

Needs Analysis of Project-based Learning Model Development in Stimulating Children's Creativity

Sadaruddin, Arifin Ahmad, Baso Jabu, Syamsuardi, Usman, and Hasmawaty

ABSTRACT

Children have creativity. What makes the difference is the degree and form of creativity shown. Environmental stimuli significantly affect the creative thinking skills that are stored in children. This can be achieved by developing project-based learning models to stimulate children's creativity. However, before the development is carried out, the level of teacher needs for the learning model; then, through this research, the analysis of teacher needs will be presented. The method to solve the problem is mixed, combining quantitative and qualitative data collected through questionnaires and interviews, then analyzed using statistical and descriptive techniques. The results of the needs analysis show that teachers stimulating children's creativity are in the "medium" category, teachers preparing learning model planning are in the "medium" category, and teachers are constrained in implementing learning models in the "high" category. Teacher assessment of project results is in the "high" category, and process assessment is in the "low" category. It is concluded that teachers need to develop PjBL models in model books, guidebooks, daily lesson plans, and learning assessments as teacher references that can specifically stimulate children's creativity in kindergarten.

Keywords: Creativity, early childhood, project-based learning models, stimulate children.

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I. INTRODUCTION

Creativity improves people's quality of life (Munandar, 1997a). Education is a very effective process in growing, shaping, and preparing children to develop creativity (Arslan, 2014).

Regulation 137 (Ministry of Education and Culture, 2014) concerning National Standards for Early Childhood Education states that children can solve problems efficiently and acceptably with creativity. Creative children can produce new and original work, which they make themselves, giving them pride and raising self-confidence in children (Alayinda *et al.*, 2019).

Since infancy, even in the womb, children have begun to learn to try, imitate, create, and express themselves in unique and distinctive ways and styles (Jumroh & Istiari, 2018). Creativity is a cognitive process that emerges as a unique and new product depending on a person's talent in the problem-solving process that uses part of their

intelligence elements to produce something new (Tuğrul *et al.*, 2014).

Creativity is an imaginative activity that combines information from previous experiences into something new, meaningful, and valuable (Munandar, 1997a). According to Hasibuan and Ningrum (2017), creativity can be grouped into two, namely (1) creativity as a creative process, which means that any source of a person's ability and activity has great potential to give birth to new ideas; (2) creativity as a result of creative work, which means that the creative potential of a person is not necessarily actualized in the form of behavior that can produce new works that are useful for the environment. Therefore, if someone sees the phenomenon of creativity, it can be seen through the process of producing these works and the fundamental works that a person has produced.

The definition of creativity is an ability that consists of four indicators, namely fluency, flexibility, originality, and elaboration. The ability to be creative can be carried out in four stages: preparation, incubation, illumination, and

verification (Schwartz *et al.*, 2023). Meanwhile, Asmawati (2017) explains the characteristics of the four dimensions of creativity, namely

- 1) The characteristic of fluency is the ability to produce many ideas with relevant words and expressions in a short time and the same situation,
- 2) The characteristic of flexibility is the ability to solve problems in various ways so that the problem is solved quickly and accurately,
- 3) The characteristic of originality is the ability to produce original work to one's thinking,
- 4) Elaboration is expanding or refining an idea into a complex and meaningful object.

The development of early childhood creativity needs to emphasize the aspects of creativity formation according to Munandar (1997b). He suggests that creativity is seen from four aspects of creativity formation (Four P's of Creativity), the four aspects of creativity formation consist of (1) personal (person), (2) encouragement (press), (3) process (process), and (4) product (product).

According to Munandar (1997a), creativity in the personal dimension is an attempt to define creativity that focuses on the individual or person of the individual who can be called creative. Creativity in the process dimension is creativity that focuses on the thinking process that gives rise to unique or creative ideas. Creativity in the press dimension is creativity that emphasizes encouragement. Regarding press from the environment, some environments value imagination and fantasy and emphasize creativity and innovation. Creativity in the product dimension is a creative effort that focuses on the product or what the individual produces, either something new/original or an innovative elaboration/combination and creativity.

The direction of the development program and the stages of developmental aspects, namely a learning activity that is playful, fun, activates the role of children, concrete, and combines various aspects of learning and early childhood development (Ndari & Chandrawaty, 2018). In addition, success can also be influenced by the atmosphere of the room conditions or a pleasant learning environment to motivate children during learning activities. (Dewi *et al.*, 2015).

The Global Creativity Index survey results of 2015 showed that Indonesia's creativity level ranked 115th, among the lowest compared to 139 other countries (Florida *et al.*, 2015). Children's creativity at the early childhood education level is still low (Musdalifah *et al.*, 2020; Nurasih *et al.*, 2022; Puspitasari, 2015).

The results of initial kindergarten observations show that children's creativity development is still low. This can be seen in children's abilities when the teacher asks questions; it is found that the average child cannot answer the questions given. Children also need the initiative to determine the materials and tools to be used. The works produced are mostly imitations, and the ability of children to develop objects in detail still needs to improve.

The development of early childhood creativity requires support from parents and teachers in providing environmental conditions that can provide opportunities for children to be creative; children are given the freedom to do whatever they want while exploring their creative potential.

(Susanto, 2018). Opportunities and freedom for children to express innovative ideas and imagination have not been fully explained in learning activities, so the development of children's creativity has not been maximized (Sari, 2017). The learning model that can be used in stimulating creativity is the Project Based Learning (PjBL) model because the PjBL model is considered one of the learning models that can provide opportunities and freedom for children to solve problems in the form of tasks or projects given (Alayinda *et al.*, 2019; Tinenti, 2021).

The PjBL model is derived from John Dewey's idea of the concept of learning by doing, namely the process of obtaining learning outcomes by doing specific actions by its objectives, especially the process of mastering children how to do a job consisting of a series of behaviors to achieve goals, for example climbing stairs, folding paper, tying shoelaces, weaving, forming animal or building models, and so on (Moeslichatoen, 2004). Arifiyanti and Prasetyo (2018) also explain the definition of project-based learning and that the PjBL model is another way for learners to experience creating a dynamic environment to encourage learning. It motivates children to complete their projects with their own will, experience, and ideas and can solve personal and group problems in their way (Li-Fen *et al.*, 2014). The PjBL model differs from conventional classes accustomed to individualized classroom situations; assessment is more dominant regarding results than processes, and learning resources tend to be stagnant (Wahyu *et al.*, 2018).

The steps of the PjBL model, according to Rais (Natty *et al.*, 2019), are as follows:

- 1) Opening the lesson with a challenging question: The lesson starts with a driving question that can ask the children to do an activity.
- 2) Planning the project: Planning is done collaboratively between the teacher and the children.
- 3) Developing an activity schedule: The teacher and children collaboratively develop activities to complete the project.
- 4) Supervising the project: The teacher is responsible for supervising the children's activities in completing the project.
- 5) Assessing the product: Assessment is carried out to help the teacher measure the achievement of standards, play a role in evaluating the progress of each child, provide feedback on the level of understanding that has been achieved by the child, and help the teacher in developing the next learning strategy.
- 6) Evaluation: At the end of the learning process, the teacher and children reflect on the activities and results of the project.

However, implementing the PjBL model in kindergarten can only be applied in various ways; it needs to be developed to adjust the developmental stage of early childhood. Based on the survey results of implementing the PjBL model in kindergarten, teachers do not apply the stages of the PjBL model by default, such as opening lessons by asking challenging questions, planning projects, compiling activity schedules, supervising projects, assessing and evaluating. However, there are several stages that

teachers develop by combining into one activity.

The formulation of the problem in this study is how the description of the needs analysis of the development of the PjBL model stimulates children's creativity. The purpose of this study is an overview of the needs analysis of the development of the PjBL model in stimulating children's creativity.

II. METHODOLOGY

The type of research used to see the level of teacher needs for the PjBL model in stimulating children's creativity is mixed methods (quantitative and qualitative). Quantitative data was collected through a Google Forms questionnaire from Makassar City, Indonesia, kindergarten teachers. The data results were then analyzed using simple statistics. As a result, the average percentage of the aspects studied will be known. At the same time, qualitative data is collected through interviews with teachers in order to deepen the average results of the data that has been collected through the previous quantitative method so that the results that will be presented from this qualitative research method will be in the form of a description or explanation of the conclusions drawn by the researcher from the interview process. The data analysis technique uses descriptive statistical analysis with the criteria in Table I.

TABLE I: CRITERIA FOR PRODUCT DEVELOPMENT NEEDS

Category	Range
$4,20 \leq M \leq 5,00$	Very High/Very Good
$3,40 \leq M < 4,20$	High/Good
$2,60 \leq M < 3,40$	Medium / Good Enough
$1,80 \leq M < 2,60$	Low / Not Good
$1,00 \leq M < 1,80$	Very Low / Not Good

III. RESULTS

The needs analysis phase is an investigative phase by conducting a preliminary study to obtain initial information and portray the objective conditions in the field regarding children's creativity and the implementation of the model implemented by the teacher, which serves as the basis for development.

The needs analysis describes 4 (four) aspects of analysis, namely 1) teachers in stimulating children's creativity, 2) planning learning models in stimulating children's creativity, 3) implementing learning models in stimulating children's creativity, and 4) assessing learning models in stimulating children's creativity.

A. Teachers in Stimulating Children's Creativity

Based on the results of the preliminary study, it was found that a) teachers stimulate children's creativity on average 2.96 or in the medium category, b) teachers stimulate children to answer fluently every challenging question given on average 2.76 or in the medium category, c) teachers stimulate children to use a variety of tools/materials on average 3.19 or in the medium category, d) teachers stimulate children in processing different works with others on average 2.96 or in the medium category, and e) teachers stimulate children to explain the details of the work produced on average 2.84 or in the medium category.

More details related to teachers stimulating children's creativity can be seen in Table II.

More details about teachers stimulating children's creativity for each indicator are illustrated in Fig. 1.

The analysis results show that teachers in stimulating children's creativity still need to be more optimal and, on average, classified as moderate. Based on the conclusion of the results of interviews with teachers, this is influenced by the unavailability of a complete guidebook for teachers in the Application of learning models that simultaneously stimulate children's creativity.

TABLE II: DATA ANALYSIS RESULTS OF TEACHERS STIMULATING CHILDREN'S CREATIVITY

No	Indicator	Average	Category
1	The teacher stimulates children's creativity	2.96	Medium
2	The teacher stimulates the child to answer each challenging question fluently	2.76	Medium
3	The teacher stimulates the child to use various tools/materials	3.19	Medium
4	The teacher stimulates the child to process the work differently from others	2.96	Medium
5	The teacher stimulates the child to explain the details of the work produced.	2.84	Medium

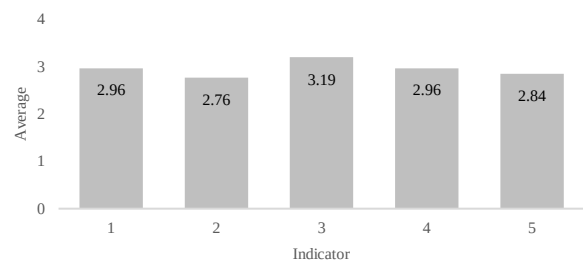


Fig. 1. Teachers in stimulating children's creativity.

TABLE III: RESULTS OF DATA ANALYSIS ON LEARNING MODEL PLANNING IN STIMULATING CHILDREN'S CREATIVITY

No	Indicator	Average	Category
1	Teachers develop a complete learning model to stimulate children's creativity	3.38	Medium
2	Teachers apply the PjBL model to stimulate children's creativity	3.15	Medium
3	Teachers apply the PjBL model by beginning the preparation of planning in the form of lesson plans (RPPH)	3.23	Medium
4	Teachers prepare lesson plans by including the steps (syntax) of the PjBL model systematically	2.55	Low

B. Learning Model Planning in Stimulating Children's Creativity

The analysis of planning indicators in stimulating children's creativity shows that the four indicators of learning planning have yet to be maximized and even tend to be low. The results of the preliminary study found that: a) teachers develop a complete learning model in stimulating children's creativity, an average of 3.38 or including a moderate category; b) teachers apply the PjBL model in stimulating children's creativity, an average of 3.15 or a moderate category, c) teachers apply the PjBL model by starting the preparation of planning in the form of lesson plans, an average of 3.23 or a moderate category, and d) teachers arrange lesson plans by systematically including the

steps (syntax) of the PjBL model, an average of 2.55 or a low category.

For more details, the analysis results regarding the planning of the learning model in stimulating children's creativity for each indicator can be seen in Table III.

The results of the analysis of learning model planning in stimulating children's creativity for each indicator are visualized in Fig. 2.

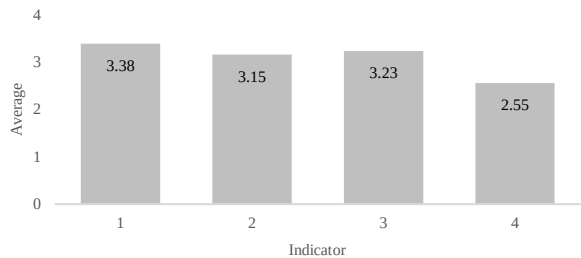


Fig. 2. Stimulating children's creativity.

Table III and Fig. 2 show that teachers' planning of the PjBL model in stimulating children's creativity still needs to be higher, especially the systematic planning of the PjBL model syntax. However, overall, the average PjBL model planning is classified as moderate. The learning planning process has yet to be maximized because it is influenced by the teacher's lack of understanding of systematically compiling the syntax of the PjBL model in stimulating children's creativity.

C. Implementation of Learning Models in Stimulating Children's Creativity

Based on the results of data analysis for aspects of the implementation of the PjBL model in stimulating children's creativity, it shows that:

- 1) Teachers find obstacles when opening a lesson with a challenging question, an average of 3.80 or classified as a high category,
- 2) Teachers find obstacles when asking children to plan projects, an average of 3.65 or classified as high,
- 3) Teachers find obstacles when asking children to develop activity schedules, an average of 3.53 or classified as high,
- 4) Teachers find obstacles when asking children to supervise the course of the project, an average of 3.50 or classified as high,
- 5) Teachers find obstacles when asking children to assess the products produced, an average of 3.76 or classified as high,
- 6) Teachers find obstacles when asking children to evaluate projects, an average of 3.57 or classified as high.

For more details, the analysis results regarding the implementation of the PjBL model in stimulating children's creativity for each indicator can be seen in Table IV.

The results of the analysis of the implementation of the PjBL model in stimulating children's creativity for each indicator are visualized in Fig. 3.

No	Indicator	Average	Category
1	Teachers found it challenging to open the lesson with a challenging question.	3.76	High
2	Teachers encountered problems when asking children to plan a project.	3.65	High
3	The teacher encounters obstacles when asking children to make a schedule of activities.	3.53	High
4	The teacher encounters an obstacle when asking children to supervise the project.	3.50	High
5	The teacher encounters a problem when asking the children to evaluate the product.	3.80	High
6	The teacher encounters obstacles when asking the children to evaluate the project.	3.57	High

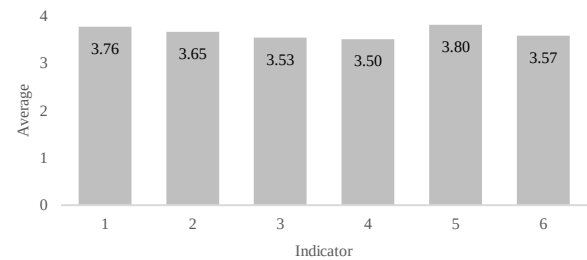


Fig. 3. Implementation of the PjBL model in stimulating children's creativity.

Table IV and Fig. 3 show that implementing the PjBL model in stimulating children's creativity found obstacles experienced by teachers with an average of high categories, such as in the first step of opening a lesson with a challenging question and the fifth step of assessing the resulting product. This shows that teachers experience high category constraints in implementing PjBL model learning, so it is necessary to develop a model that is easy to implement in stimulating children's creativity in kindergarten.

D. Assessment of the Project-based Learning (PjBL) Model in Stimulating Children's Creativity

Based on the results of data analysis for the assessment aspect of the PjBL model in stimulating children's creativity, it shows:

- 1) Teachers in assessing the development of children's creativity in kindergarten, based on the results of project work made, an average of 3.76 or classified as high category,
- 2) Teachers in assessing the development of children's creativity in kindergarten, based on observations of the process of making a project work, an average of 2.30 or classified as low.

For more details, the analysis results regarding the assessment of the PjBL model in stimulating children's creativity for each indicator can be seen in Table V.

The results of the analysis of the PjBL model assessment in stimulating children's creativity for each indicator are visualized in Fig. 4.

TABLE V: RESULTS OF DATA ANALYSIS ON THE ASSESSMENT OF THE PJBL MODEL IN STIMULATING CHILDREN'S CREATIVITY

No	Indicator	Average	Category
1	Teachers in assessing the development of children's creativity in kindergarten, based on the results of project work made	3.76	High
2	Teachers in assessing the development of children's creativity in kindergarten, based on observations of the process of making a project work	2.30	Low

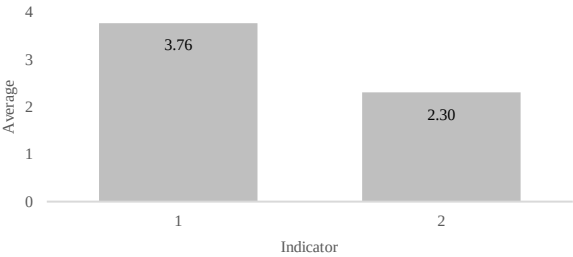


Fig. 4. Assessment of the PjBL model in stimulating children's creativity.

Table V and Fig. 4 above show that assessing children's creativity using the PjBL model differs from the process-oriented assessment principles for early childhood. This can be seen in the first indicator that teachers assess children's creativity in kindergarten based on the results of the final project work, which is categorized as high. In contrast, the following indicator is that teachers assess the development of children's creativity in kindergarten based on observations of the process of making a project work in the low category. The principle of assessment should be oriented during PjBL learning activities by focusing on creativity indicators when children begin to design, explain, develop, and evaluate projects. So, the project's final result does not assess children's creativity. However, during the project process, the teacher focuses on measuring children's creativity in working on each project stage.

IV. DISCUSSION

Based on the findings of the needs analysis, it shows that teachers in stimulating children's creativity are still not optimal; this is influenced by the fact that teachers rarely apply the PjBL model in stimulating children's creativity because they do not have references to PjBL model books that specifically stimulate children's creativity.

Regarding planning the PjBL model in stimulating children's creativity, it was found that teachers needed to plan the steps of the PjBL model systematically. Teachers need to be maximized in planning the PjBL model to stimulate children's creativity. This is influenced by the unavailability of daily lesson planning documents in implementing the PjBL model in stimulating children's creativity.

The results of the needs analysis related to the implementation of the PjBL model in stimulating children's creativity; teachers experience obstacles in implementing the PjBL model. Teachers consider that the PjBL model has a high level of difficulty to be applied to children, so it is necessary to develop a model that is easy to apply in

stimulating children's creativity in kindergarten.

The needs analysis results related to assessing children's creativity using the PjBL model are different from the principles of process-oriented assessment for early childhood. This illustrates that the stages of the PjBL model are not suitable to be applied in assessing the results of project work. Instead, the assessment principle is oriented during PjBL learning activities, focusing on seeing creativity indicators through PjBL model activities.

Based on the needs analysis discussion, teachers need the development of the PjBL model in the form of model books, guidebooks, daily lesson plans, and learning assessments as teacher references that can specifically stimulate children's creativity in kindergarten.

V. CONCLUSION

The results of the needs analysis show that teachers stimulating children's creativity are in the "medium" category, teachers preparing learning model planning are in the "medium" category, teachers constrained in implementing learning models are in the "high" category, and teacher assessment of project results is in the "high" category and process assessment is in the "low" category. It is concluded that teachers need to develop the PjBL model through model books, guidebooks, daily lesson plans, and learning assessments as teacher references that can specifically stimulate children's creativity in kindergarten.

CONFLICT OF INTEREST

The authors declare that they do not have any conflict of interest.

REFERENCES

Alayinda, A., Ali, M., & Yuniarni, D. (2019). Improving creativity through project method at Paud Aisiyiah Busthanul Atfhal 3 Pontianak Tenggara. *Jurnal Pendidikan Dan Pembelajaran*, 8(3), 1–8.

Arifiyanti, N., & Prasetyo, I. (2018). Personal hygiene learning in preschool classroom. *Indonesian Journal of Early Childhood Education Studies*, 7(2), 68–74.

Arslan, A. A. (2014). A study into the effects of art education on children at the socialization process. *Procedia - Social and Behavioral Sciences*, 116, 4114–4118.

Asmawati, L. (2017). Improving early childhood creativity through integrated learning based on multiple intelligences. *JPUD - Jurnal Pendidikan Usia Dini*, 11(1), 145–164.

Dewi, I. A., Suarni, N. K., Magta, M., Konseling, J. B., Pendidikan, F. I., & Ganesha, U. P. (2015). The application of the project method through 3M activities to improve the creativity of children in group A of TK Negeri Pembina. *PG PAUD Universitas Pendidikan Ganesha*, 3(1), 1–10.

Florida, R., Mellander, C., & King, K. (2015). *The global creativity index 2015*. Toronto: Martin Prosperity Institute. <http://www-2.rotman.utoronto.ca/mpi/wp-content/uploads/2015/07/Global-Creativity-Index-2015.pdf>.

Hasibuan, R., & Ningrum, M. A. (2017). The effect of outdoor play and finger painting activities on early childhood creativity. *Jurnal Pendidikan (Teori Dan Praktik)*, 1(1), 73–81.

Jumroh, J., & Istiarni, R. (2018). Efforts to improve creativity through the project method for 5–6 years old at Nurul Insan Kindergarten, Tangerang Regency. *Ceria: Jurnal Program Studi Pendidikan Anak Usia Dini*, 6(1), 47–63.

Li-Fen, J., Moore, L., & Lin, Y.-M. (2014). Parents' perspectives on child care quality and satisfaction in Taiwan. *International Journal of Research Studies in Education*, 3(5), 3–19.

Ministry of Education and Culture. (2014). Permendikbud 137: National

- standards for early childhood education. Ministry of Education and Culture of the Republic of Indonesia. <https://luk.staff.ugm.ac.id/atur/bsnp/Permendikbud137-2014StandarNasionalPAUD.pdf>.
- Moeslichatoen, R. (2004). *Teaching methods in kindergarten*. Jakarta: Ministry of Education and Culture of the Republic of Indonesia.
- Munandar, U. (1997a). Children's initiative and creativity. *Psikologika*, 2, 31–41.
- Munandar, U. (1997b). Developing children's initiative and creativity. *Psikologika: Jurnal Pemikiran Dan Penelitian Psikologi*, 2(2), 31–42.
- Musdalifah, M., Anas, M., & Sadaruddin, S. (2020). Improving children's creativity through the discovery method in science learning at Aisyiyah Bustanul Athfal Mario Kindergarten. *TEMATIK: Jurnal Pemikiran Dan Penelitian Pendidikan Anak Usia Dini*, 6(1), 42–52.
- Natty, R. A., Kristin, F., & Anugraheni, I. (2019). Improving students' creativity and learning outcomes through project-based learning model in elementary school. *Jurnal Basicedu*, 3(4), 1082–1092.
- Ndari, S. S., & Chandrawaty, C. (2018). Review of early childhood education curriculum. Edu Publisher. <http://repository.uhamka.ac.id/id/eprint/2145/1/TELAAH%20KURIKULUM%20PDF.pdf>.
- Nurasih, B., Syamsuardi, S., & Ria, A. S. E. (2022). Application of used material-based pjbl model in improving the creativity ability of group B children. *EDUSTUDENT: Jurnal Ilmiah Pendidikan Dan Pembelajaran*, 1(3), 164–172.
- Puspitasari, E. (2015). Mapping the creativity of children aged 4-6 years in PG-PAUD laboratory kindergarten, Riau University. *Educhild Pendidikan Dan Sosial*, 4(1), 50–55.
- Sari, R. P. (2017). Early childhood play creativity. *Jurnal Pusaka*, 5(1), 1–27.
- Schwartz, N. H., Click, K., & Bartel, A. N. (2023). Educational psychology: Learning and instruction. In J. Zumbach, D. A. Bernstein, S. Narciss, & G. Marsico (Eds.), *International handbook of psychology learning and teaching* (pp. 357–390). Cham: Springer.
- Susanto, A. (2018). *Early childhood education: Concepts and theories*. Jakarta: PT Bumi Aksara.
- Tinenti, Y. R. (2021). *Project-based learning (PBP) model and its application in the classroom learning process*. Yogyakarta: Deepublish.
- Tuğrul, B., Uysal, H., Güneş, G., & Okutan, N. Ş. (2014). Picture of the Creativity. *Procedia - Social and Behavioral Sciences*, 116, 3096–3100.
- Wahyu, R., Islam, U., & Rahmat, R. (2018). Implementation of the project-based learning (PJBL) model in terms of the 2013 curriculum. *Teknoscienza*, 1(1), 50–62.