and online meeting services in one application.

The Develop and Disseminate phases are the phases of developing and implementing systems used in real learning. The Develop phase starts with the development of instruments for performance assessment of the selected course for its implementation. The course chosen in this study is the Content Management Systems course. The main objective of this course is that students are able to install Content Management System (CMS) software that is Open Source. Apart from installing, students are also able to modify existing features according to the needs of website creation. Therefore, the develop phase begins with selecting courses for performance assessment and then creating a performance instrument in the form of a performance rubric according to the competency demands of the course. The performance rubric that is made is in accordance with the demands for good website development and has functional values according to integrity. The performance rubric that is made contains things such as ease of learning, efficiency in use, ease of

remembering, error frequency rate, user satisfaction level, navigation system, graphic design, content, compatibility, loading time, and functionality. This performance rubric will be used to assess student assignments related to web creation using CMS Wordpress. Web that has been made by students, then assessed using the rubric that has been made, then assessed according to the criteria in the rubric. The scoring of each criterion in the rubric uses a Lik-ert scale with a range of 1 to 5. Score 1 for "very poor", score 2 for "poor", scale 3 for "normal", scale 4 for "good" and a scale of 5 for "very good".

The samples for trials in this study were lecturers and students. The sample for lecturers is for expert testing in terms of the existing system and the content of the assessment system seen from the educational assessment principles. As for students, it relates to whether the system can run properly according to the features that will be used for students. Expert tests from lecturers will be taken by 1 person from an informatics expert and 1 person from the education sector, especially the field of educational evaluation. The number of samples from students was taken 20 students who will use the existing system.

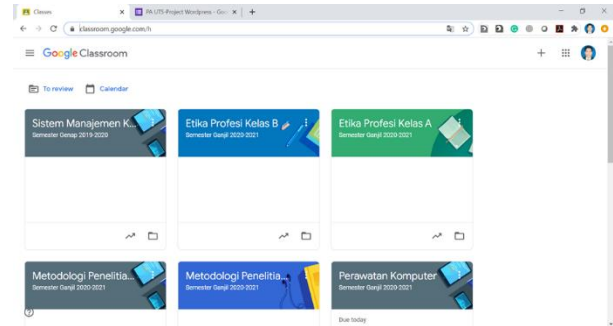
### 3 RESULTS AND DISCUSSION

#### Results

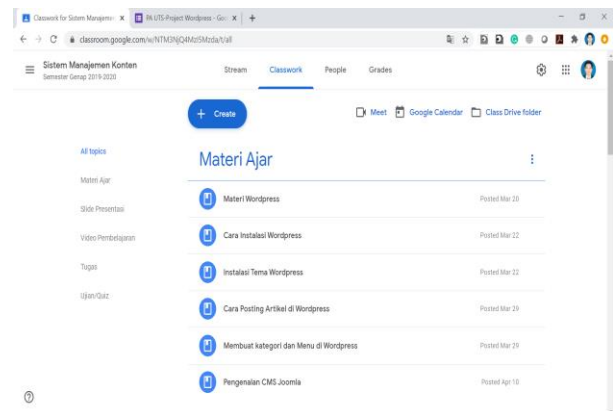
System for online learning and assessment of student assignments is using Google Classroom. This system can be accessed via the following link <https://classroom.google.com/>. The use of Google Classroom in online learning and learning assessment involves system users, namely teachers and students. Teachers and students in a series of systems are called actors who have tasks according to the processes contained in the system. Therefore, in this system there are two main actors as

system users, namely teachers and students. Some of the system interface displays for online learning and assessment using Google Classroom are presented in Figure 1, Figure 2, Figure 3, Figure 4, and Figure 5.

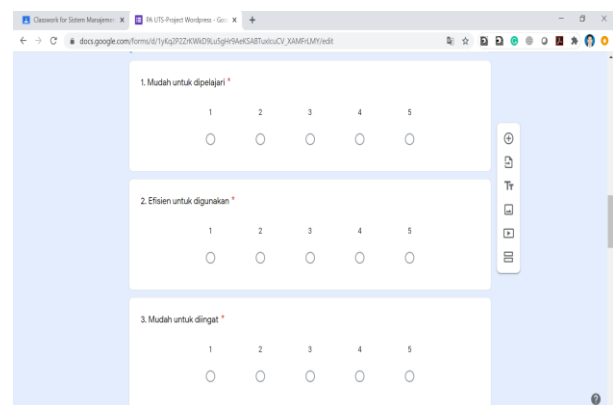
**Figure 1. The Teacher Dashboard page**

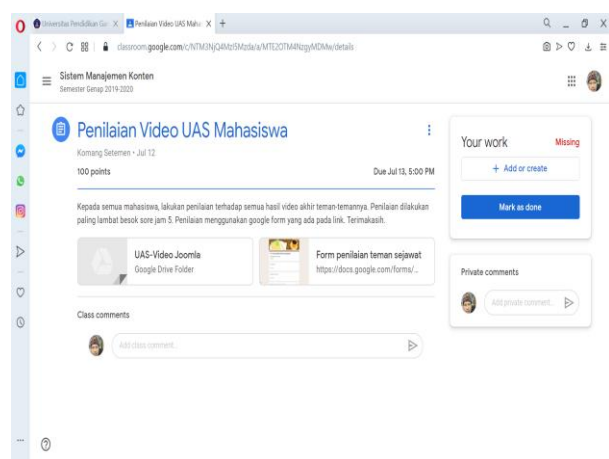
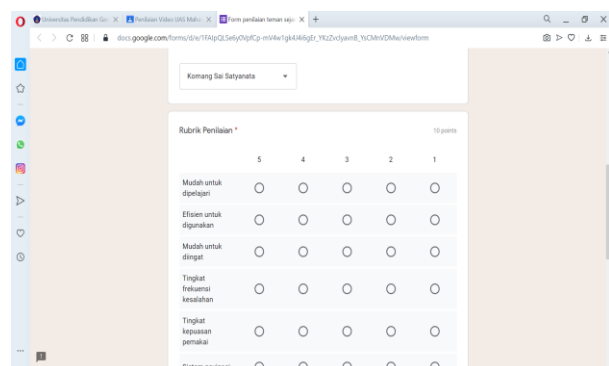


**Figure 2. Page of One Course**



**Figure 3. Page for Making Assessment Rubrics**



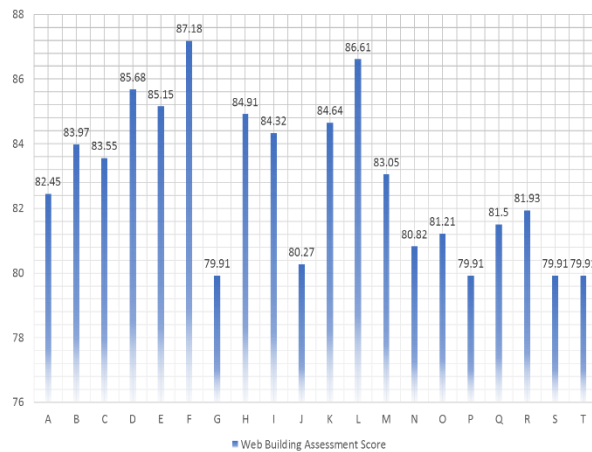
**Figure 4. Display Page of One Course****Figure 5. Assessment Process Page for Other Lecture Participants**

An assessment survey was conducted for teachers and students. From the teacher's point of view, a survey was carried out on the preparation of the assessment by the teacher and a survey on students was carried out on their opinions regarding the involvement of colleagues in the assessment. The instrument used in this survey was in the form of a questionnaire given to the teacher with a choice of "yes" or "no" answers which described whether the question or statement was made or not by the teacher. In general, all teachers have planned student assessment activities. Teacher collaboration in planning assessments is still low, namely only 30%. In addition, the instruments used by teachers were mostly tests in the form of multiple choice or essays (60%).

The other part is the teacher's domination in assessing students is very large, namely 90%. This means that the assessment process is still centered on the teacher and has not involved students in the assessment. This can be interpreted that students only become objects of assessment. But on the other hand, most teachers agree that students are involved in the assessment and not only as objects of assessment.

The next survey is aimed at students related to assessments that involve students in it. The results of the study showed that most students benefited from doing self- and peer-assessments. This is evidence that the involvement of students in the assessment is very beneficial for the students themselves. The objectivity and level of confidence in the assessment by students is also high (as in points 7 and 8). This means that, in assessing peers, students really assess according to the rubric or instrument given for assessing students' assignments or exams. Based on these results, it is appropriate for the teacher to consider conducting an assessment that involves students in it. The involvement of students in the Performance Assignment assessment is to use the performance rubric that has been created by the teacher. The performance rubric contains performance assessment criteria regarding web creation using the Wordpress CMS. The final results of the assessment carried out by students are then processed according to a standard score with a scale of 100. The final score of each student who has been assessed by his colleagues is shown in Figure 6.

**Figure 6. Web Development Assessment Score Graph**



In general, the strategy for assessing student performance by utilizing computers, in this case, is Google form, which has a good impact on the learning process. This includes how to involve students in the assessment process by conducting peer-to-peer assessments. The involvement of students' assessment of their peers is implemented in one course with an assessment of performance assignments in the form of making a web using the Wordpress Content Management System (CMS) individually. This web assignment is then assessed by colleagues using the performance rubric that has been prepared by the teacher. Based on the results of the performance assessment in accordance with the given performance rubric, the distribution of performance task scores is close to the normal curve. These results are proof that the involvement of colleagues in student performance appraisal gives good results. There are a number of things that need to be noted as well as suggestions in this research, namely conducting limited system trials, both from the teacher's side and from the user's side (as students or students). Perform expert validation (ICT experts and assessment experts). Model refinement based on expert

input. Model dissemination to sample schools through experimental research in sample schools. Analysis of experimental results is through panel group discussion.

## 4 DISCUSSIONS

The results of the research conducted prove that computer-based performance appraisal products are effective on student performance in completing Web creation tasks. With the work assessment rubric, the assessment process will fulfill the assessment principles. The principles that must be considered when carrying out the assessment are Valid, Objective, Fair, Integrated, Open, Comprehensive and sustainable, Systematic, Criterion-based, Accountable, Educative (Salamah, 2018; Sya'idah et al., 2016). By paying attention to these things, of course the assessment process will have an impact on the learning process. The effectiveness of learning is influenced by how the assessment is carried out. With the results of the assessment of the learning process educators will be able to manage learning well (Chanafi & Mursal, 2016; Pakpahan & Fitriani, 2020; Uttil, B., White & Gonzalez, 2017). Likewise, the existence of performance appraisal will have a positive impact on the learning process, this is in accordance with the results of research that has been done before, including research which states that performance appraisal is suitable when used in measuring students' critical thinking abilities (Retno et al., 2018). Research which states that performance assessment instruments can be carried out in practicum learning (Sukmawa et al., 2019). Research which states that the instrument for assessing the performance of students in the 2013 Science content curriculum gets a very decent category (Tadhkiroh et al., 2021). Research which states that PBL based on performance assessment has an effect on mastery of the concept (Jehanusi et

al., 2019). The results of the study stated that the performance assessment model in project-based ethnomathematics learning was feasible to use to measure students' math-ematical thinking process skills (Ulya et al., 2022). The results of the study stated that the inquiry lesson performance assessment instrument can be used by teach-ers to measure students' inquiry lesson skills (Zahra et al., 2023).

In addition, the assessment process in this study was carried out using peers as evaluators. In addition, involving peers in the learning process greatly impacts the learning process. Having peers in the learning process will make students able to learn well. Learning with peers will encourage students to play an active role in learning (Oh, 2019). The peer method promotes independent learning, students learn from experience which is feedback from their friends (Gabriele et al., 2016). Peers help, guide and support each other that can build learning through interaction and collaboration (Andersen & Watkins, 2018). Learning that involves peers will reduce anxiety and stress, by being guided, assisted, and given feedback by peers students will be able to increase self-confidence (Han et al., 2015; Stone et al., 2013). Based on these descriptions, to create learning that is conducive and in accordance with current conditions, learning must provide opportunities for students to share learning expectations. In this study, peers are tasked with assessing what their friends have done has an impact on student mo-tivation. Peer assessment is one of the assessments carried out by peers to assess the work of their friends (Alias et al., 2015; Jalili & Shishavan, 2020). Peer rat-ings are used in the project or percentage appraisal process. Peer ratings are im-portant in evaluating and encouraging positive feedback (Liang et al., 2020; Luaces et al., 2018). Peer assessment increases

accountability and inspires them to increase interactions with peers so that heterogeneous judgments are produced (James et al., 2018). Strategy Peer assessment is very necessary in the learning process because it will develop social interaction between peers.

## 5 CONCLUSION

Computer-based performance assessment products are effective in improving student performance in completing Web creation tasks and have a good impact on the learning process. This is shown from the results of the performance as-sessment in accordance with the given performance rubric, the distribution of performance task scores given is close to the normal curve. Therefore it is rec-ommended as an instrument that can be used to measure student performance, in this case students.

## REFERENCES

- Alias, M., Masek, A., & Salleh, H. H. M. (2015). Self, Peer and Teacher Assessments in Problem Based Learning: Are They in Agreements? *Procedia - Social and Behavioral Sciences*, 204(November 2014), 309–317. <https://doi.org/10.1016/j.sbspro.2015.08.157>
- Andersen, T., & Watkins, K. (2018). The value of peer mentorship as an educational strategy in nursing. *Journal of Nursing Education*, 57(4), 217–224. <https://doi.org/10.3928/01484834-20180322-05>
- Arikunto, S. (2012). *Dasar-dasar Evaluasi Pendidikan*. Bumi Aksara.
- Arwanda, P., Irianto, S., & Andriani, A. (2020). *Pengembangan Media Pembelajaran Articulate Storyline Kurikulum 2013 Berbasis Kompetensi Peserta Didik Abad*

- 21 Tema 7 Kelas Iv Sekolah Dasar. Al-Madrasah: Jurnal Pendidikan Madrasah Ibtidaiyah, 4(2), 193.  
<https://doi.org/10.35931/am.v4i2.331>
- Chanafi, B., & Mursal, M. (2016). Pembelajaran Fisika Dengan Memanfaatkan Media Berbasis Teknologi Informasi Dan Komunikasi Untuk Meningkatkan Hasil Belajar Mahasiswa Pada Materi Biooptik (Sebuah Studi Pada Mata Kuliah Fisika Kesehatan Di Sekolah Tinggi Ilmu Kesehatan Muhammadiyah Lhokseu. Jurnal Pendidikan Sains Indonesia, 4(2), 118–123.
- Fadlilah, A. N. (2021). Hambatan Pelaksanaan Asesmen Informal Dalam Pembelajaran PAUD. Cakrawala Dini: Jurnal Pendidikan Anak Usia Dini, 12(1).  
<https://doi.org/https://doi.org/10.17509/cd.v12i1.28675>
- Gabriele, K. M., Holthaus, R. M., & Boulet, J. R. (2016). Usefulness of Video-Assisted Peer Mentor Feedback in Undergraduate Nursing Education. Clinical Simulation in Nursing, 12(8), 337–345.  
<https://doi.org/10.1016/j.ecns.2016.03.004>
- Han, J.-S., Baek, H. C., & Jeong, A.-S. (2015). The Effects of Psychiatric Nursing Simulation on Anxiety and Self-confidence about Clinical Placement of Nursing Students. Journal of the Korea Academia-Industrial Cooperation Society, 16(11), 7812–7819.  
<https://doi.org/10.5762/kais.2015.16.11.7812>
- Hidayati, N., Andayani, Y., & Junaidi, E. (2021). Pengaruh Persepsi Guru Tentang TIK Terhadap Pemanfaatan Teknologi Informasi dan Komunikasi dalam Pembelajaran IPA SMA/MA Se-Kecamatan Gerung. Chemistry Education Practice, 4(1), 84.  
<https://doi.org/10.29303/cep.v4i1.2233>
- Hutapea, R. H. (2019). Instrumen Evaluasi Non-Tes dalam Penilaian Hasil Belajar Ranah Afektif dan Psikomotorik. Jurnal Teologi Dan Pendidikan Kristen Kontekstual, 2(2), 151–165.  
<https://doi.org/10.34307/b.v2i2.94>
- Jalili, M., & Shishavan, H. B. (2020). Responding to student feedback: Individualising teamwork scores based on peer assessment. ArXiv, 1(August), 100019.  
<https://doi.org/10.1016/j.ijedro.2020.100019>
- James, S., Lanham, E., Mak-Hau, V., Pan, L., Wilkin, T., & Wood-Bradley, G. (2018). Identifying items for moderation in a peer assessment framework. Knowledge-Based Systems, 162(January), 211–219.  
<https://doi.org/10.1016/j.knosys.2018.05.032>
- Jehanus, C. R., Ayu, H. D., & Sundaygara, C. (2019). Pengaruh Problem Based Learning Berbasis Asesmen Kinerja Terhadap Penguasaan Konsep Fisika Ditinjau Dari Kerja Ilmiah. Jurnal Pendidikan Fisika, 7(1), 39.  
<https://doi.org/10.24127/jpf.v7i1.1359>
- Koyan, I. W. (2011). Asesmen dalam Pendidikan. Undiksha Press.
- Liang, H.-Y., Tang, F.-I., Wang, T.-F., & Yu, S. (2020). Evaluation of Nurse Practitioners' Professional Competence and Comparison of Assessments Using Multiple Methods: Self-Assessment, Peer-Assessment, and Supervisor-Assessment. Asian Nursing Research, December, 1–7.  
<https://doi.org/10.1016/j.anr.2020.10.004>
- Luaces, O., Díez, J., & Bahamonde, A. (2018). A peer assessment method to provide



- feedback, consistent grading and reduce students' burden in massive teaching settings. *Computers and Education*, 126, 283–295.  
<https://doi.org/10.1016/j.compedu.2018.07.016>
- Nafisah, D., & Ghofur. (2020). Pengembangan Media Pembelajaran Scan Barcode Berbasis Android Dalam Pembelajaran Ips. *EduTeach: Jurnal Edukasi Dan Teknologi Pembelajaran*, 1(2), 144–152.  
<https://doi.org/10.37859/eduteach.v1i2.1985>
- Oh, E. (2019). Research on the effective of peer instruction and students' involvement. *Asia-Pacific of Multimedia Services Convergent with Art Humanities, and Sociology*, 9, 199–208.  
<https://doi.org/https://doi.org/10.35873/ajmahs>
- Pakpahan, R., & Fitriani, Y. (2020). Analisa Pemafaatan Teknologi Informasi Dalam Pemebelajaran Jarak Jauh Di Tengah Pandemi Virus Corona Covid-19. *JISAMAR (Journal of Information System, Applied, Management, Accounting and Research)*, 4(2), 30–36.
- Putra, I. M. J. (2021). Pengembangan Multimedia Interaktif Berorientasi Pendekatan Kontekstual Materi Sumber Energi Pada Pembelajaran IPA Kelas IV SD. *Jurnal Edutech Undiksha*, 9(1), 57–65.  
<https://doi.org/10.23887/jeu.v9i1.32356>
- Retno, E. W., Rochmad, & St. Budi Waluyo. (2018). Penilaian Kinerja Sebagai Alternatif Untuk Mengukur Kemampuan Berpikir Kritis Siswa. *PRISMA, Prosiding Seminar Nasional Matematika*, 1, 522–530.
- Salamah, U. (2018). Penjaminan Mutu Penilaian Pendidikan. 2(1), 274–293.  
<https://doi.org/http://dx.doi.org/10.32478/evaluasi.v2i1.79>
- Stone, R., Cooper, S., & Cant, R. (2013). The Value of Peer Learning in Undergraduate Nursing Education: A Systematic Review. *ISRN Nursing*, 2013(i), 1–10.  
<https://doi.org/10.1155/2013/930901>
- Subagia, I. W., & Wiratma, I. G. L. (2016). Profil Penilaian Hasil Belajar Siswa Berdasarkan Kurikulum 2013. *JPI (Jurnal Pendidikan Indonesia)*, 5(1), 39–54.  
<https://doi.org/10.23887/jpi-undiksha.v5i1.8293>
- Sudirman, S., Kistiono, K., Akhsan, H., & Ariska, M. (2020). Pengembangan Instrumen Penilaian Pengetahuan, Sikap Dan Keterampilan Ipa Berbasis Berpikir Kritis Pada Konsep Listrik Siswa SMP. *Jurnal Inovasi Dan Pembelajaran Fisika*.  
<https://doi.org/10.36706/jipf.v7i1.10903>
- Sukmasari, V. P., & Rosana, D. (2017). Pengembangan penilaian proyek pembelajaran IPA berbasis discovery learning untuk mengukur keterampilan pemecahan masalah. *Jurnal Inovasi Pendidikan IPA*, 3(1), 101.  
<https://doi.org/10.21831/jipi.v3i1.10468>
- Sukmawa, O., Rosidin, U., & Sesunan, F. (2019). Pengembangan Instrumen Asesmen Kinerja (Performance Assessment) Praktikum Pada Mata Pelajaran Fisika Di Sma. *Jurnal Pendidikan Fisika*, 7(1), 116.  
<https://doi.org/10.24127/jpf.v7i1.1397>
- Sya'idah, U., Amaliyah, A., & Ismail, Y. (2016). Kemampuan Guru PAI dalam Merencanakan dan Melaksanakan Penilaian Autentik. *Jurnal Online Studi Al-Qur'an*, 12(2), 143–157.  
<https://doi.org/10.21009/jsq.012.2.01>

- Tadhkiroh, Akbar, B., & Hartini, T. I. (2021). Pengembangan Instrumen Penilaian Kinerja pada Muatan IPA Kurikulum 2013 Tingkat Sekolah Dasar. *Jurnal Basicedu*, 5(4), 2199–2208. <https://doi.org/10.31004/basicedu.v7i1.4720>
- Ulya, H., Rahayu, R., Sa'dijah, C., & Qohar, A. (2022). Model Asesmen Kinerja Pada Pembelajaran Etnomatematika Berbasis Proyek: Bagaimana Kelayakannya? *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, 11(2), 1019–1027. <https://doi.org/10.24127/ajpm.v11i2.4763>
- Uno, H. B., & Koni, S. (2012). *Assessment Pembelajaran*. Bumi Aksara.
- Utomo, A. P., Amalia, T. R., Iqbal, M., & Narulita, E. (2020). Android-based comic of biotechnology for senior high school students. *International Journal of Scientific and Technology Research*, 9(3), 4143–4150.
- Uttl, B., White, C. A., & Gonzalez, D. W. (2017). Meta-analysis of faculty's teaching effectiveness: Student evaluation of teaching ratings and student learning are not related. *Studies in Educational Evaluation*, 51, 22–42.
- Wahyono, H. (2019). Pemanfaatan Teknologi Informasi dalam Penilaian Hasil Belajar pada Generasi Milenial di Era Revolusi Industri 4.0. *Proceeding of Biology Education*. <https://doi.org/10.21009/pbe.3-1.23>
- Zahra, N., Wulan, A. R., & Hamdiyati, Y. (2023). Pengembangan Asesmen Kinerja Inquiry Lesson Pada Topik Permasalahan Biologi Abad 21 Siswa SMA. *Jurnal Paedagogy: Jurnal Penelitian Dan Pengembangan Pendidikan*, 10(1), 12–19. <https://doi.org/10.33394/jp.v10i1.5780>
- Zulkifli, M. (2018). Analisis Bentuk Evaluasi Kurikulum 2013 Mata Pelajaran Bahasa Arab di MI. *Al-Madrasah: Jurnal Pendidikan Madrasah Ibtidaiyah*, 2(2), 125–143. <https://doi.org/10.35931/am.v0i0.29>