

[APA 7} Main Document.docx

by cek Turnitin

Submission date: 21-Jun-2024 04:12AM (UTC-0700)

Submission ID: 2406231506

File name: _APA_7_Main_Document.docx (102.41K)

Word count: 6568

Character count: 40263

THE PEDAGOGICAL AND PROFESSIONAL ABILITIES OF PRE-SERVICE TEACHERS UTILIZING A PROJECT-BASED RESEARCH LEARNING MODEL

Sumarmi¹, Alfyananda Kurnia Putra², Pratidina Izza Rahmasyah³, Adellia

Wardatus Sholeha⁴, Muhammad Aliman⁵

Department of Geography, Faculty of Social Sciences, Universitas Negeri Malang,
Indonesia

Email: sumarmi.fis@um.ac.id^{1*}, alfyananda.fis@um.ac.id²,

pratidinaizza@gmail.com³, adellia.wardatus.2107218@students.um.ac.id⁴,

alviageo@gmail.com⁵

Neni Wahyuningtyas

Department of Social Education, Faculty of Social Sciences, Universitas Negeri
Malang, Indonesia

Email: neni.wahyuningtyas.fis@um.ac.id

Wan Ibrahim Wan Ahmad

Faculty of Health Sciences, Asia Metropolitan University, Malaysia

Email: wanibrahim@amu.edu.my

Abstract. *Introduction.* The policy of *Kurikulum Merdeka* (Independent Curriculum) allowed pre-service teachers to complete two-semester internships in particular schools.

Aim. This study aimed 1) to analyze the pedagogical abilities of pre-service teachers in the digital era after implementing the Project Based Research Learning model in the Teaching Assistance program; and 2) to analyze the Professional abilities of pre-service teachers in the digital era after implementing the Project Based Research Learning model in the Assistance program Teach.

Methodology and research methods. The research design used a mixed method between quantitative and qualitative research. The instrument for research included an open-ended questionnaire and interviews. The data was analyzed using descriptive quantitative and descriptive qualitative methods.

Results and scientific novelty. The results showed: 1) pre-service teachers have good pedagogical skills in the digital era after applying the Project Based Research Learning model in the Teaching Assistance program, 2) pre-service teachers have good professional skills in the digital era after implementing the Project Based Research Learning model in Teaching Assistance. The majority of pre-service teachers preferred group projects over individual projects. Group projects provide advantages such as 1) emphasizing the collaborative aspect based on *gotong royong* (cooperation)

values, 2) sharing and finding solutions to difficulties experienced at school, 3) requiring a team to speed up project completion, and 4) work feels easier. Problems and difficulties experienced by pre-service teachers are covered in this study.

Keywords: *Project Based Research Learning, Pedagogical Ability, Professional Ability, Pre-service teacher*

Acknowledgments: The research was supported by the communities, informants, research institutions, community service division and Department of Social Science, Universitas Negeri Malang.

For Citation: Sumarmi, Putra AK, Rahmasyah P, Sholeha AW, Aliman M, Wahyuningtyas N, et al. The Pedagogical and Professional Abilities of Pre-Service Teachers Utilizing a Project-Based Research Learning Model. *The Education and Science Journal*. 20XX; 5 (21): ...-.... DOI:

INTRODUCTION

Indonesia is currently implementing the *Kurikulum Merdeka* (Independent Curriculum). Learning with this curriculum required teachers and pre-service teachers to apply project-based learning (Kazun & Pastukhova, 2018). One of the project-based learning implemented in the *Kurikulum Merdeka* (Independent Curriculum) is Teaching Assistance.

Teaching assistance is a life-based learning model that allows students to use or apply their knowledge to real-life situations through direct teaching in schools (Anggraeni et al., 2022; Sviridova, 2023). Teaching Assistance allows students to acquire new knowledge, conduct research on topics studied in projects, make judgement related to projects and help solve problems found at school (Anggraeni et al., 2022; Brandt et al., 2021; Leonova et al., 2022). Teaching Assistance can be used in schools to assist students to understand social issues, science, or areas of study (Sumarmi, 2012). Moreover, an innovative learning model must be implemented in order to improve the quality of student research (Sumarmi et al., 2021).

The core responsibility of the students participating in Teaching Assistance include: a) helping to teach numeracy, b) helping to teach literacy, c) assisting with technology adaptation, and d) assisting with administration. The four types of tasks are designed to enhance students' soft skills, such as leadership, teamwork, empathy, and creativity, which are valuable qualifications for future educators (Santos & Castro, 2021). These responsibilities are also relevant with the Teaching Assistance slogan, "Mengabdikan untuk Negeri" (Serving for the Nation), as it involved contribution in the elementary and junior high school education level (Santoso et al., 2022).

The Teaching Assistance Program has several stages: 1) Preparation, observation activities are conducted at pre-assignment schools to study about the situation and conditions at school. Following that, collaborate with the university team to identify the problem and present it in initial report. The initial report is due during the first week of the assignment. 2) Implementation, the Teaching Assistance program is implemented for 20 weeks. At this stage, students coordinated constantly with field supervisors (*Dosen Pembimbing Lapangan-DPL*), submit daily logbook entries for supervisor validation, and submit weekly reports. Once every two weeks, sharing sessions are held to discuss about the curriculum. 3) Analysis, the Teaching Assistance program's outcomes are given in final report. After 20 weeks of program implementation activities, this final report was prepared. At this stage, each student's performance is evaluated by field supervisors, colleagues, and teachers in school (Anwar, 2021). During the 20 weeks of teaching internship, students must also apply the Independent Project-Based Research Learning (PBRL) Model.

The time spent by the school in implementing this project topic is as follows: a) In the initial stage, each theme is carried out with a uniform learning schedule for all classes; b) In the developing stage, each theme is carried out with a uniform learning schedule per 2-3 classes; and c) In the advanced stage, each class can choose a different project implementation time (the implementation time can be determined by each class) (Wahyuni & Riyanto, 2022). These conditions will have an impact on the pedagogical and professional abilities of pre-service teachers assisting in the classroom in the digital era.

Various teaching assistance programs have been implemented, including Kindergarten teaching assistance programs (Restiningtyas et al., 2022; Taufiqurrahman et al., 2022). Teaching assistance in elementary schools (Anwar, 2021; Hikmah et al., 2022; Santoso et al., 2022). Teaching assistance in junior high schools (Muthi'ah et al., 2021; Stefanus et al., 2022; Wahyuni & Riyanto, 2022). Teaching assistance in Senior High School at Malang city (Anggraeni et al., 2022; Saputra & Julianti Kasih, 2022). Meanwhile, in many other countries, teaching assistance is referred to as pre-service teacher.

Preparing pre-service teacher students to become sustainable teachers has been studied by students at Arizona State University (Brandt et al., 2021). Research continues to be conducted on pre-service teacher students at Bulacan State University, it was found that pre service teacher students have good knowledge of TPACK (Santos & Castro, 2021). In Belgium, a survey of 20 Teacher Training Institutions revealed a good correlation between the use of the SQD technique and the TPACK competencies of pre-service teachers (Tondeur et al., 2020). In the German federal state of North Rhine-Westphalia, pre-service teacher profiles are categorized as profiles with knowledge and experience, profiles with lack of experience, and profiles with no experience (Holzberger et al., 2021).

In addition, research on pre service teachers at the University of Applied Sciences Netherlands indicated a positive correlation between the pre service teacher's capacity to develop research and their teaching abilities (Van Katwijk et al., 2021). An experimental study was conducted on pre-service teachers in Germany, and the results showed that using the TPACK module improved pre-service teachers' teaching abilities (Lachner et al., 2021). In a study conducted at the school of scientific education in China, it was revealed that pre-service teachers who used flipped classrooms had higher levels of learning achievement, learning satisfaction, learning motivation, and self-efficacy (Zhao et al., 2021). However, no research has been conducted regarding the use of the PBRL model to pre-service teachers. Therefore, the PBRL model must be used to improve the teaching abilities of pre-service teachers by applying Teaching Assistance.

Based on the explanation above, the purpose of this study is to: (1) to analyze the pedagogical abilities of pre-service teachers in the digital era after implementing the Project Based Research Learning model in the Teaching Assistance program; and (2) to analyze the Professional abilities of pre-service teachers in the digital era after implementing the Project Based Research Learning model in the Assistance program Teach.

LITERATURE REVIEW

Teaching Assistance

The Teaching Assistance Program emphasizes results that demonstrate that learning through direct experience is more effective and can achieve goals more effectively. This program has several benefits, including: a) motivate students, b) assist in achieving goals, c) obtain self-satisfaction, d) give benefit for students and schools, e) create meaningful learning, f) relevant, g) balance in learning while working, h) create meaningful work, and i) connect the curriculum with the reality in schools (Dichabeng & Moalosi, 2016). Teaching Assistance is more meaningful when it is designed contextually, based on the needs of the school in which it is situated, employing service learning concepts (Krebs, 2008).

Each study program in university can choose the type of Teaching Assistance and develop a variety of activities that can provide meaningful learning experiences. These activities are converted into relevant courses and given in a variety of packages, based on the qualities and requirements of each study program. The Teaching Assistance Program is included in semester credits and provides students with the following opportunities to complete their studies: a) complete all credits (146 credits) in their own study program, or b) complete 106-126 credits in their own study program with additional: I 36 credits in other study programs at the same university (inclusive of transdisciplinary courses); or ii) 20 credits in the same study program but at a different university; or iii) 20 credits in a different study program at a different university; or iv) 20-40 credits off campus, such as in business/industry or other relevant institutions at school. The *Kurikulum Merdeka* (Independent Curriculum) is realized by converting 20 semester credits for educational students through the Teaching Assistance program coordinated by the Education and Learning Development Institute (LP3) or for non-educational students through the Village Development program coordinated by the Institute for Research and Community Service (LP2M).

The Teaching Assistance Program also requires students to conduct research for their article thesis. Pre-service teachers must be able to adapt to their placement school. Currently, schools are also implementing the *Kurikulum Merdeka* (Independent

Curriculum) with a variety of topics, including: a) Global Climate Change, b) Local Wisdom, c) *Bhinneka Tunggal Ika* (Unity in Diversity), d) Improve Your Body and Soul, e) Voice of Democracy, f) Science and Technology to build NKRI, and g) Entrepreneurship (Santoso et al., 2022).

Independent Project Based Research Learning

According to (Kaye, 2010), the Independent Project Based Research Learning Model consists of the following four stages:

1. Preparation. This stage comprised preparations for investigating and assessing problems in schools, which can be accomplished through direct observation, conducting interviews, and gathering information from a variety of book, print media, and electronic sources. The curriculum is designed and implemented by students in collaboration with experts.
2. Action. It is an activity designed to carry out the prepared program. In this stage, students have completed the Independent Project Based Research Learning activity program, and identified solutions to related problems at the school where they provide Teaching Assistance.
3. Reflections. It is an activity to reflect on what has been accomplished, evaluate the success of program implementation, and identify the challenges in conducting the Teaching Assistance program, and to document this information in a thesis article.
4. Demonstrations. It is a stage in the process of providing reports to lecturers, schools where Teaching Assistance is performed, and publishing articles that have been produced.

The activities carried out by the school in implementing Project-Based Learning are: a. Initial stage 1) The school has never implemented Project-Based Learning; 2) The concept of project-based learning is only known by the teacher; 3) The school focuses on running the project internally (not involving public). b. Developing stage 1) The school has implemented project-based learning; 2) The concept of project-based learning has been understood by some teachers; 3) The school begins to involve parties

outside the school to help with one of the project activities. c. Advanced stage 1) Project-based learning has become a school habit; 2) All teachers understand the concept of project-based learning; and 3) The school has partnered with partners outside the school so that the impact of the project may be recreated and sustained (Stefanus et al., 2022).

METHODS

Research Analysis

This study used quantitative data to conduct analysis. Quantitative data is required to determine the effectiveness of the data obtained. Data was collected by distributing questionnaires to pre-service teacher students and observing their responses after participating in teaching aid activities. The questionnaire is determined by calculating the total score (Sugiyono, 2014) using the following formula:

$$N = \frac{K}{Nk} \times 100\%$$

Description:

N = Ability Percentage Persentase kemampuan

K = Score for obtained data

Nk = Total maximum score

The obtained results are then compared to the intervals in Table 1 as follows:

Table 1. Interval Criteria

Percentage Interval N	Conversion
$85\% < N \leq 100\%$	Very high
$72\% < N \leq 85\%$	High
$58\% < N \leq 72\%$	Moderate
$4\% < N \leq 58\%$	Low
$N \leq 44\%$	Very Low

(Source: Research analysis, 2022)

Research Instrument

The research design used a mix method, a combination of quantitative and qualitative methods (Johnson & Christensen, 2013). The instrument for research included an open-ended questionnaire and interviews. Questionnaires were distributed to teachers and supervisors at schools where pre-service teacher students participated in Teaching Assistance programs. The data were analyzed using descriptive quantitative and descriptive qualitative approach. The questionnaire instrument is shown in table 2.

Table 2. Research Instrument

No	Pedagogical Ability	Professional Ability
a	Capable to master the characteristics of students	Capable to master the material or learning materials
b	Capable to master learning theory and learning principles to educate students	Capable to design various educational administrations (lesson plan, syllabus, teaching materials, learning assessment)
c	Capable to develop curriculum	Capable to transfer the knowledge to students effectively
d	Capable to conduct learning activities to educate students	Continue to learn and develop the skills and abilities with high motivation
e	Capable to develop students' potential	Capable to develop active, creative, and innovative learning
f	Capable to communicate with students	Capable to update information or issues that occur around, especially education issues

g	Capable to conduct learning assessment and evaluation	Master good digital skills such as operating a computer or other educational support technology
---	---	---

(Source: Research analysis, 2022)

The research instrument was then distributed to school teachers and field supervisors (DPL) to be completed based on their observations of pre-service teachers while implementing the Teaching Assistance program. School teachers and supervisors submit evaluations based on the questionnaire's questions. Furthermore, the data is analyzed based on research questions. The data were collected and then examined quantitatively to determine the average score for pedagogical and professional qualities. The quantitative results were then analyzed qualitatively to provide a more complete explanation of the research findings.

RESULTS AND DISCUSSION

This study aimed to determine the ability of pre-service teachers from a pedagogical and professional perspective. The following are the research results and discussion.

Pedagogical Ability of Pre-service Teacher

The result showed that pre-service teacher students had good pedagogical skills in the digital era after using the Project Based Research Learning model in Teaching Assistance program. The pedagogical abilities of pre-service teacher students are shown in the following Figure 1.

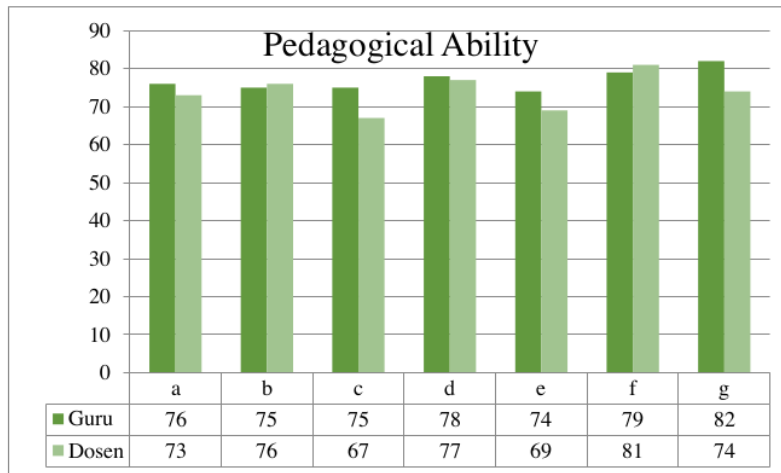


Fig 1. Pedagogical Ability of Pre-service Teacher

(Source: Research analysis, 2022)

Figure 1 showed that the pedagogical abilities of pre-service teacher students are in good results. The pedagogical ability of pre-service teachers is supported by a number of indicators evaluated by teachers and supervisors, as discussed in detail below.

Pre-service teachers receive a score of 76 from school teacher and 73 from supervisor. Pre-service teachers are skilled at understanding the qualities of their students. This is a critical skill that pre-service teachers must acquire since, by understanding the characteristics of students, they can adapt learning activities to students' capacities (Goldman & Grimbeek, 2015). Indonesia has just implemented a new curriculum known as the *Kurikulum Merdeka* (Independent Curriculum). This program is flexible enough to accommodate all student characteristics. Students can learn based on their abilities and preferred learning strategies. Therefore, in order to manage this curriculum, pre-service teachers must be able to identify student characteristics effectively. Pre-service teachers must be able to engage students in learning, develop their interests and emotions in line with each student's capacities (Brandt et al., 2021).

According to the questionnaire results, the ability of pre-service teacher students received a score of 75 from the school teacher and a score of 76 from the supervisor. This indicator indicated that pre-service teachers must be able to master learning theory

and principles. Pre-service teacher students can create learning based on theories that have been shown to be effective when they are familiar with the learning theories and principles. The implementation of these learning theories and principles can maximize student learning activities to achieve learning outcomes (Pepin et al., 2019).

The pre-service teacher receives 75 from the school teacher and 67 from the supervisor on the curriculum development indicator. Based on this score, the pre-service teacher can improve the ability to develop learning tools through courses on campus. Pre-service teachers must also be able to create learning media. This skill is required to design and develop learning materials that are contextual and relevant with the learning environment students experience. Contextual learning will be easily comprehended by students because it allows them to gain direct learning experience (Veletsianos et al., 2015).

Furthermore, the pre-service teacher received a score of 78 from the school teacher and 77 from the supervisor for indicators of capability to conduct educational learning activities. Currently, classroom learning must be capable of preparing students to face global problems and competition. However, learning must also prepare students to develop positive character. Therefore, pre-service teachers must be able to provide students with activities that will help them become good students with strong character who can compete globally (Goldman & Grimbeek, 2015; Rokhman et al., 2014).

The next indicator received 74 points from the school teacher and 69 points from the supervisor. This assessment examines the ability of pre-service teachers to develop the potential of their students. According to the supervisor, the pre-service teacher has a good ability. Therefore, pre-service teachers must improve their abilities to develop student potential. Pre-service teachers must be prepared to improve their potential by adjusting their learning style to students' abilities (Holzberger et al., 2021).

The next indicator is that the pre-service teacher is able to communicate well with students. The teacher given a score of 79, but the supervisor given a score of 81. Therefore, this ability in communication receives a good category. The teacher must use language that is easily comprehended by students in order to effectively deliver the

subject. Teachers must interpret abstract concepts into concrete lessons so that students can understand it (Schmid et al., 2021).

A pre-service educator must be able to assess student abilities in order to perform assessments. Based on the results of the assessment in this study, the teacher gave a score of 82 and the supervisor gave a score of 74. Pre-service teachers must be able to design and create instruments for evaluating student learning. The learning assessment could evaluate students' cognitive, affective, and psychomotor abilities (Van Katwijk et al., 2021). This ability assessment is essential for determining the level to which students understand after receiving instruction from the teacher. In addition to pedagogical skills, pre-service teachers must be able to connect learning factors, including personal, professional, structural, and social connections (Brandt et al., 2021).

Professional Ability of Pre-service Teacher

The result showed that pre-service teacher students had good professional skills in the digital era after using the Project Based Research Learning model in Teaching Assistance program. The pedagogical abilities of pre-service teacher students are shown in the following Figure 2.

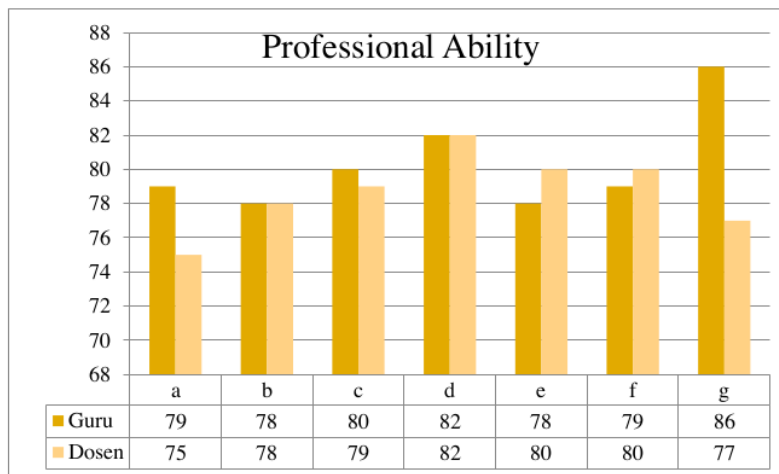


Fig 2. Professional Ability of Pre-service Teacher

(Source: Research analysis, 2022)

28
Based on Figure 2, it can be seen that pre-service teacher students are able to master the learning material. This indicator received a score of 79 from the school teacher and 75 from the supervisor. The ability to master material is the most important factor in teaching students (Lachner et al., 2021; Schmid et al., 2021). If a teacher has the ability to master learning materials or scientific subject, they have the capability to transfer knowledge. Teachers must have TPACK skills in order to educate in the 21st century, particularly content knowledge abilities. A study of 173 pre-service teachers at a Swiss university revealed that content knowledge was rated higher than other abilities (Schmid et al., 2021)

In this research, the ability to develop learning tools is in the good category. The score given by the school teacher is 78, similar to the score received by the supervisor. The ability to design learning tools is required to integrate technology, material content, and teacher pedagogical abilities (Tondeur et al., 2020). Based on study conducted with Dutch primary school students, it was determined that the learning device scored low on TPACK regardless its practical application (Janssen et al., 2019). Pre-service teachers must therefore have the ability to integrate technology with pedagogy and curriculum.

The next indicator to be evaluated is the capability for knowledge transfer to students. School Teacher is given a score of 80, whereas supervisor is given a score of 79. This competence is required for pre-service teachers to give students with a contextual knowledge of the topic. When students comprehend the material offered by the teacher in a realistic context, their learning outcomes receive better scores (Van Katwijk et al., 2021).

Improving the quality of learning requires the ability to motivate students. On this indicator, the pre-service teacher receives the same score of 82 from the school teacher and supervisor. In addition to motivation, students' efficacy abilities must be developed in order to increase their learning satisfaction, which has an effect on both cognitive and emotional skills (Zhao et al., 2021). Emotional stability can be enhanced by learning that emphasizes student efficacy and satisfaction. Good

emotional regulation can ultimately assist students in achieving excellent learning outcomes.

Pre-service teachers are able to develop learning that is active, creative, and innovative in a good category. The school teacher is given a score of 78 on the assessment, while the supervisor is given a score of 80. In this category, the ability to use technology and information for learning can promote creativity (Santos & Castro, 2021). Moreover, learning that promotes inquiry-based learning might enhance students' creative capacities (Van Katwijk et al., 2021). Future pre-service teachers must be capable of encouraging active learning and conducting independent research (Golightly, 2022).

The next criterion for evaluation is the capacity to keep current with the latest information or topics, particularly education-related issues. This indicator is categorized as "good" based on the teacher's evaluation of 79 and the supervisor's evaluation of 80. This capacity is supported by technological and informational literacy. Pre-service teachers are excellent at utilizing a variety of programs and data sources, allowing them to get a large amount of information that can be chosen appropriately (Golightly, 2022). This is further supported by school teachers' scores of 86 and supervisors' scores of 77. Computer operation and the ability to access current information are interdependent (Janssen et al., 2019). Therefore, its integrated use can enhance the quality of learning.

Comparative Description from Supervisors in the Teaching Assistance program

Based on a comparison of supervisor and school teacher, a further descriptive analysis evaluation is shown in the following Figure 3.

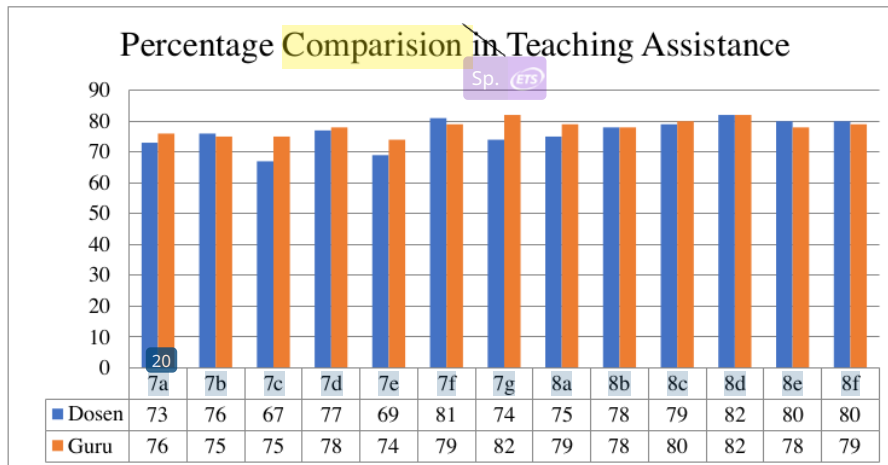


Fig 3. Comparison of Evaluation from School Teachers and Supervisors

Figure 3 compared the pedagogical and professional qualities of pre-service teachers from the perspectives of teachers and supervisors. There are differences between questions 7c and 7e. In response to question 7c, the teacher places developing curriculum in the good category, whereas the supervisor places it in the moderate category. In contrast, in response to question 7e, the teacher places the ability to develop students' potential in the good category, whereas the supervisor places it in the very good category.

The result difference in this evaluation is an interesting topic for further discussion. In response to question 7c, the teacher given a score of 67, indicating that the ability of pre-service teacher in developing curriculum decreased to moderate category. Based on these findings, it can be concluded that pre-service teachers feel to struggle in developing curriculum. Supposedly, pre-service teachers are equipped to build a deeper conceptual understanding of the curriculum, including curriculum design (Janssen et al., 2019; Pepin et al., 2019).

In question 7e, there are also differences in evaluation between teachers and supervisors. Pre-service teachers get evaluations in the moderate category from supervisors while teachers get good categories. From the perspective of supervisors, pre-service teachers are assumed to struggle with developing students' potential. The lack of experience in managing and developing student potential among preservice teachers is one reason for answering this hypothesis. This lack of experience is also

related to the age gap between students and future teachers (Holzberger et al., 2021). The pre-service teacher's ability to understand the character and psychology of students, including the ability to self-reflect after teaching, is limited (Goldman & Grimbeek, 2015).

A comparison between the teacher's opinion and the supervisor's opinion of the teacher's pre-service professional abilities found that they are in the good category, with the exception of two questions. However, courses relating to pedagogical ability must be complemented with training and preparation for pre-service teachers before internships.

PBRL: individual or group project

Only 2 of the 32 responders chose for individual projects, while the remaining 30 chose group projects. Group projects provide advantages such as 1) emphasizing the collaborative aspect based on gotong royong (cooperation) values, 2) sharing and finding solutions to difficulties experienced at school, 3) requiring a team to speed up project completion, and 4) work feels easier. Based on the result analysis, it can be concluded that pre-service teachers are already familiar with the benefits and objectives of implementing projects in groups. Cooperation is essential for students to face real-world situations when they become teachers (Kaye, 2010). Teachers that can collaborate with leaders and other teachers are competent and capable of adjusting to different developments (Rokhman et al., 2014). Competent teachers may share their information effectively and are liked by their students (Zhao et al., 2021).

The two respondents who decided to complete the project individually did so for the following reasons: (1) they wanted to learn more about the cognitive abilities of each student; (2) to finish optimally and because it is still a pandemic; (3) to finish optimally given that it is still a pandemic; (4) they lacked the initiative to create a project. At times, a teacher must also be familiar with the methods and strategies used by students with auditory, visual, spatial, or kinesthetic learning styles (Anggraeni et al., 2022). There are some students with intrapersonal intelligence along with interpersonal intelligence. Pre-service teachers understand the conditions of variations

in classes as service to students (Dichabeng & Moalosi, 2016). Furthermore, pre-service teachers who independently complete this project are treated in the same manner. Some of these explanations demonstrate that intrapersonal intelligence contributes to the growth of human cognitive abilities (Sadiku & Musa, 2021)

The reason for the learning design is not suitable

The design created by the pre-service teacher was considered suitable by 24 of the 32 respondents, while it was considered unsuitable by 8 respondents for the following reasons: (1) time constraints; (2) because projects lead to non-academic activities, academic activities follow supervisors' instructions; (3) the teacher has not given the project as intended, and the pre-service teacher is not used to working on projects; (4) based on teacher information, pre-service teachers continue to use conventional methods of teaching. This is possibly due to lack of planning and leadership; (5) the project requires funding, but there is no allocation for project activities, and school facilities, such as a social laboratory, are not yet funded. The readiness of school stakeholders who have not been identified for the use of project findings; (6) the implementation of learning is restricted by limitations. Pre-service teacher has not taken several pedagogical courses, resulting in a lack of mastery of fundamental learning abilities; (7) due to time restrictions, project learning is conducted offline and online, resulting in inefficient use of time.

Problems found in implementing project-based learning

The introduction of project-based learning for students in the Teaching Assistance program faces various challenges. The pre-service teacher described the limitations and difficulties they faced while implementing the Teaching Assistance program. Following are some of the challenges experienced:

1. Time management and the quantity of additional work assigned by the school to Teaching Assistance program students outside of the project are the most common obstacles.

2. During the implementation of the Teaching Assistance program, schools continue to use blended learning; therefore, the pre-service teacher must develop learning to ensure the success of the project.
3. They are not used to collaborating and collecting data in the field. This learning requires more time than typical learning. Monitoring student performance, particularly the fundamental learning processes, is time-consuming.
4. ¹ The concept of project-based learning is not yet fully understood. In addition to being passive, students lack the initiative to ask questions and engage in in-depth conversations.
5. All of the pre-service teacher's projects are currently in the planning stage.
6. Due to economic limits and lack of school facilities, it was impossible to implement the project (several groups of pre-service teachers were guided to design an online library and pilot social laboratory).
7. Online learning is more popular than offline learning, making coordination challenging.
8. The Teaching Assistance Program has been tasked with instructing 10th grade geography topics utilizing the prototype curriculum or an independent curriculum. Developing learning objectives, learning tools, and specific curriculum modules was ⁴⁹ a challenge for the pre-service teacher. Even though ²⁷ the old curriculum was used as a learning resource for the first five semesters of pre-service teacher education, the old curriculum was still used as a resource.
9. Lack of specificity in comprehending the condition of the students
10. Lack a complete comprehension of the circumstances of students
11. The various personalities of pre-service teachers and the pandemic's support make them free and even lazy.
12. Pre-service teachers must meet for longer periods of time in order to complete an assignment
13. Lack of mentorship time on the part of school teachers
14. Reduced capacity to monitor pre-service teachers conducting research outside of school

Typically, the lack of experience of students is responsible for a number of the mentioned problems above. The acquired knowledge is still of a theoretical nature, which is significantly different from field experience. Therefore, students are generally surprised to discover the realities on the field. Therefore, there is a requirement for the campus to provide sufficient information regarding school situation.

CONCLUSION

After implementing the Project-Based Research Learning model in the Teaching Assistance program, the results of the study indicate that pre-service teachers have good pedagogical and professional abilities for the digital age. The vast majority of pre-service teachers prefer group work to individual projects. Group projects provide advantages, including emphasizing the collaborative aspect based on gotong royong (cooperation) values; sharing and finding solutions to difficulties experienced at school; requiring a team to speed up project completion; and work feels easier. It is expected that students who complete assignments independently will have a greater capacity to recognize the multiple intelligences of other students.

REKOMENDATION

It is important to improve the competence of pre-service teachers by increasing curriculum understanding and emotional understanding of students, including the development of course based on TPACK. Furthermore, pre-service teachers must be provided with research skills so they may easily apply them when participating in Teaching Assistance programs and after they become teachers. In addition, universities must develop rules for allocating resources to improve the quality of technical gadgets used in their educational work. Researchers also recommend universities to collaborate with partner schools on a regular basis. This research is limited to the use of the project-based research learning model and must be evaluated on other models using the STEAM approach.

REFERENCES

- Anggraeni, D. A., Arsyantie, R., Wijayanti, R., Waskito, W., & Putro, P. (2022). Strategi gaya mengajar guru asistensi mengajar berbasis perspektif konstruksi realitas sosial di SMA Negeri 9 Malang. *Jurnal Integrasi Dan Harmoni Inovatif Ilmu-Ilmu Sosial (JIHIS)*, 2(7), Article 7.
- Anwar, R. N. (2021). Pelaksanaan Kampus Mengajar Angkatan 1 Program Merdeka Belajar Kampus Merdeka di Sekolah Dasar. *Jurnal Pendidikan Dan Kewirausahaan*, 9(1), Article 1. <https://doi.org/10.47668/pkwu.v9i1.221>
- Brandt, J.-O., Barth, M., Merritt, E., & Hale, A. (2021). A matter of connection: The 4 Cs of learning in pre-service teacher education for sustainability. *Journal of Cleaner Production*, 279, 123749. <https://doi.org/10.1016/j.jclepro.2020.123749>
- Dichabeng, P., & Moalosi, R. (2016). Acquisition of graduate attributes through the service learning pedagogy: The case of the University of Botswana. *Global Journal of Engineering Education*, 18(2), 136–141.
- Goldman, J. D. G., & Grimbeek, P. (2015). Pre-service primary school teachers' self-reflective competencies in their own teaching. *European Journal of Psychology of Education*, 30(2), 189–207. <https://doi.org/10.1007/s10212-014-0231-8>
- Golightly, A. (2022). South African Geography Teachers' Involvement in Self-Directed Professional Development Activities in Geography Education. In E. Artvinli, I. Gryl, J. Lee, & J. T. Mitchell (Eds.), *Geography Teacher Education and Professionalization* (pp. 305–322). Springer International Publishing. https://doi.org/10.1007/978-3-031-04891-3_20
- Hikmah, B. N., Alwi, M., & Fadilah, D. (2022). Analisis Pelaksanaan Kampus Mengajar Dalam Mendukung Pengembangan Karakter Cinta Lingkungan Melalui Hidroponik Di SDN 04 Lendang Nangka. *Jurnal Pendidikan Dan Konseling (JPDK)*, 4(4), Article 4. <https://doi.org/10.31004/jpdk.v4i4.5954>
- Holzberger, D., Maurer, C., Kunina-Habenicht, O., & Kunter, M. (2021). Ready to teach? A profile analysis of cognitive and motivational-affective teacher characteristics at the end of pre-service teacher education and the long-term effects on occupational well-being. *Teaching and Teacher Education*, 100, 103285. <https://doi.org/10.1016/j.tate.2021.103285>
- Janssen, N., Knoef, M., & Lazonder, A. W. (2019). Technological and pedagogical support for pre-service teachers' lesson planning. *Technology, Pedagogy and Education*, 28(1), 115–128. <https://doi.org/10.1080/1475939X.2019.1569554>
- Johnson, R. B., & Christensen, L. B. (2013). *Educational Research: Quantitative, Qualitative, and Mixed Approaches* (Fifth edition). SAGE Publications, Inc.

- Kaye, C. B. (2010). *The Complete Guide to Service Learning: Proven, Practical Ways to Engage Students in Civic Responsibility, Academic Curriculum, & Social Action. Revised & Updated Second Edition*. Free Spirit Publishing. <http://www.freespirit.com>
- Kazun, A. P., & Pastukhova, L. S. (2018). Practices Of Applying Project-Based Learning Method: Experience Of Different Countries. *The Education and Science Journal*, 20(2), 32–59. <https://doi.org/10.17853/1994-5639-2018-2-32-59>
- Krebs, M. M. (2008). Service-Learning: What Motivates K-12 Teachers to initiate Service-Learning Projects? *Curriculum and Teaching Dialogue*, 10(1), 135–149.
- Lachner, A., Fabian, A., Franke, U., Preiß, J., Jacob, L., Führer, C., Küchler, U., Paravicini, W., Randler, C., & Thomas, P. (2021). Fostering pre-service teachers' technological pedagogical content knowledge (TPACK): A quasi-experimental field study. *Computers & Education*, 174, 104304. <https://doi.org/10.1016/j.compedu.2021.104304>
- Leonova, E. A., Borovskaja, E. V., & Dmitrieva, O. A. (2022). Pedagogical hackathon as a method of joint project-based training of future teachers and IT students. *Informatics and Education*. *Informatics and Education*, 37(1), 16–26. <https://doi.org/10.32517/0234-0453-2022-37-1-16-26>
- Muthi'ah, A., Izzatia, D. T., Rahmawati, L., Rizqiani, N. S., Almayardila, S., Wardah, S. C., & Mahtari, S. (2021). Asistensi Mengajar di SMP Negeri 8 Tamban. *Seminar Nasional Pendidikan Fisika*, 9.
- Pepin, B., Artigue, M., Gitirana, V., Miyakawa, T., Ruthven, K., & Xu, B. (2019). Mathematics Teachers as Curriculum Designers: An International Perspective to Develop a Deeper Understanding of the Concept. In L. Trouche, G. Gueudet, & B. Pepin (Eds.), *The "Resource" Approach to Mathematics Education* (pp. 121–143). Springer International Publishing. https://doi.org/10.1007/978-3-030-20393-1_6
- Restiningtyas, L. N., Sayekti, T., & Maryani, K. (2022). Effectiveness Asistensi Mengajar In Improving Quality Of Learning Through The MBKM Program. *ThufuLA: Jurnal Inovasi Pendidikan Guru Raudhatul Athfal*, 10(1), Article 1. <https://doi.org/10.21043/thufula.v10i1.13085>
- Rokhman, F., Hum, M., Syaifudin, A., & Yuliati. (2014). Character Education for Golden Generation 2045 (National Character Building for Indonesian Golden Years). *Procedia - Social and Behavioral Sciences*, 141, 1161–1165. <https://doi.org/10.1016/j.sbspro.2014.05.197>
- Sadiku, M. N. O., & Musa, S. M. (2021). Intrapersonal Intelligence. In M. N. O. Sadiku & S. M. Musa (Eds.), *A Primer on Multiple Intelligences* (pp. 95–106). Springer International Publishing. https://doi.org/10.1007/978-3-030-77584-1_8

- Santos, J. M., & Castro, R. D. R. (2021). Technological Pedagogical content knowledge (TPACK) in action: Application of learning in the classroom by pre-service teachers (PST). *Social Sciences & Humanities Open*, 3(1), 100110. <https://doi.org/10.1016/j.ssaho.2021.100110>
- Santoso, H. D., Sari, D. P., Fadilla, A. D., Utami, F. F., Rahayu, F. P., Sari, D. C., & Sya'bani, N. P. (2022). Asistensi Mengajar, Adaptasi Teknologi, Dan Administrasi Dalam Program Kampus Mengajar. *Jurnal Pengabdian Dharma Laksana*, 4(2), Article 2. <https://doi.org/10.32493/j.pdl.v4i2.18220>
- Saputra, A. H., & Julianti Kasih, S. (2022). Asistensi Mengajar Digital Marketing di SMA Trinitas Bandung. *Jurnal STRATEGI - Jurnal Maranatha*, 4(1), Article 1.
- Schmid, M., Brianza, E., & Petko, D. (2021). Self-reported technological pedagogical content knowledge (TPACK) of pre-service teachers in relation to digital technology use in lesson plans. *Computers in Human Behavior*, 115, 106586. <https://doi.org/10.1016/j.chb.2020.106586>
- Stefanus, P., Panatra, V., Prasetya, M., & Tiatri, S. (2022). Gambaran MBKM Asistensi Mengajar di SMP X Kota Tangerang. *Seri Seminar Nasional Ke-IV Universitas Tarumanegara*, 481–488.
- Sugiyono. (2014). *Metode Penelitian Kuantitatif Kualitatif dan R&D [Qualitative and Quantitative Research Methods R & D]*. Alfabeta.
- Sumarmi. (2012). *Model—Model Pembelajaran Geografi*. Aditya Media Publishing.
- Sumarmi, S., Bachri, S., Irawan, L., Aliman, M., & Ahmad, W. W. (2021). Project-Based Research Learning (PBRL) Integrated With E-Learning in Projects Completion. *International Journal of Emerging Technologies in Learning (iJET)*, 16(7), 16–31.
- Sviridova, T. B. (2023). Implementing Project-Based Learning: The Experience of a Military Medical Educational Organization. *City Healthcare*, 4(4), 86–97. <https://doi.org/10.47619/2713-2617.zm.2023.v.4i4;86-97>
- Taufiqurrahman, M., Setiawan, D. B., Fitriah, R. A., & Hidayat, D. (2022). Penggunaan Model Cipp (Context, Input, Process, dan Product) dalam Evaluasi Program Asistensi Mengajar di TK Miftakhul Jannah. *MATHEdunesa*, 11(3), 677–683. <https://doi.org/10.26740/mathedunesa.v11n3.p677-683>
- Tondeur, J., Scherer, R., Siddiq, F., & Baran, E. (2020). Enhancing pre-service teachers' technological pedagogical content knowledge (TPACK): A mixed-method study. *Educational Technology Research and Development*, 68(1), 319–343. <https://doi.org/10.1007/s11423-019-09692-1>

Van Katwijk, L., Jansen, E., & Van Veen, K. (2021). Pre-service teacher research: A way to future-proof teachers? *European Journal of Teacher Education*, 0(0), 1–21.

<https://doi.org/10.1080/02619768.2021.1928070>

Veletsianos, G., Collier, A., & Schneider, E. (2015). Digging deeper into learners' experiences in MOOCs: Participation in social networks outside of MOOCs, notetaking and contexts surrounding content consumption. *British Journal of Educational Technology*, 46(3), 570–587. <https://doi.org/10.1111/bjet.12297>

Wahyuni, L., & Riyanto, S. (2022). Model Sekolah Adiwiyata Melalui Program Asistensi Mengajar Berbasis Pembelajaran Experiential. *Jurnal Paedagogy*, 9(4), 616.

<https://doi.org/10.33394/jp.v9i4.5673>

Zhao, L., Liu, X., & Su, Y.-S. (2021). The Differentiate Effect of Self-Efficacy, Motivation, and Satisfaction on Pre-Service Teacher Students' Learning Achievement in a Flipped Classroom: A Case of a Modern Educational Technology Course. *Sustainability*, 13(5), Article 5. <https://doi.org/10.3390/su13052888>

Information about the authors:

Sumarmi – Lecturer, Researcher, Department of Geography, Universitas Negeri Malang; ORCID 0000-0002-3102-0376; Malang, Indonesia; Email: sumarmi.fis@um.ac.id

Alfyananda Kurnia Putra – Lecturer, Researcher, Department of Geography, Universitas Negeri Malang; ORCID 0000-0003-2016-4144; Malang, Indonesia; Email: alfyananda.fis@um.ac.id

Adellia Wardatus Sholeha – Lecturer, Researcher, Department of Geography, Universitas Negeri Malang; ORCID 0000-0001-9545-4600; Malang, Indonesia; Email: adellia.wardatus.2107218@students.um.ac.id

Pratidina Izza Rahmasyah – Researcher, Department of Geography, Universitas Negeri Malang; ORCID 0009-0009-5462-8104; Malang, Indonesia; Email: pratidinaizza@gmail.com

Muhammad Aliman – Researcher, Department of Geography, Universitas Negeri Malang; ORCID 0000-0001-9918-3991; Malang, Indonesia; Email: alviageo@gmail.com

Neni Wahyuningtyas – Lecturer, Researcher, Department of Social Science, Universitas Negeri Malang; ORCID 0000-0002-4217-2789; Malang, Indonesia; Email: neni.wahyuningtyas.fis@um.ac.id

Wan Ibrahim Wan Ahmad – Lecturer, Faculty of Health Sciences, Asia Metropolitan University; ORCID 0000-0001-9765-3822; Johor, Malaysia; Email: wanibrahim@amu.edu.my

Contribution of the authors:

Sumarmi – writing original draft, designed and performed the experiments

A. K. Putra – writing manuscript, performed analysis

A. W. Sholeha - writing manuscript, performed analysis

P. I. Rahmasyah - performed the experiments

M. Aliman - writing manuscript

N. Wahyuningtyas - supervised the findings

W. I. W. Ahmad - supervised the findings

Conflict of interest statement. The authors declare that there is no intention or conflict of interest toward individuals or groups.

[APA 7} Main Document.docx

ORIGINALITY REPORT

15%

SIMILARITY INDEX

11%

INTERNET SOURCES

10%

PUBLICATIONS

%

STUDENT PAPERS

PRIMARY SOURCES

1	journal.wima.ac.id Internet Source	1%
2	files.eric.ed.gov Internet Source	1%
3	researchonline.ljmu.ac.uk Internet Source	1%
4	repository.usd.ac.id Internet Source	1%
5	www.iier.org.au Internet Source	<1%
6	Ann Sherman, Leo MacDonald. "Pre-service Teachers' Experiences with a Science Education Module", Journal of Science Teacher Education, 2017 Publication	<1%
7	A Z Ensiyawatin, Sumarmi, I K Astina. "Development of Supplementary Contextual Teaching Materials Based on Ecotourism and Natural Resource Management", IOP	<1%

Conference Series: Earth and Environmental Science, 2021

Publication

8	Bismark Mensah. "Pre-Service Geography Teachers' Pedagogical Competence in Their Minor Subjects: Implications for Teacher Education", Research Square Platform LLC, 2022 Publication	<1 %
9	download.atlantis-press.com Internet Source	<1 %
10	www.mcser.org Internet Source	<1 %
11	Pascal Hohaus, Jan-Friso Heeren. "The Future of Teacher Education", Brill, 2023 Publication	<1 %
12	Tzu-Chi Yang, Jian-Hua Chen. "Pre-service teachers' perceptions and intentions regarding the use of chatbots through statistical and lag sequential analysis", Computers and Education: Artificial Intelligence, 2023 Publication	<1 %
13	link.springer.com Internet Source	<1 %
14	www.mdpi.com Internet Source	<1 %

15

Ivan Takáč. "Employability of University Graduates in Slovak Labour Market", International Scientific Days 2022: Efficient Sustainable and Resilient Agriculture and Food Systems – the Interface of Science Politics and Practice. Proceedings of reviewed articles of international scientific conference, 2022

Publication

<1 %

16

Li Zhao, Xiaohong Liu, Yu-Sheng Su. "The Differentiate Effect of Self-Efficacy, Motivation, and Satisfaction on Pre-Service Teacher Students' Learning Achievement in a Flipped Classroom: A Case of a Modern Educational Technology Course", Sustainability, 2021

Publication

<1 %

17

Lidewij Van Katwijk, Ellen Jansen, Klaas Van Veen. "Pre-service teacher research: a way to future-proof teachers?", European Journal of Teacher Education, 2021

Publication

<1 %

18

Tuğba Bahçekapılı Özdemir, Hasan Karal. "chapter 5 Preparing Future Teachers for Technology Integration", IGI Global, 2021

Publication

<1 %

19

Dye, Brigham R.. "Reliability of Pre-Service Teachers' Coding of Teaching Videos Using a

<1 %

Video-Analysis Tool.", Brigham Young University, 2020

Publication

20

krishikosh.egranth.ac.in

Internet Source

<1 %

21

Riska Tama Wahyuni, M Nurul Ikhsan Saleh. "UNIVERSITY STUDENTS' EXPERIENCES ON READINESS AND UNDERSTANDING IN IMPLEMENTING THE PROGRAM OF KAMPUS MENGAJAR", Edukasi: Jurnal Pendidikan, 2023

Publication

<1 %

22

pasca.jurnalikhac.ac.id

Internet Source

<1 %

23

zombiedoc.com

Internet Source

<1 %

24

dergipark.org.tr

Internet Source

<1 %

25

Syafira Syafira, Febrina Dafit. "THE ROLE OF TEACHERS IN INCREASING THE READING INTEREST OF ELEMENTARY SCHOOL STUDENTS", PrimaryEdu : Journal of Primary Education, 2022

Publication

<1 %

26

www.e-iji.net

Internet Source

<1 %

27

Doris Holzberger, Christina Maurer, Olga Kunina-Habenicht, Mareike Kunter. "Ready to teach? A profile analysis of cognitive and motivational-affective teacher characteristics at the end of pre-service teacher education and the long-term effects on occupational well-being", Teaching and Teacher Education, 2021

Publication

<1 %

28

Elni Yakub, Tri Umari, Munawir Munawir. "Adjustment of college students and high school students who like watching Korean dramas", Jurnal Konseling dan Pendidikan, 2023

Publication

<1 %

29

Hepsi Nindiasari, IndhiraAsih ViviYandari, Etika Khaerunnisa, Aan Subhan Pamungkas. "The Skill in Designing Explorative Learning Tools Of Mathematics Pre-Service Teachers Through Explorative Learning Based On Metacognitive Scaffolding", SHS Web of Conferences, 2018

Publication

<1 %

30

Sumarmi Sumarmi, Syamsul Bachri, Listyo Yudha Irawan, Muhammad Aliman, Wan Ibrahim Wan Ahmad. "Project-Based Research Learning (PBRL) Integrated With E-Learning in Projects Completion",

<1 %

International Journal of Emerging Technologies in Learning (ijET), 2021

Publication

31

Yogi Dwi Satrio, Rizza Megasari, Febry Wijayanti, Sri Handayani. "Learning Through Vlogging: Understanding, Critiquing, and Providing Solutions", KnE Social Sciences, 2024

Publication

<1 %

32

Zakiyatul Nisa, Almas Sharfina 'Alaniah, Dawi Farah Adibah, Rokhmatul Khoiro Amin Putri et al. "Differentiated Instruction to Improve Learning Effectiveness in A Disruptive Era", Jurnal Basicedu, 2023

Publication

<1 %

33

assets.researchsquare.com

Internet Source

<1 %

34

ejournal.upi.edu

Internet Source

<1 %

35

eprints.uad.ac.id

Internet Source

<1 %

36

www.researchgate.net

Internet Source

<1 %

37

Moh. Mahfud Effendi, Alfiani Athma Putri Rosyadi, Shofy Maulidya Fatihah, Heri Purnomo, Abdul Halim Abdullah. "Web-Based Window Shopping: A Learning Model in High

<1 %

School's Mathematics Curriculum", TEM Journal, 2024

Publication

38

Widya Syafitri, M. Zaim, Havid Ardi.
"Designing TPACK-English Textbook for
Economic Faculty Students", World Journal of
English Language, 2024

Publication

<1 %

39

brill.com
Internet Source

<1 %

40

digilib.iainptk.ac.id
Internet Source

<1 %

41

e-journal.undikma.ac.id
Internet Source

<1 %

42

ijpes.com
Internet Source

<1 %

43

journal.unimar-amni.ac.id
Internet Source

<1 %

44

journal.uny.ac.id
Internet Source

<1 %

45

jurnal.serambimekkah.ac.id
Internet Source

<1 %

46

olj.onlinelearningconsortium.org
Internet Source

<1 %

47

revistas.uned.es
Internet Source

<1 %

48

www.tandfonline.com

Internet Source

<1 %

49

Abdulghani Muthanna, Ahmed Alduais, Bakil Ghundol. "Chapter 24 Challenges Facing Teacher Education in Yemen: Toward Better Quality", Springer Science and Business Media LLC, 2022

Publication

<1 %

50

C. A. Hardy. "Problems in the Supervision of the Practicum", European Physical Education Review, 10/01/1995

Publication

<1 %

51

George Theoharis, Julie Causton-Theoharis. "Preparing pre-service teachers for inclusive classrooms: revising lesson-planning expectations", International Journal of Inclusive Education, 2011

Publication

<1 %

52

Hanoi National University of Education

Publication

<1 %

53

Marina U. Bers. "Teaching Partnerships: Early Childhood and Engineering Students Teaching Math and Science Through Robotics", Journal of Science Education and Technology, 03/2005

Publication

<1 %

54

Sumarmi Sumarmi, Muhammad Aliman, Tuti Mutia. "The effect of digital eco-learning in student worksheet flipbook to environmental project literacy and pedagogic competency", *Journal of Technology and Science Education*, 2021

Publication

<1 %

55

Bayu Wijayanto, Sumarmi Sumarmi, Dwiyono Hari Utomo, Budi Handoyo, Muhammad Aliman. "Problem-based learning using e-module: Does it effect on student's high order thinking and learning interest in studying geography?", *Journal of Technology and Science Education*, 2023

Publication

<1 %

56

Xiaohong Liu, Jianjun Gu, Jinlei Xu. "The impact of the design thinking model on pre-service teachers' creativity self-efficacy, inventive problem-solving skills, and technology-related motivation", *International Journal of Technology and Design Education*, 2023

Publication

<1 %

57

jurnal.ar-raniry.ac.id

Internet Source

<1 %

[APA 7} Main Document.docx

PAGE 1



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Run-on This sentence may be a run-on sentence.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Article Error You may need to use an article before this word. Consider using the article **the**.



Article Error You may need to use an article before this word.



Article Error You may need to use an article before this word. Consider using the article **the**.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



P/V You have used the passive voice in this sentence. You may want to revise it using the active voice.



Article Error You may need to use an article before this word.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Article Error You may need to remove this article.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Article Error You may need to use an article before this word. Consider using the article **the**.

PAGE 3



Article Error You may need to use an article before this word.



Article Error You may need to use an article before this word. Consider using the article **the**.



Article Error You may need to remove this article.



Article Error You may need to use an article before this word. Consider using the article **a**.

PAGE 4

PAGE 5



Article Error You may need to use an article before this word.



Missing ", " Review the rules for using punctuation marks.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Hyph. Review the rules for using punctuation marks.



Article Error You may need to remove this article.



P/V You have used the passive voice in this sentence. You may want to revise it using the active voice.

PAGE 6



P/V You have used the passive voice in this sentence. You may want to revise it using the active voice.



Article Error You may need to use an article before this word.



P/V You have used the passive voice in this sentence. You may want to revise it using the active voice.



P/V You have used the passive voice in this sentence. You may want to revise it using the active voice.

PAGE 7



P/V You have used the passive voice in this sentence. You may want to revise it using the active voice.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



P/V You have used the passive voice in this sentence. You may want to revise it using the active voice.

PAGE 8



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Article Error You may need to use an article before this word.



Article Error You may need to use an article before this word.

PAGE 9



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Article Error You may need to use an article before this word.

PAGE 10



Article Error You may need to use an article before this word.



P/V You have used the passive voice in this sentence. You may want to revise it using the active voice.



Article Error You may need to use an article before this word.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

PAGE 11



Prep. You may be using the wrong preposition.

PAGE 12



P/V You have used the passive voice in this sentence. You may want to revise it using the active voice.



Article Error You may need to use an article before this word.



Article Error You may need to use an article before this word.

PAGE 13



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Article Error You may need to use an article before this word.

PAGE 14



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Article Error You may need to use an article before this word.



P/V You have used the passive voice in this sentence. You may want to revise it using the active voice.



P/V You have used the passive voice in this sentence. You may want to revise it using the active voice.



Confused You have used either an imprecise word or an incorrect word.



Article Error You may need to use an article before this word.

PAGE 15



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Article Error You may need to use an article before this word.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Article Error You may need to use an article before this word.



Article Error You may need to use an article before this word.



Article Error You may need to use an article before this word. Consider using the article **the**.



Garbled This sentence contains several grammatical or spelling errors that make your meaning unclear. Proofread the sentence to identify and fix the mistakes.

PAGE 16



Prep. You may be using the wrong preposition.



Article Error You may need to remove this article.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Article Error You may need to use an article before this word. Consider using the article **the**.

PAGE 17



P/V You have used the passive voice in this sentence. You may want to revise it using the active voice.

PAGE 18



Article Error You may need to remove this article.



Prep. You may be using the wrong preposition.



Article Error You may need to use an article before this word. Consider using the article **the**.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Article Error You may need to use an article before this word. Consider using the article **the**.



Wrong Form You may have used the wrong form of this word.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.



Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.