www.bircu-journal.com/index.php/birci
Budapest International Research and Critics Institute-Journal (BIRCI-Journal)
Humanities and Social Sciences
ISSN 2615-3076 Online)
ISSN 2615-1715 (Print)
Budapest Institute

Student Perception of Project Based Learning (PjBL) Learning Model by Developing Creative Thinking Skills in Vocational High Schools

Mutia Liana[1], Rambat Nur Sasongko[2], Muhammad Kristiawan[3], Reny Dwi Riastuti[4]
[1]*SMKN 3 Lubuklinggau*
[2,3]*Doctor of Education, Universitas Bengkulu*
[4]*Biology Education, Universitas PGRI Silampari Lubuklinggau*
mutias3unib2021@gmail.com

Abstract

Vocational High School students are students who are required to independently produce innovative products, so they are ready to jump in the world of work. The product of a good project is a product produced from students who have creative thinking skills, so the purpose of research is to measure students' perception of the Project ased Learning (PjBL) learning model by developing creative thinking skills. The method used in this study is qualitative descriptive with longitudinal survey case studies. The subject of this study is a student of SMK N 3 Lubuklinggau City on the subject of Broad-Based Network Technology. Data collection techniques use questionnaire sheets and student perception interview sheets. Data analysis on questionnaires using descriptive analysis and interview results are analyzed by reducing questions and answers that are in accordance with the focus of the research. The results showed that students' perception of the Project ased Learning (PjBL) learning model by developing creative thinking skills got a score of 81% with a good category.

Keywords
Perception of SMKN students; PjBL; creative thinking

I. Introduction

Education is a process of learning students to acquire and increase knowledge in school, namely in the form of formal education. Education is a continuous and creative process. In accordance with Law No. 20 of 2003 concerning National Education Article 3, namely "National education serves to develop the ability and form of character and civilization of the nation with dignity in order to educate the life of the nation, aiming to develop the potential of students to become human beings of faith and piety to God Almighty, noble character, healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens". According to Ismail, Pawero, and Umar (2021) educational planning is something that is necessary in developing education at the school level, as well as a source of policy reference at the national education policy level.

Education is also often interpreted as a human effort to guide the immature to the level of maturity, in the sense of being conscious and able to bear responsibility for all his actions and can stand on his own feet. Based on the description above, education is a conscious and planned effort to develop the potential that exists in students (students), with the aim of becoming an aspiring human being.

Education is a very important human need because education has a duty to prepare Human Resources (HR) for the development of the nation and state (Pradana et al, 2020). According to Astuti et al (2019) Education is an obligation of every human being that must be pursued to hold responsibilities and try to produce progress in knowledge and

DOI: *https://doi.org/10.33258/birci.v5i2.5017*

experience for the lives of every individual. Education is one of the efforts to improve the ability of human intelligence, thus he is able to improve the quality of his life (Saleh and Mujahiddin, 2020). Education is expected to be able to answer all the challenges of the times and be able to foster national generations, so that people become reliable and of high quality, with strong characteristics, clear identities and able to deal with current and future problems (Azhar, 2018). Education and skills are the main keys in gaining social status in community life (Lubis et al, 2019).

According to Nuryadi and Rahmawati (2018) the development of potential in students can be realized through intra-curricular activities and through the learning process at school that involves active learning. Thus, students can continue to hone intelligence and logical reasoning when formulating ideas or expressing opinions, language intelligence when verbally conveying those ideas or opinions, tenacity intelligence when having to argue with friends, intrapersonal intelligence when it comes to being tolerant to others, and so on. According to Ridha (2021) tolerance to fellow students is very important because it can provide opportunities for students to learn, exchange opinions, share ideas and be able to discuss with each other. Student interaction can enrich each other's knowledge and develop new knowledge.

The concept of the four pillars of education consists of learning to know (learning to know), learning to do (learning to do), learning to be (learning to be), and learning to live together (learning to live together). With the application of the curriculum Prototype student learning outcomes are expected not only consisting of knowledge but also consisting of attitudes and life skills (life skills). According to Zubaidah (2018) one of the life skills expected of a student is soft skills, namely 4C skills consisting of critical thinking and problem solving, collaboration, communication, creativity and innovation. These skills become demanding in vocational schools. Each student must have those 4C skills.

The characteristics of the implementation of the learning process in Vocational High Schools (SMK) have differences in the implementation of learning in High School (SMA). If in vocational school, students are required to prioritize job skills, because after graduation students can directly work according to the major taken by the student. According to Sari, Musthafa, and Yusuf (2021) Vocational High School is a school oriented to provide certain qualifications to access the job market. This makes teachers must be able to develop learning models and strategies that can produce aspects of work skills. According to Salam and Zainuddin (2021) a teacher / educator before starting the learning process, it is very important to choose models, methods, strategies and teaching materials, because it can grow students' learning interest and when the learning process takes place does not make students feel bored, so it can affect the achievement of learning goals.

One student-centered learning model that is able to increase student curiosity higher and is able to provide challenges in the learning process so that it has an impact on skill improvement is the Project-Based Learning (PjBL) model. According to Wajdi (2017) the project-based learning model or better known as project-based learning is a learning model that focuses on the creativity of thinking, problem solving , and interaction between learners and their peers to create and use new knowledge. In addition, according to Annafi and Agustina (2018) this learning model can also develop skills collaboratively in solving problems. Project-based learning engages students to produce a valuable product/work by creating effective and fun learning. Students can work directly in a learning project as a task in accordance with the basic material or competencies to be taught.

Project-based learning is one of the recommended learning models for use in learning according to the Prototype curriculum. In SMK N 3 Lubuklinggau, a prototype curriculum has been implemented. In the implementation of the Prototype curriculum a teacher / educator should be focused only as a facilitator. Facilitators owned by a teacher must be able to meet the needs of students in the learning program. According to Sari, Musthafa, and Yusuf (2021) the role of teachers as facilitators must have high creativity in providing facilities in the learning process, for example in the selection of learning models, strategies, techniques, and learning media used so that students have a sense of enjoy, pleasure and comfort in following the learning process.

According to Dhaningtyas, P, W., Juniarso, T., Sulistyawati (2021) using the Project Based Learning learning model, the learning process becomes more active because it is student-centered. According to Purbosari (2016) pjbl model requires students to be able to think critically, analytically, problem solving in using high thinking skills, require collaboration, communication, and independent learning. Munandar (1999) divides creative thinking into several indicators, such as: curiosity, imaginativeness, flexibility, feeling challenged, originality, elaboration, evaluation, smoothness, risk carried out, and respect for others.

Learners / students can learn from their own experiences and the experiences of their friends directly by making the project as a task as well as a learning medium. Students can apply the appropriate steps to the existing steps in the RPP that have been adjusted to the PjBL model, which consists of planning, implementing what has been designed, and informing / conveying the project that has been created. So that it causes the habit to produce products.

Based on the results of observations that have been made on the tasks and products of students of Vocational High School 3 Lubuklinggau City, it is known that the tasks in the form of projects and products produced by students lack newness / less innovative. Project criteria and products that are relatively good are projects and products that have innovative value. Innovative can result from students' creative thinking in answering the problems encountered. According to Oloruntegbe (2011) the lack of innovative and creative thinking of students is one of the factors because teachers / educators have not been able to maximize the benefits of the existing local potential to be integrated in the learning process. Therefore, teachers / educators must be able to create a learning process that can stimulate students to think creatively and innovatively in utilizing local potential to the maximum. This is useful for preparing creative and innovative autput, so as to be able to compete in the world of work. According to Noviyana (2020) that learning using Project Based Learning (PjBL) is significantly able to increase student creativity.

Based on the above description, research is needed on students' perception of the Project Based Learning (PjBL) learning model by developing creative thinking skills in the Vocational Menengah School. According to Nuryadi and Rahmawati (2018) perception is the process of treating an individual in the form of giving an image, response, meaning, or interpretation of what is felt by his five senses, namely what is seen, heard, felt in the form of attitudes, behaviors and opinions, all of which are referred to as individual behavior. According to Robbins and Judge (2011) perception is the process by which an individual organizes and interprets the impressions of their sensory to give meaning to their environment. Human perception, a good ada in the form of positive perception but there is also a perception that negatively will affect the action that appears. Positive actions will usually arise if we perceive someone positively and vice versa negative actions will appear if we perceive someone negatively as well. The perception in this study is the positive or

negative view of students towards the Project Based Learning (PjBL) learning model by developing creative thinking skills in Vocational High Schools

This study aims to measure students' perception of learning developed through creative thinking skills in broad-based network technology subjects at State Vocational High School 3 Lubuklinggau City.

II. Research Method

This research was conducted to find out students' perception of learning developed through creative thinking skills in broad-based network technology subjects at State Vocational High School 3 Lubuklinggau City The type of research used in this research is qualitative with *the longitudinal survey* case study method, that is, a researcher seeks to know student perceptions. Learning developed through creative thinking skills. According to Sugiyono (2013) qualitative research is a process of exploring and understanding the meaning of behavior of either individual or group to describe social problems.

The subject of this study is class XI students who number 35 people. The data collection techniques used in this study are questionnaire sheets (as the main data) and interview sheets (as supporting questionnaire data). This type of interview is a semi-structured interview. Semi-structured interviews, according to Sugiono (2013) are interviews to subjects with unrestricted and free answers, but the answers of the subjects studied should not be out of the flow of the theme on the interview sheet. This interview serves to find out how students provide perceptions of learning developed through creative thinking skills in Broad-Based Network Technology subjects.

The next stage of the questionnaire was distributed to all students at the end of the learning process semester, while the interview was conducted during the learning process. The questionnaire data is then analyzed descriptively to measure the student's perception category. The student's perception category is obtained from the results of the questionnaire fill percentage as in table 1. While the interview results data is analyzed by reducing questions and answers that are in accordance with the focus of the research. Furthermore, the interview results data is used for triangulation purposes.

Table 1. Student Perception Categories

Percentage	Category
85-100	Excellent
70-84	Good
55-69	Enough
40-54	Not good enough
0-39	Very lacking

III. Result and Discussion

Based on the research, and the results of the analysis of the data obtained, peneliti found some facts that can be inferred as findings from the study. So, by conducting an interview, researchers try to find answers to research questions. As a result, by transcribing and analyzing the data obtained, researchers found several perceptions of students. Here is the result of analysis of transcripts of the data obtained.

Table 2. Percentage Value of Student Perception Indicators

Indicators	Value
Originality	80
Elaboration	85
Fluency	82
Flexibility	76
Evaluation	82

3.1 Student projects in the development of creative thinking

Students' perception of the development of creative thinking skills in Broad-Based Network Technology subjects is obtained through student perception questionnaire sheets and interview sheets to all students. The questionnaire instrument refers to five indicators of creative thinking skills, namely thinking originality, thinking elaboration, thinking fluency, thinking flexibility, and thinking evaluation. During the learning process, students are given assignments in groups to make a product about network technology. This product is developed based on existing problems.

Project assignments are given to each student both individually and in groups. Each individual collects data/information that has been found from the questionable and determines the source (through documents, books, the internet, the results of experiments) to answer questions posed by teachers about the concept of wide-based network technology. Then the data collection results are combined with other groups to be used as one. Each group discussed the results of related findings on the concept of broad-based network technology, as well as categorizing data / information about the material, further to be inferred in order from simple to more complex. This is supported by Zubaidah (2018) states that creativity not only holds things that do not exist, but creativity is the ability to find / produce new ideas, that is, can be by making a change, making a combination, or applying existing ideas. Thus project-based learning or PjBL can improve creative thinking (Kristiawan et al. 2021). wahyuni and Susiloningsih (2018) mention The assessment of the project focuses on the planning, workmanship, and products of the project. In addition, the assessment of the project also has some advantages such as: (1) increasing the motivation of student learning to learn; (2) improve the problem-solving skills of students; (3) making students become more active and successfully solve complex problems; (4) encourage students to develop and practise the skill of communicating; (5) providing learning and practice experience to students in organizing project.

3.2 Thinking Originality

Thinking originality is a thought to produce an idea that is new and different from usual. According to Zubaidah (2018) original thinking is the ability to issue expressions, ideas, ideas, and strategies to solve problems or make combinations that are unthinkable to others such as unusual, unique, new parts.

In this aspect get a percentage score of 80% with a good category. Statements on this aspect include about the student's ability to solve a problem and answer in a different way than usual. Student ideas appear in the learning process, which is when there are discussions and questions and answers between other groups that lead to debate. This event is a positive thing in the learning process that signifies active and enthusiastic students. Akbarjono, Belawati, and Afriani (2022) said When students are enthusiastic about learning, it was be able to improve students' academic achievement. Wijanarko, HeruDewa Putu Eskasasnanda (2020) statement, which revealed that students would be enthusiastic in

learning if students' psychological condition feels happy and interested in learning activities.

One of the discussions discussed by students in the learning process is to analogize a case with another case that is easier to understand between students. Djudin and Grapragasem (2019) mention analogy is considered a helpful way to help students visualize abstract concepts and assimilate new knowledge to an existing structure of cognitive. While according to Guerra-Ramos (2011) analogies, metaphors and models are common devices in everyday experience, spoken and written communication when trying to make familiar the unfamiliar. This happens to explain in detail about a case or problem that exists. Based on the description, it is known that students' detailed thinking skills are getting higher and higher. Discussions also give rise to students' attitudes to respect each other's opinions so that the resulting product becomes better.

Original thinking can stimulate a thought in generating ideas and ideas in solving a problem. This can be raised during discussion activities. The ability to think will be more pronounced if applied in everyday life so that mastery of concepts can occur (Sartono, Rusdi, and Handayani 2018). This is what is expected to build a student's thinking that is different from usual. Building this different or original thinking needs to continue to be done in every learning.

3.3 Thinking Elaboration

Elaboration thinking is a thought process that is able to add, complement, detail about an answer or idea. According to Zubaidah (2018) detailed thinking is an ability to develop, elaborate or detail in detail of ideas, ideas, products so that they are more interesting. Van Dijk, Meyer, and Van Engen (2018) mention iformation elaboration the act of exchanging, discussing, and integrating information and perspectives through verbal communication tends to be considered as the silver bullet that drives the performance of diverse teams.

In the elaboration aspect, getting a percentage score is 85% with an excellent category. Statements on this aspect include students' ability to analyze a problem encountered based on student observation results. Elaboration activities are seen in student activities in detailing from each stage of the process of creating network technology projects. This activity is a creative problem solving, because it requires knowledge and information that is fundamentally related to the problem or case that occurs.

This is in accordance with the results of Corfman and Beck (2019) which said that there are two approaches that can be done to increase creativity, namely the project-based approach (PjBL) and the problem-based approach (PBL). Elaboration thinking is a way of thinking in detail or describing something complex into something simpler. In addition, based on the results of interviews with students, it is known that by describing a problem becomes simpler, students are helped in analyzing and focusing a problem that will be solved.

3.4 Thinking Fluency

Thinking fluency is a thought process that produces ideas, ideas or answers that are relevant to the problem being discussed. According to Zubaidah (2018) current thinking includes the ability to issue many ideas, ways, suggestions, questions, ideas or alternative answers smoothly in a certain time. In the aspect offluency obtained a percentage score of 82% with a good category. Statements on aspects of fluency thinking relate to students' responses in asking questions and asking answers during discussions. When discussing students exchange ideas / ideas and answers that are relevant to the problem that occurs.

The number of suggestions and proposals submitted in discussion activities can be a solution and answer to existing problems and can produce something new. According to Narahaubun, Rehena, and Rumahlatu (2020) the students' skills in any aspects i.e. creativity, critical thinking, problem solving skills, collaboration, and self-assessment

Based on the results of questionnaires that get a good response proves that the learning that has been done using the PjBL model makes the flow of student thoughts smooth. In addition, based on interviews it is known that students are helped by learning that develops creative thinking skills. According to students, learning with discussion can train to produce products / projects from the tasks given by the teacher.

3.5 Thinking Flexibility

Flexibility thinking is the ability to change ways or approaches so as to produce the ability to think and generate new ideas and can share ideas with other students. New thoughts and ideas can arise and can be used in different thoughts. According to Zubaidah (2018) berpikir flexible includes the ability to issue ideas, answers or questions that vary where the idea or answer is obtained from different points of view by changing the way of approach or thinking. Senel and Bagceci Birsen (2019) mention Creativity is the desire of the individual to find an original product or solution. According to Ritter et al. (2020) The sense of desire and imagination are the key words of creativity. Creativity is a mental phenomenon that results from the application of ordinary cognitive processes such as working memory, and the ability to categorize and manipulate objects (creative cognition approach).

In this aspect, the percentage score is 76% with a good category. Statements on this aspect of students' perceptions regarding the response of a problem. This activity is stimulated by displaying various activities. video views of project/product creation demonstrations aim to provide examples and stimulus. At the end of learning after the video airing, the activity of exposing students' opinions and ideas to the video that has been watched. This activity produces different perceptions and ideas from each student.

3.6 Thinking Evalution

Judging thinking is the ability to weigh and clarify opinions and give reasons to those opinions. In this case students assess the good or bad of a product / project produced based on certain criteria. Elin (2019) mentioned the higher order thinking skills into three categories which are transfer, critical thinking, and problem solving. Transfer is a student's ability in understanding and using the knowledge and skills that they have learned in a new context.

Based on the results of the study, it is known that students' perception of the aspect of thinking ability to assess obtains a percentage of 82% with good criteria. In learning, this aspect is seen in the discussion process on the part of responding to the opinions and ideas of students. Development of student thinking skills can occur due to question and answer interactions between students.

This is in accordance with the opinion of Aflalo (2021) Questioning lies at the foundation of learning and the students' questions play a crucial role in meaningful learning and learning motivation. In the study of science, questioning is a fundamental component of the research and problem-solving process, and a basic skill students must develop. In addition, considering their friends' feedback and suggestions about the project they created also impacted their ability to evaluate a statement.

Vocational school students are independent learners. Aftoni, Aftoni Susila, Sutiadiningsih, and Hidayatulloh (2021) independent learning is an initiation process for

students to understand project-oriented skills and is carried out with full awareness and high responsibility This means that students are able to carry out learning in accordance with their desires to achieve the goals that have been set. The learning process must support students to think at a higher level to become independent individuals (Aftoni, Aftoni Susila, Sutiadiningsih, and Hidayatulloh 2021). In Broad-Based Network Technology Learning looks at students' proactive activities in asking questions and answers, looking for additional resources when needed. Based on this it is possible to change the learning environment according to their wishes and evaluate it.

The process of judging thinking in activities is implemented in the process of presenting products that have been made by students. At the time of the presentation the product is done openly and gets responses from teachers and other students. In expressing opinions or responses students provide a strong reason to be able to maintain their opinions. Students who can defend their opinions will try to provide proof of their opinions. According to Santoso, Farid, and Ulum (2017) the evaluation and assessment tools play an important role because of that educators can find important information about the achievement of learning objectives and whether the student has successfully achieved or not. In this case thinking judging in addition to needed to practice creative thinking skills also train critical thinking students.

IV. Conclusion

Based on the results of questionnaires and interviews to students of SMK N 3 Lubuklinggau City, it can be concluded that Students' Perception of Project Based Learning (PjBL) Learning Model by Developing Creative Thinking Skills in Vocational High Schools in the field of Learning Broad-Based Network Technology is able to make students think creatively and imaginatively so that they can produce different project products than usual. Of the five aspects of creative thinking skills, namely original thinking (originality), detailing thinking (elaboration), smooth (fluency), flexible thinking (flexibility), and thinking judging (evaluation) on average get a percentage of 81% with good categories.

References

Aflalo, Ester. (2021). “Students Generating Questions as a Way of Learning.” Active Learning in Higher Education 22(1):63–75. doi: 10.1177/1469787418769120.

Aftoni, Aftoni, I. Wayan Susila, Any Sutiadiningsih, and Muhammad Kris Yuan Hidayatulloh. (2021). “Plan-Do-Review-Share-Happy (Plandoresh) as Strategy to Develop Independent Learning of Vocational School Students.” Jurnal Pendidikan Vokasi 11(1):102–11. doi: https://doi.org/10.21831/jpv.v11i1.37165.

Akbarjono, Ali, Elvani Belawati, and Zelvia Liska Afriani. (2022). “Students’ Enthusiasm in Learning in the COVID -19.” Journal of Research on Language Education 3(1):15–19.

Annafi, Nurfidianty, and Sry Agustina. (2018). “Pengembangan Model Pembelajaran Project Based Learning (PBL) Berbasis Kearifan Lokal Untuk Mempersiapkan Calon Pendidik Yang Berbudaya Development of Learning Model Project Based Learning (PBL) Based on Local Wisdom to Prepare Cultured Educator Candid.” Jurnal Inovasi Pendidikan Sains 9(1):1–10.

Astuti, R.W., Waluyo, H.J., and Rohmadi, M. (2019). Character Education Values in Animation Movie of Nussa and Rarra. Budapest International Research and Critics

Institute-Journal (BIRCI-Journal). P. 215-219.
Azhar,A. (2018). Students' Trends in Islamic Communication Postgraduate in2010-2016 State Islamic University of North Sumatera (UINSU). Budapest International Research and Critics Institute (BIRCI-Journal), P.206-214.
Corfman, Timothy, and Dennis Beck. (2019). "Case Study of Creativity in Asynchronous Online Discussions." International Journal of Educational Technology in Higher Education 16(22):1–20. doi: 10.1186/s41239-019-0150-5.
Dhaningtyas, P, W., Juniarso, T., Sulistyawati, I. (2021). "Pengaruh Project Based Learning Terhadap Kemandirian Belajar Mahasiswa." Jurnal Pendidikan Dan Ilmu Pengetahuan 21(2):222–28.
Djudin, Tomo, and Selvaraj Grapragasem. (2019). "The Use of Pictorial Analogy to Increase Students' Achievement and Its Retention of Physics Lessons of Direct Current." Jurnal Penelitian Fisika Dan Aplikasinya (JPFA) 9(2):140. doi: 10.26740/jpfa.v9n2.p140-151.
Elin, Driana. Ernawati. (2019). "Teachers Understanding and Pratices In Assessing Higher Order Thingking Skills At Primary Schools." 1(2):110–18.
Guerra-Ramos, Maria Teresa. (2011). "Analogies as Tools for Meaning Making in Elementary Science Education: How Do They Work in Classroom Settings?" Eurasia Journal of Mathematics, Science and Technology Education 7(1):29–39. doi: 10.12973/ejmste/75175.
Ismail, Feiby, Abdul Muis Daeng Pawero, and Mardan Umar. (2021). "Education Planning and Its Implications for Education Policy during the Covid-19 Pandemic." International Journal for Educational and Vocational Studies 3(2):110. doi: 10.29103/ijevs.v3i2.4441.
Kristiawan, Muhammad, Henry Samuel Edosomwan, Sheren Dwi Oktaria, and Elsa Viona. (2021). "Entrepreneurial Skill Development in Indonesia and Nigeria through Project-Based Learning." JPPI (Jurnal Penelitian Pendidikan Indonesia) 7(3):385. doi: 10.29210/020211174.
Lubis, R., et al. (2019). Survival Strategy for Lokan Seekers in Paya Pasir Village, Kec. Marelan, Medan, Indonesia. Budapest International Research and Critics Institute-Journal (BIRCI-Journal). Volume 2, No 1, Page: 293-303.
Munandar, U. (1999). Mengembangkan Bakat dan Kreativitas Anak Sekolah. Jakarta: Rineka Cipta.
Narahaubun, Siti S., Johanis F. Rehena, and Dominggus Rumahlatu. (2020). "Empowering Students' Critical Thinking Skills, Information Literacy and Cognitive Learning Outcome through RBL-TPS Model." JPBI (Jurnal Pendidikan Biologi Indonesia) 6(2):243–56. doi: 10.22219/jpbi.v6i2.11456.
Noviyana, Hesti. (2020). "Pengaruh Model Project Based Learning Terhadap Hasil." 3(2):110–17.
Nuryadi, and Peni Rahmawati. (2018). "Persepsi Siswa Tentang Penerapan Model Pembelajaran Berbasis Proyek Ditinjau Dari Kreativitas Dan Hasil Belajar Siswa." Jurnal Mercumatika : Jurnal Penelitian Matematika Dan Pendidikan Matematika 3(1):53–62. doi: DOI : http://dx.doi.org/10.26486/jm.v3i1.656.
Oloruntegbe, K. O. (2011). "Teachers' Involvement, Commitment and Innovativeness in Curriculum Development and Implementation." Journal of Emerging Trends in Educational Research and Policy Studies 2(6):443–49.
Pradana, D. A., et al. (2020). Nasionalism: Character Education Orientation in Learning Development. Budapest International Research and Critics Institute-Journal (BIRCI-Journal) Volume 3, No 4, Page: 4026-4034.

Purbosari, Para Mitta. (2016). “Pembelajaran Berbasis Proyek Membuat Ensiklopedia Ilmu Pengetahuan Alam (Ipa) Untuk Meningkatkan Academic Skill Pada Mahasiswa.” Scholaria : Jurnal Pendidikan Dan Kebudayaan 6(3):231–38. doi: 10.24246/j.scholaria.2016.v6.i3.p231-238.

Ridha, Muhammad. (2021). “Interaksi Dan Implikasinya Terhadap Capaian Kompetensi Pembelajaran Daring.” Jurnal Teknologi Pendidikan 09(02):153–66. doi: http://dx.doi.org/10.31800/jtp.kw.v9n2.p153--166 INTERAKSI.

Ritter, Simone M., Xiaojing Gu, Maurice Crijns, and Peter Biekens. (2020). “Fostering Students’ Creative Thinking Skills by Means of a One-Year Creativity Training Program.” PLoS ONE 15(3):1–18. doi: 10.1371/journal.pone.0229773.

Robbins, S. P., & Judge,T.A. (2011). Perilaku Organisasi (Edisi ke-12). Jakarta: Salemba Empat.

Salam, Haerul, and Mohammad Zainuddin. (2021). “Bahan Ajar IPA Berbasis STEM Dalam Menciptakan PAIKEM Untuk Meningkatkan Kemampuan Berpikir Kreatif Siswa Kelas IV Pada Tema 2 Selalu Berhemat Energi Sub Tema 1 Sumber Energi.” (November 2020):1727–31.

Saleh, A., Mujahiddin. (2020). Challenges and Opportunities for Community Empowerment Practices in Indonesia during the Covid-19 Pandemic through Strengthening the Role of Higher Education. Budapest International Research and Critics Institute-Journal (BIRCI-Journal). Volume 3, No 2, Page: 1105-1113

Santoso, D. A., A. Farid, and B. Ulum. (2017). “Error Analysis of Students Working about Word Problem of Linear Program with NEA Procedure.” Journal of Physics: Conference Series 855(1):1–8. doi: 10.1088/1742-6596/855/1/012043.

Sari, Ratih Apri, Bachrudin Musthafa, and Fazri Nur Yusuf. (2021). “Persepsi Guru Terhadap Pembelajaran Berbasis Proyek Di Sekolah Menengah Kejuruan.” Jurnal Penelitian Pendidikan 21(2):1–11. doi: 10.17509/jpp.v21i2.36972.

Sartono, Nurmasari, Rusdi Rusdi, and Rizkia Handayani. (2018). “Pengaruh Pembelajaran Process Oriented Guided Inquiry Learning (Pogil) Dan Discovery Learning Terhadap Kemampuan Berpikir Analisis Siswa Sman 27 Jakarta Pada Materi Sistem Imun.” Biosfer: Jurnal Pendidikan Biologi 10(1):58–64. doi: 10.21009/biosferjpb.10-1.8.

Senel, Mustafa, and Bagceci Birsen. (2019). “Development of Creative Thinking Skills of Students Through Journal Writing.” International Journal of Progressive Education 15(5):216–37. doi: 10.29329/ijpe.2019.212.15.

Sugiyono, (2013), Metodelogi Penelitian Kuantitatif, Kualitatif Dan R&D. (Bandung: Alfabeta)

Van Dijk, Hans, Bertolt Meyer, and Marloes Van Engen. (2018). “If It Doesn’t Help, It Doesn’t Hurt? Information Elaboration Harms the Performance of Gender-Diverse Teams When Attributions of Competence Are Inaccurate.” PLoS ONE 13(7):1–23. doi: 10.1371/journal.pone.0201180.

Wahyuni, Vera, and Endang Susiloningsih. (2018). “Journal of Educational Research and Evaluation Development of Project Assessment Instruments to Assess Mathematical Problem Solving Skills on A Project-Based Learning Article Info.” Journal of Educational Research and Evaluation 7(2):147–53.

Wajdi, Fathullah. (2017). “Implementasi Project Based Learning (Pbl) Dan Penilaian Autentik Dalam Pembelajaran Drama Indonesia.” Jurnal Pendidikan Bahasa Dan Sastra 17(1):86. doi: 10.17509/bs_jpbsp.v17i1.6960.

Wijanarko, HeruDewa Putu Eskasasnanda, Bayu Kurniawan. (2020). “Phenomenology Studies in Junior High School Students’ Enthusiasm in Social Studies Learning in Universitas Malang Laboratorium, Indonesia.” Harmoni Sosial: Jurnal Pendidikan IPS 7(2):141–49. doi: 10.21831/hsjpi.v7i2.31686.

Zubaidah, Siti. (2018). “Mengenal 4C: Learning and Innovation Skills Untuk Menghadapi Era Revolusi 4.0.” 2nd Science Education National Conference 13(April):1–18.