

Pedagogical Competence of Teachers in Planning Vocational High School Learning

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A B S T R A C T

Guru menjadi aktor utama dalam proses pembelajaran khususnya pada pendidikan kejuruan, yaitu pembelajaran produktif yang memiliki ciri khas tersendiri yang tidak dapat disamakan dengan pembelajaran adaptif dan normatif. Penelitian ini bertujuan untuk menganalisis secara langsung evaluasi pedagogik guru dalam merencanakan kegiatan pembelajaran di SMK bidang kelistrikan. Penelitian ini menggunakan metode penelitian evaluasi Countenance Stake. Penelitian ini berfokus pada satu aspek, yaitu aspek perencanaan (antecedents) dalam proses pembelajaran produktif. Metode penelitian yang digunakan adalah metode kuantitatif. Teknik pengumpulan data yang digunakan adalah kuesioner. Teknik analisis data dilakukan dengan menggunakan deskriptif kuantitatif. Hasil penelitian menunjukkan bahwa terdapat kelemahan kompetensi pedagogik guru dalam membuat perencanaan kegiatan pembelajaran dengan rata-rata 3.24 yang berada pada kategori cukup baik. Perencanaan pembelajaran yang dibuat oleh guru belum sesuai dengan standar proses dan juga belum mengacu pada kurikulum yang disesuaikan dengan kemampuan dan kebutuhan peserta didik. Perlu adanya peninjauan dan perbaikan terhadap aspek-aspek yang belum terpenuhi dalam perencanaan pembelajaran yang dibuat oleh guru dan juga perlunya peningkatan kompetensi pedagogik guru agar kegiatan pembelajaran dapat terlaksana dengan baik dan mampu mencetak lulusan SMK yang berkompeten.

The teacher becomes the main actor in the learning process, especially in vocational education, namely productive learning which has its own characteristics that cannot be equated with adaptive and normative learning. This research aims to analyze directly the pedagogical evaluation of teachers in planning learning activities in vocational school in the field of electricity. This study used the Countenance Stake evaluation research method. This research focuses on one aspect, namely the planning aspect (antecedents) in the productive learning process. The research method used is the quantitative method. The data collection techniques used are questionnaires. Data analysis techniques are performed using descriptive quantitative. The results showed that there was a weakness in the pedagogical competence of teachers in making plans for learning activities with an average of 3.24 which was in the category quite well. Learning planning made by teachers has not been in accordance with process standards and also does not refer to a curriculum that is tailored to the abilities and needs of learners. There needs to be a review and improvement of the aspects that have not been fulfilled in the learning planning made by teachers and also the need to improve the pedagogical competence of teachers so that learning activities can be carried out properly and able to print competent vocational school graduates.

1. INTRODUCTION

Vocational high school (SMK) is one of the educational institutions that has the aim to prepare students into a workforce that is certainly skilled, creative, productive and able to enter the world of work with the competencies it has after graduating from vocational school (Jayanti & Senam, 2017; Rusilowati & Wahyudi, 2020; Yulius, 2020). SMK has the task of equipping graduates with the skills to be able to work in accordance with competencies and areas of expertise. Learning in vocational school has a scope that is normative, adaptive and productive (Pratiwi & Meilani, 2018; Sholihah & Lastariwati, 2020; Wakid et al., 2020). Productive learning is the most important thing for students in vocational school to develop their potential through productive learning. This productive subject will actually serve the demands of the business world and industry later. Productive program subjects also equip mentality, proficiency, participatory management with mental attitudes and skills in certain fields that prioritize the quality and totality of work (Estriyanto et al., 2017; Setiyawan et al., 2017).

The learning process is an activity that is systematically designed in a structured manner and carried out with certain procedures to take the best possible approach to achieve established learning goals (Cheung & Lee, 2010; Rachmadtullah et al., 2020; Santika et al., 2020). The scope of the learning process consists of learning planning, learning implementation process and learning outcomes (Arifin, 2020; Balashov et al., 2021). The process of teaching and learning in schools is very important, this is because all the knowledge that will be taught to students through the learning process must be carried out as well as possible, both in terms of planning, implementation, and learning outcomes of students. Learning is a program that has systematic, systemic, and planned characteristics (Al-Zoubi & Younes, 2015; Norahmi, 2017; Sadikin & Hamidah, 2020). In Permendikbud No. 22 of 2016 concerning Standards of Primary and Secondary Education Process said the implementation of learning is an implementation of RPP. Learning Implementation Plan (RPP) is a plan of face-to-face learning activities for one or more meetings (Fatimatuzahroh et al., 2019; Jayanti & Senam, 2017; Marhaeni et al., 2018). RPP is developed from the syllabus to direct the learning activities of learners in an effort to achieve Basic Competencies (KD). The implementation of learning includes preliminary activities, core activities and closing activities. The learning process of the teacher's readiness to start learning is very influential on the success of the learning process or how effective the learning process is (Anisa, 2017; Gustiawati et al., 2020; Wahyudi et al., 2013). Therefore learning must be done in a certain order and steps, ranging from planning, implementation to assessment. The education unit must carry out planning, assessment, and supervision of the learning process for the implementation of an effective and efficient learning process (Pramitasari et al., 2019; Putri et al., 2020; Reyna et al., 2017).

In order for the learning process to be quality and in line with learning planning, teachers must understand the importance of professionalism in carrying out their duties as early as possible (Fen & Poh, 2015; Garba et al., 2015; Murtonen & Balloo, 2019). Teachers become the main actors in the learning process, especially in vocational education, namely productive learning should ideally master the correct methods of teaching theory and practice, because productive learning has its own characteristics that cannot be equated with adaptive and normative learning (Hermino & Arifin, 2020; Ramdan & Fauziah, 2019; Sobry & Sa'i, 2020). The quality of the learning process also depends on teachers who have professional competencies that support (Darwis et al., 2019; Kim et al., 2019; Yulius, 2020).

Carrying out an effective and quality learning process, professional teachers who have competence, master science and technology, have skills in teaching, have a commitment to carry out the learning process, are responsible for their duties and obligations, and have good ethics or morals Pedagogical competence, one of the types of competencies that must be absolutely owned by teachers (Ahyanuardi et al., 2018; Ana et al., 2020; Jayanti & Senam, 2017). Pedagogical competencies basically include the teacher's ability to manage learning and will determine the success of the learning process and outcomes. Pedagogical competence is one of the basic competencies that serves to plan, implement, and evaluate the learning process (Garba et al., 2015; Irmawati et al., 2021; Titarenko & Little, 2017). The importance of teachers in the learning process, evidenced by the results of studies conducted in developing countries, 36% of teacher factors contribute to the learning achievement of learners (Aziz et al., 2020). Teachers become the determinants of learning success in vocational school. The other study states that the part that supports the success and smoothness of teaching and learning activities cannot be separated from the preparation and planning of careful learning (Fisher et al., 2020). Therefore, the preparation of the implementation of learning compiled by teachers is very important for the success of the productive learning process involving teachers and learners.

Based on the background of the formulation problem in this study is how the planning (antecedents) or planning that exists in productive learning programs. Based on the formulation of the problem, the purpose of this study is to evaluate and describe the planning (antecedents) of productive learning programs in the field of electricity in SMK N 2 Sungai Penuh City. With the implementation of the evaluation, teachers and the school know whether the learning process that has been going on has been achieved according to learning goals or not. With the results of the evaluation of the teacher can diagnose the cause of this and the teacher can also improve the competence he has. If this evaluation can run well and structured, it is believed that problems with the competence of these learners will be solved in accordance with learning goals that are oriented to the results of student competencies.

2. METHODS

This research uses a type of quantitative research, data collection on quantitative research is carried out using questionnaires or questionnaires (Creswell, 2014; Khaldi, 2017). The instruments in this study used questionnaires. Filling the questionnaire is done by the respondent by selecting the answer by circling the questionnaire sheet. Alternative answers to items are (5), (4), (3), (2), (1) with statements

starting from very good, good, good enough, less good and not good. The subject in this study is a productive teacher of Electric Motor Installation (IML) subjects in the field of electricity SMK N 2 Sungai Penuh City. The object of this study is the productive learning program of Electric Motor Installation (IML) subjects in the field of electricity SMK N 2 Sungai Penuh City. The data source is selected with some consideration with a specific purpose. The consideration in question is the teacher who is considered to know best and master what is needed and expected. Teachers who are competent and have enough experience in their fields. The data source in this study is teachers who enable or teach productive subjects of Electrical Motor Installation (IML). The validity test is carried out by asking for opinions from expert validators or expert lecturers, namely evaluation experts to perfect the instrument to be used. Expert tests are carried out in the form of questionnaires totalling seven items. Of the seven items after being tested there are several items that must be repaired and matched with research needs. Based on the results of the research questionnaire trial obtained the results of all items declared valid and worthy of use. The number of valid items is seven items.

3. RESULT AND DISCUSSION

Results

Antecedents component or planning component is a component made by teachers to carry out productive learning program activities in the field of electricity expertise in SMK N 2 Sungai Penuh City. This stage consists of designing learning activities, learning objectives, learning materials, learning strategies, media and evaluation. The data analysis technique is show in Table 1.

No	Sub Indicators	Sum	Sub-Indicator Average
1	Designing Learning Activities	2	3,83
2	Learning Objectives	1	4
3	Learning Materials	1	3
4	Learning Strategies	1	3,67
5	Media Pembelajaran	1	4
6	Evaluation	1	3,33
Total		7	3,64

Table 1. Data Analysis Results

Based on Table 1, the planning aspect consisting of six indicators and seven statement items was obtained an average of 3.64 and was in a pretty good category. This means that at the stage of designing the planning of learning activities the teacher has made a good enough planning, but there needs to be consideration and commitment to improve the teacher's ability to plan learning activities. This of course aims to make the learning process run effectively in accordance with the planning that has been designed before by the teacher. Findings of nonconformity compared to standards will be given recommendations to improve the quality of the next defense process. In the planning of learning activities it was found that there are still many teachers in planning learning activities have not referred to or have not been in accordance with Permendikbud No. 22 of 2016 on Standards of Primary and Secondary Education Process. RPP education conducted by teachers is planning the learning model to be used, because vocational schools get more practice than they do. Teachers tend not to adjust planning to the situation conditions in the school and the conditions of learners. RPP compiled by teachers there is a slight drawback that the steps of activities are not arranged in accordance with the allocation of time, media and learning strategies compiled by teachers not in accordance with learning objectives. Evaluation devices compiled by teachers are also not in accordance with process standards. The results of research that found there are still many teachers who have pedagogical competencies that can be said in the low category. This means that teachers need refreshment and training related to pedagogical competencies, especially productive teachers of Electric Motor Installation (IML) in the field of electricity. Teachers must have experience that is able to make the teacher able to innovate, develop innovative learning, so that learning goals are achieved and students are able to obtain predetermined competencies. this is of course an important concern for teacher professional management institutions.

Discussion

The planning component here is intended how teachers prepare, structure, design learning activities. This component is also related to the pedagogical competence of teachers, namely the planning and implementation of learning. Pedagogical competence in this aspect includes the teacher's ability to understand the learning process which begins with planning. The results of the research conducted that in

the component or aspect of planning showed a presentation in the category quite well, found in some indicators that still do not meet the criteria that meet the criteria in accordance with the standards of the process. In the indicator of designing learning activities and learning evaluation carried out by teachers is not in accordance with the expected, which means that the pedagogical ability of teachers in compiling or designing learning activities must be improved again so that the learning process can be carried out as it should be. Low pedagogical competence results in planning, implementing and evaluating the learning process not going as desired. This will affect the development of learners (Achilleos et al., 2019; Ahyanuardi et al., 2018; Ana et al., 2020).

Competence owned by teachers is one of the important things that must be considered by the school and the teacher itself. In the learning process that occurs in the classroom, there needs to be the development of teacher competence as one of the important actors in the learning process (Dharma & Siregar, 2015; Iskandar & Juhana, 2014; Safitri et al., 2019). In improving the quality of education, especially Vocational High Schools that will later print competent graduates, there must be qualified teachers because teachers are one of the spearheads of the success of the educational process that takes place in schools. This means that the success of the implementation of learning is very dependent on the quality of learning planning that has been prepared, especially the syllabus and RPP (Pramitasari et al., 2019; Tsakeni, 2021; Wibawa et al., 2018). With the competence possessed by good teachers, the planning of the defense is also good. With good planning, it will result in good implementation. The implementation of learning carried out by teachers must be in accordance with Permendikbud No. 22 of 2016 on Standards of Basic Education process and Meenegah Education. The role of a teacher in carrying out the learning process is very important in an effort to improve the quality of education. Competent teachers or professional teachers are needed in improving the competence of learners.

Follow-up to overcome the problem of teacher competence in planning learning activities can be started from school so that it can always evaluate the teaching device compiled by the teacher, whether the device compiled by the teacher is in accordance with process standards and follow up on the device that has been evaluated (Aulia et al., 2018; Tsakeni, 2021). So that learning can take place in accordance with expectations. Teachers of productive subjects to always evaluate the devices that have been compiled before being given to the school for evaluation and follow-up. Teachers are expected to be more careful and systematic in planning and compiling learning activities and adjusting to applicable laws and regulations (Abrahams & Reiss, 2012; Noguera et al., 2018). Teachers are expected to pay more attention to the steps in carrying out learning in accordance with the standards of the process, namely preliminary, core and closing. Teachers are expected to improve the competencies that should be owned by teachers so as to improve the quality of learning and have an impact on learning outcomes.

In accordance with the results of research the results of this research and discussion need to be associated with the theory of evaluation of existing programs. It aims to strengthen the analysis in making decisions from the end of this study. First, this study managed to see successes or failures in the evaluation of the productive learning process in the field of electricity in SMK N 2 Sungai Penuh City (Arikunto & Safruddin, 2009). The results showed that learning planning was quite successfully implemented, but it must be considered and still has some shortcomings and problems that need to be corrected or improved. Another study emphasize that teachers are the determinants of learning success in SMK (Gabena, 2017). Especially the success of teachers is strongly influenced by preparation and careful learning planning.

The improvement of pedagogical competence can be through the teacher himself, the researcher recommend to a school that facilitates the needs of teachers and attends some training that is able to improve competence and provide experience to teachers in innovating to compile and design learning planning. Implikasi dari penelitian ini guru serta pihak terkait dengan pendidikan memeiliki pengetahuan terkait pedagogical evaluation of teachers in planning learning activities. Namun penelitian ini memiliki keterbatasan terutama dalam hal scopenya karena penelitian ini only focuses on one aspect, namely the planning aspect (antecedents) in the productive learning process. Jadi diharapkan penelitian berikutnya mampu memperdalam topik penelitian yang berkaitan dengan evaluation of pedagogical competence of teachers in planning learning activity.

The improvement of pedagogical competence can be through the teacher himself, the researcher recommend to a school that facilitates the needs of teachers and attends some training that is able to improve competence and provide experience to teachers in innovating to compile and design learning planning. The implication of this research is that teachers and parties related to education have knowledge related to pedagogical evaluation of teachers in planning learning activities. However, this research has limitations, especially in terms of scope because this research only focuses on one aspect, namely the planning aspect (antecedents) in the productive learning process. So it is hoped that the next research will be able to deepen research topics and added the other factor related to the evaluation of pedagogical competence of teachers in planning learning activities.

4. CONCLUSION

Aspects or stages of antecedents consisting of six indicators and seven statement items obtained are in the category quite well. This means that at the stage of antecedents or designing the planning of teacher learning activities has made a fairly good plan, but there needs to be consideration and commitment to improve the teacher's ability to plan learning activities. Aspects of antecedents evaluation of productive learning process in SMK N 2 Sungai Penuh City is quite good, but there needs to be a review of the planning of learning activities, so that the deficiencies found can be minimized and improved. Pedagogical competence has a great influence in the planning of learning activities made by teachers.

5. REFERENCES

- Abrahams, I., & Reiss, M. J. (2012). Practical work: Its effectiveness in primary and secondary schools in England. *Journal of Research in Science Teaching*, 49(8). https://doi.org/10.1002/tea.21036.
- Achilleos, A. P., Mettouris, C., Yeratziotis, A., Papadopoulos, G. A., Pllana, S., Huber, F., Jäger, B., Leitner, P., Ocsovszky, Z., & Dinnyés, A. (2019). SciChallenge: A Social Media Aware Platform for Contest-Based STEM Education and Motivation of Young Students. *IEEE Transactions on Learning Technologies*, 12(1), 98–111. https://doi.org/10.1109/TLT.2018.2810879.
- Ahyanuardi, A., Hambali, H., & Krismadinata, K. (2018). Pengaruh Kompetensi Pedagogik Dan Profesional Guru Sekolah Menengah Kejuruan Pasca Sertfikasi Terhadap Komitmen Guru Melaksanakan Proses Pembelajaran. *Invotek: Jurnal Inovasi Vokasional Dan Teknologi, 18*(1), 67–74. https://doi.org/10.24036/invotek.v18i1.169.
- Al-Zoubi, S. M., & Younes, M. A. B. (2015). Low Academic Achievement: Causes and Results. *Theory and Practice in Language Studies*, 5(11), 2262. https://doi.org/10.17507/tpls.0511.09.
- Ana, A., Kustiawan, I., Ahman, E., Zakaria, S., Muktiarni, M., Dwiyanti, V., Saripudin, S., & Kahoerunnisa, I. (2020). Defining vocational teacher competencies in industry 4.0 from the perspective of policymakers. *Journal of Engineering Education Transformations*, 34(Special Issue), 159–167. https://doi.org/10.16920/JEET/2020/V34I0/157884.
- Anisa, A. (2017). Meningkatkan Keterampilan Berpikir Kritis Peserta Didik Melalui Pembelajaran IPA Berbasis Potensi Lokal Jepara. Jurnal Inovasi Pendidikan IPA, 3(1), 1–11. https://doi.org/10.21831/jipi.v3i1.8607.
- Arifin, Z. (2020). Harte Dan Tungguan : Redefinisi Adat Tunggu Tubang Pada Komunitas Semende Migran. *Jurnal Masyarakat Dan Budaya*, 22(2), 31–44. https://doi.org/10.14203/jmb.v22i2.887.
- Arikunto, S., & Safruddin, C. (2009). Evaluasi Program Pendidikan. Bumi Aksara.
- Aulia, E. V., Poedjiastoeti, S., & Agustini, R. (2018). The Effectiveness of Guided Inquiry-based Learning Material on Students' Science Literacy Skills. *Journal of Physics: Conference Series*, 947(1). https://doi.org/10.1088/1742-6596/947/1/012049.
- Aziz, R., Sidik, N. A. H., Trimansyah, T., Khasanah, N., & Yulia, N. M. (2020). Model Suasana Kelas yang Mensejahterakan Siswa Tingkat Pendidikan Dasar. *Mediapsi*, 6(2), 94–101. https://doi.org/10.21776/ub.mps.2020.006.02.3.
- Balashov, E., Pasicichnyk, I., & Kalamazh, R. (2021). Metacognitive awareness and academic self-regulation of hei students. *International Journal of Cognitive Research in Science, Engineering and Education*, 9(2), 161–172. https://doi.org/10.23947/2334-8496-2021-9-2-161-172.
- Cheung, C. kiu, & Lee, T. yan. (2010). Improving social competence through character education. *Evaluation and Program Planning*, *33*(3), 255–263. https://doi.org/10.1016/j.evalprogplan.2009.08.006
- Creswell, J. W. (2014). *Research design: qualitative, quantitative, and mixed methods approaches* (4th ed). SAGE Publications.
- Darwis, M., Batari, U. D., Salam, R., Kasmita, M., & Baharuddin, A. (2019). Pengaruh Kompetensi Profesional Guru Terhadap Kualitas Proses Pembelajaran Pada Paket Keahlian Administrasi Perkantoran Di SMK Negeri 1 Gowa. *Jurnal Ad'ministrare*, *5*(2), 105. https://doi.org/10.26858/ja.v5i2.7889.
- Dharma, S., & Siregar, R. (2015). Internalisasi Karakter melalui Model Project Citizen pada Pembelajaran Pendidikan Pancasila dan Kewarganegaraan. *JUPIIS: Jurnal Pendidikan Ilmu-Ilmu Sosial*, 6(2). https://doi.org/10.24114/jupiis.v6i2.2293.
- Estriyanto, Y., Kersten, S., Pardjono, P., & Sofyan, H. (2017). The missing productive vocational high school teacher competency standard in the Indonesian education system. *Journal of Technical Education and Training*, 9(1), 6–14. https://doi.org/Retrieved from https://publisher.uthm.edu.my/ojs/index.php/JTET/article/view/1499.
- Fatimatuzahroh, F., Nurteti, L., & Koswara, S. (2019). Upaya Meningkatkan Hasil Belajar Peserta Didik pada Mata Pelajaran Akidah Akhlak Melalui Metode Lectures Vary. *Jurnal Penelitian Pendidikan Islam*,

7(1), 35. https://doi.org/10.36667/jppi.v7i1.362.

- Fen, C., & Poh, K. (2015). A Review of Intrinsic and Extrinsic Motivations of ESL Learners. International Journal of Languages, Literature and Linguistics, 1(2), 98–105. https://doi.org/10.7763/ijlll.2015.v1.20.
- Fisher, D., Kusumah, Y. S., & Dahlan, J. A. (2020). Project-based learning in mathematics: A literatur review. *Journal of Physics: Conference Series*, 1657(1), 012032. https://doi.org/10.1088/1742-6596/1657/1/012032.
- Gabena, P. (2017). Upaya Peningkatan Kompetensi Guru Dalam Menyusun Silabus dan RPP Melalui Supervisi Akademik yang Berkelanjutan di SD Negeri 0102 Barumun. *Ristekdik: Jurnal Bimbingan Dan Konseling*, 2(1). http://jurnal.um-tapsel.ac.id/index.php/Ristekdik/article/view/127.
- Garba, S. A., Byabazaire, Y., & Busthami, A. H. (2015). Toward the use of 21st century teaching-learning approaches: The trend of development in Malaysian schools within the context of Asia Pacific. *International Journal of Emerging Technologies in Learning*, 10(4), 72–79. https://doi.org/10.3991/ijet.v10i4.4717.
- Gustiawati, R., Arief, D., & Zikri, A. (2020). Pengembangan Bahan Ajar Membaca Permulaan dengan Menggunakan Cerita Fabel pada Siswa Sekolah Dasar. *Jurnal Basicedu*, 4(2), 355–360. https://doi.org/10.31004/basicedu.v4i2.339.
- Hermino, A., & Arifin, I. (2020). Contextual Character Education for Students in the Senior High School. European Journal of Educational Research, 9(3), 1009–1023. https://doi.org/10.12973/EU-JER.9.3.1009.
- Irmawati, D. K., Asri, T. M., & Aziz, A. L. (2021). How EFL Teachers Deal with Pedagogical Competence Development for the Teaching of Writing: A Study on Higher Educational Level in Indonesian Context. *Journal of Education and E-Learning Research*, 8(1), 42–51. https://doi.org/10.20448/journal.509.2021.81.42.51.
- Iskandar, S., & Juhana, E. (2014). Pengaruh Kompetensi Dan Lingkungan Kerja Terhadap Kepuasan Kerja Serta Implikasinya Pada Kinerja Guru Di SDN Baros Mandiri 5 Kota Cimahi. *Jurnal Ekonomi, Bisnis* & Entrepreneurship, 8(2), 86–98. https://jurnal.stiepas.ac.id/index.php/jebe/article/view/66.
- Jayanti, K. D., & Senam, S. (2017). Studi kinerja guru lulusan Program Studi Pendidikan Kimia Universitas Negeri Yogyakarta di Daerah Istimewa Yogyakarta. *Jurnal Inovasi Pendidikan IPA*, *3*(1), 63. https://doi.org/10.21831/jipi.v3i1.13686.
- Khaldi, K. (2017). Quantitative, qualitative or mixed research: which research paradigm to use? *Journal of Educational and Social Research*, 7(2), 15–15. https://doi.org/10.5901/jesr.2017.v7n2p15.
- Kim, S., Raza, M., & Seidman, E. (2019). Improving 21st-century teaching skills: The key to effective 21stcentury learners. *Research in Comparative and International Education*, 14(1), 99–117. https://doi.org/10.1177/1745499919829214.
- Marhaeni, A. A. I. N., Dantes, N., & Paramartha, A. A. G. Y. (2018). Teacher Assessment Literacy: Discrepancies in Authentic Assessment Practice in EFL Context. *Proceeding Book of 1st International Conference* on Educational Assessment and Policy, 2, 18–21. https://doi.org/10.26499/iceap.v2i1.90.
- Murtonen, M., & Balloo, K. (2019). *Redefining scientific thinking for higher education*. Palgrave Macmillan Cham. https://doi.org/10.1007/978-3-030-24215-2_2.
- Noguera, I., Guerrero-Roldán, A. E., & Masó, R. (2018). Collaborative agile learning in online environments: Strategies for improving team regulation and project management. *Computers and Education*, *116*, 110–129. https://doi.org/10.1016/j.compedu.2017.09.008.
- Norahmi, M. (2017). 21st-century teachers: The students' perspectives. *Journal on English as a Foreign Language*, 7(1), 77. https://doi.org/10.23971/jefl.v7i1.538.
- Pramitasari, K., Usodo, B., Subanti, S., Magister, P., Matematika, P., Sebelas, U., & Surakarta, M. (2019). Proses Pembelajaran Matematika Untuk Siswa Slow Learner Di Kelas Inklusi Smp Negeri 7 Klaten Kelas Viii. Jurnal Elektronik Pendidikan Matematika, 3(7), 777–786. https://jurnal.fkip.uns.ac.id/index.php/s2math/article/view/6494.
- Pratiwi, I. T. M., & Meilani, R. I. (2018). Peran Media Pembelajaran Dalam Meningkatkan Prestasi Belajar Siswa. Jurnal Pendidikan Manajemen Perkantoran, 3(2), 33. https://doi.org/10.17509/jpm.v3i2.11762.
- Putri, N. P. J. E., Artini, L. P., & Wahyuni, L. G. E. (2020). EFL Teachers' Perception and Strategies for Integrating Character Education into the Lesson. Jurnal Pendidikan Dan Pengajaran. https://doi.org/10.23887/jpp.v53i1.19172.
- Rachmadtullah, R., Yustitia, V., Setiawan, B., Fanny, A. M., Pramulia, P., Susiloningsih, W., Rosidah, C. T., Prastyo, D., & Ardhian, T. (2020). The Challenge of Elementary School Teachers to Encounter Superior Generation in the 4.0 Industrial Revolution: Study Literature. *International Journal of Scientific and Technology Research*, 9(4), 1879–1882. https://www.researchgate.net/profile/Reza-

Rachmadtullah/publication/340886839_The_Challenge_Of_Elementary_School_Teachers_To_Enc ounter_Superior_Generation_In_The_40_Industrial_Revolution_Study_Literature/links/5ea2b9a4 92851c87d1b1066f/The-Challenge-Of-Ele.

- Ramdan, A. Y., & Fauziah, P. Y. (2019). Peran orang tua dan guru dalam mengembangkan nilai-nilai karakter anak usia sekolah dasar. *Premiere Educandum : Jurnal Pendidikan Dasar Dan Pembelajaran, 9*(2). https://doi.org/10.25273/pe.v9i2.4501.
- Reyna, J., Hanham, J., & Meier, P. (2017). A taxonomy of digital media types for Learner-Generated Digital Media assignments. *E-Learning and Digital Media*, 14(6), 309–322. https://doi.org/10.1177/2042753017752973.
- Rusilowati, U., & Wahyudi, W. (2020). *The Significance of Educator Certification in Developing Pedagogy, Personality, Social and Professional Competencies.* 409(SoRes 2019), 446–451. https://doi.org/10.2991/assehr.k.200225.095.
- Sadikin, A., & Hamidah, A. (2020). Pembelajaran Daring di Tengah Wabah Covid-19. *Biodik*, 6(2), 109–119. https://doi.org/10.22437/bio.v6i2.9759.
- Safitri, D., Sujarwo, & Putra, Z. F. F. (2019). Pemberdayaan Kelompok Guru Dalam Membuat Media Pembelajaran Quizizz. *Jurnal Pengabdian Masyarakat*, 1(1), 1–6. https://doi.org/10.21009/DSD.XXX.
- Santika, D. A., Mulyana, E. H., & Nur, L. (2020). Pengembangan Media Pembelajaran Model STEM pada Konsep Terapung Melayang Tenggelam untuk Memfasilitasi Keterampilan Saintifik Anak Usia Dini. *Jurnal Paud Agapedia*, 4(1), 171–184. https://doi.org/10.17509/jpa.v4i1.27207.
- Setiyawan, B. A., Samsudi, S., & Basyirun, B. (2017). Pelaksanaan Pembelajaran Program Produktif Kompetensi Keahlian Teknik Kendaraan Ringan. *Journal of Vocational and Career Education*, 2(1). https://doi.org/10.15294/jvce.v2i1.10927.
- Sholihah, T. M., & Lastariwati, B. (2020). Problem Based Learning to Increase Competence of Critical Thinking and Problem Solving. *Journal of Education and Learning (EduLearn), 14*(1), 148–154. https://doi.org/10.11591/edulearn.v14i1.13772.
- Sobry, M., & Sa'i, M. (2020). Penguatan Kompetensi Guru Melalui Pemanfaatan Media Sederhana Dan Modern. *El-Tsaqafah : Jurnal Jurusan PBA*, 19(1), 97–118. https://doi.org/10.20414/tsaqafah.v19i1.2347.
- Titarenko, L., & Little, C. B. (2017). International Cross-Cultural Online Learning and Teaching: Effective Tools and Approaches. *American Journal of Distance Education*, 31(2), 112–127. https://doi.org/10.1080/08923647.2017.1306767.
- Tsakeni, M. (2021). Preservice Teachers' Use of Computational Thinking to Facilitate Inquiry-based Practical Work in Multiple-deprived Classrooms. *Eurasia Journal of Mathematics, Science and Technology Education*, 17(1). https://doi.org/10.29333/ejmste/9574.
- Wahyudi, R., Santosa, S., & Sumaryati, S. (2013). Pengaruh kesiapan guru mengajar dan lingkungan belajar terhadap efektivitas pembelajaran di SMK Kristen 1 Surakarta. *Jupe-Jurnal Pendidikan Ekonomi*, 2(2). https://jurnal.fkip.uns.ac.id/index.php/ekonomi/article/view/2913.
- Wakid, M., Usman, T., & Sulistyo, B. (2020). Project based learning model to increase the competency of automotive engineering teachers candidates. *Journal of Physics: Conference Series*, 1700(1), 1–8. https://doi.org/10.1088/1742-6596/1700/1/012063.
- Wibawa, K., Santiyadnya, N., & Indrawan, G. (2018). Evaluasi Pelaksanaan Pembelajaran Instalasi Penerangan Listrik Kompetensi Keahlian Tiptl Smk Negeri 3 Singaraja. *Jurnal Pendidikan Teknik Elektro Undiksha*, 7(1), 10–19. https://doi.org/10.23887/jjpte.v7i1.20216.
- Yulius, M. (2020). Strategi Meningkatkan Mutu Pendidikan Melalui Manajemen Sarana Dan Prasarana Pada Smk Negeri 1 Singkawang. *Jurnal Ilmiah Kependidikan, XIII*(2), 246–255. https://doi.org/http://dx.doi.org/10.30595/jkp.v13i2.6982.