



Teachers' Challenges in Implementing Project-Based Learning in Teaching Science in Inclusive Schools at Tomohon City North Sulawesi

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Abstract: This study aims to identify challenges and teachers' readiness in implementing the Project-Based Learning model in Inclusive Schools. The research method used is descriptive qualitative research using open-ended and closed-ended questionnaires. Learning models that can be implemented in inclusive schools are varies since it needs to be adapted to the needs of students with special needs. One of example of learning model is the Project-Based Learning model. This model will improve students' abilities and skills in addressing real-world problems. The role of teachers in implementing the PjBL model is as a learning facilitator and monitors students' learning process. The results indicate that 70% of teachers still experience difficulties in planning, and 60% of teachers experience difficulties in implementing PjBL. However, 95% of teachers stated that the PjBL model can support the learning of students with special needs. The various challenges faced by teachers in implementing the PjBL model can be addressed through teachers training.

Keywords: Inclusive schools; Learning model; Project based learning; Teacher; Teaching science

Introduction

Inclusive education gives all children, including those with special needs or disabilities, the chance to learn together in the same classroom (Cologon, 2022; Florian, 2019; Leijen et al., 2021; Roldán et al., 2021). Teachers need to use the right methods to help every student succeed. Since the Salamanca Statement from UNESCO in 1994, inclusive education has become a key idea in many countries, like Indonesia. It means creating an education system that lets all children, including those with special needs, attend regular schools without facing any unfair treatment. Every school should be able to meet the needs of all children and make sure their rights are respected (Murray, 2019; Quennerstedt, 2022; Shaeffer, 2019).

The word "inclusive" comes from the English word "inclusive," which means to include (Conway, 2008).

This term was first used during a conference organized by UNESCO, which took place in Salamanca, Spain, from June 7 to 10, 1994. Over 92 countries and 25 international organizations joined the conference. As a result, they created the Salamanca Statement. This agreement emphasized the need for every country to support inclusive education. The goal is to make schools welcoming and accessible for all children, including those who have special needs (Ackah-Jnr et al., 2019; Adewumi et al., 2019; Fowler et al., 2019; Roberts et al., 2022).

The following agreements were proclaimed at the conference:

"The fundamental principle of the inclusive School Is that all children shall learn together, regardless Of any difficulties or differences they may have. Inclusive School must recognize and Respond to the diverse needs of their students, accommodating both different styles and rates

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of learning and ensuring quality education to all through appropriate curricular, organizational arrangements, teaching strategies, resources use and partnership with communities. There should be a continuum of support and services to match the continuum of special needs encountered in every school" (salamanca framework for action, articlem7-inclusion internasional, 1998, p.2)

The agreement clearly says that every child, including children in Africa, has the same right to get an education. Every child is different, with their own likes, talents, and ways of learning, so the education they receive should be adjusted to fit these differences. Because of this, it is hoped that children who need special support can go to school with other children, which is called inclusive education (Kauffman et al., 2020; Saloviita, 2020; Van Mieghem et al., 2020; Wilson et al., 2020; Woodcock et al., 2022).

The Indonesian government supports the idea of inclusive education. With inclusive education, kids who need special help can go to the nearest school and get the same learning chances as other children. This approach is meant to deal with one of the main problems in educating children with disabilities (Allam et al., 2021; Crispel et al., 2021; Lekhloetova et al., 2020; Maciver et al., 2019; Monteiro et al., 2019).

There are some schools in Tomohon North Sulawesi are appointed as inclusive school. Teachers holds significant roles in teaching students with special needs in inclusive classroom. Learning is an effort to enable students to learn, resulting in changes in their behavior (Sunhaji, 1970). A teacher's understanding of the concept of learning will significantly influence their teaching methods (Titu, 2015). Learning that can enhance the abilities of students with special needs is needed, thus requiring varied and innovative learning. One learning model is Project-Based Learning (PjBL). Project-based learning is learning that investigates a topic relevant to both students and teachers. Nurfitriyanti (2016) states that PjBL can be defined as a learning model that can enhance and develop students' abilities in planning, communicating, solving problems, and making appropriate decisions.

According to Eldiva et al. (2019) the benefits of PjBL learning are: a) students are able to build new knowledge from previous knowledge or the stimulus provided so that it becomes meaningful, b) encourage students to pursue concept acquisition, c) emphasize thinking in decision making, problem finding, problem solving, and discovery, d) create student independence in carrying out the learning process so that they can determine their own choices, work with minimal supervision/groups, and be responsible, e) can provide realistic roles to students, including selecting assignment topics, assignments and completing

assignments, work collaboration, products, applications, and product standards produced.

The rationale for using this model is that it is project-based and provides students with the opportunity to explore content (material) using various methods that are meaningful to them and to conduct collaborative experiments (Daniel, 2017). Moreover, Project Based Learning model, educators act as facilitators for students to obtain answers to guiding questions. In PjBL classes, students are accustomed to working collaboratively, assessments are carried out authentically, and learning resources can be greatly developed. Hmelo-Silver et al. (2006) state that teachers who implement PjBL act as facilitators of student learning and must continuously monitor students in discussing, selecting, and implementing appropriate strategies. Through this project work, children can learn from real experiences, so that learning becomes more meaningful (Hero et al., 2019; Miller et al., 2019; Tsbyulsky et al., 2019).

The implementation of project-based learning has many benefits in preparing students with special needs (PDBK) in solving real-world problems. Research by (Nisa et al. (2016) stated that the implementation of the PjBL model affects the independence of blind students. This is in line with Zakiah (2018) who found that the implementation of the PjBL model has an effect on improving the language skills of deaf students. Tofte et al. (2023) stated that the PjBL model is very important for improving the social skills of students with intellectual disabilities. However, this learning model is still very rarely used by teachers in school learning. Teachers were able to implement PjBL in one semester for the reasons 1) they could not decide on the topics or sub-themes to be taught using PjBL because 2) the curriculum had not been designed for the implementation of PjBL, 3) the implementation of PjBL requires more time. Various obstacles for teachers in implementing the PjBL model affect students in developing their abilities and skills. This study aims to determine the challenges of teachers in implementing the PjBL model in Inclusive Schools North Sulawesi Indonesia.

Method

This study used a qualitative descriptive approach. It was conducted in Tomohon City North Sulawesi, involving 30 teachers from 10 inclusive schools. The research data consisted of teachers' challenges in implementing PjBL-based learning after training. The training lasted three days, covering theoretical material and simulations related to PjBL-based learning and its implementation in inclusive schools. Data collection

used an online open-ended and closed-ended questionnaire, using Google Forms. The analysis used descriptive percentage analysis. The aspects measured were problems and teacher readiness. The problem aspect consisted of two indicators: planning and implementation. The readiness aspect consisted of planning and design.

Result and Discussion

Problems experienced by teachers in implementing the model PjBL occurs during the planning and implementation of learning. Data obtained from 30 teachers as respondents from inclusive schools teachers in Tomohon City North Sulawesi regarding the following issues:

In the graph it can be concluded that there are 59% of teachers who experience difficulties in implementing PjBL to students with special needs while 41% of teachers do not experience difficulties. The research data obtained shows several obstacles in the implementation of the PjBL model, namely; a) limitations in infrastructure that support learning, this is also stated by Friani et al. (2017) who stated that there are obstacles in providing tools and materials needed to compile projects. b) Experiencing difficulties in implementing the PjBL model for PDBK from various different characteristics, some students experience problems in the responsibility of doing assignments, difficulty in thinking, students lack focus, are not yet independent, thus teachers are expected to be able to adjust the needs and environment of children. This is very much a strength of teachers in providing meaningful learning to students. c) Experiencing difficulties in adjusting the theme. This is as found by Atandima et al. (2024) the success of using the PjBL learning model can also be influenced by the selection of the right lessons. Because not all lessons can use PjBL, the material and lessons given during the intervention are adjusted to the use of the PjBL learning model. d) Some parents are less able to participate. e) Collaboration with those around students is necessary, as many children still require support. The learning process prioritizes positive interaction and/or communication patterns between educators, students, and parents in selecting appropriate media, thus necessitating innovation through asking lots of questions, experimenting, and creating (Atandima et al., 2024).

Data obtained from 30 respondents from inclusive schools teachers in Tomohon North Sulawesi regarding readiness in implementing the PjBL model stated that they had made a programmed schedule; had designed skills using the PjBL model; designed various modifications that did not emphasize students and

parents; always explored knowledge about the PjBL model so that it could be applied in schools; found problems in schools so that teachers thought that the PjBL design was very suitable for the problem; Several teachers have implemented PjBL in their schools. One of the respondents stated: "Before students begin working on this project, we will discuss with them any obstacles they face when communicating with hearing people. Based on these obstacles or problems, students are encouraged to work on the project and create a work that addresses or solves the problem. Students will collaborate with their peers to complete the work/product, which is carried out in the activities scheduled in the student worksheet/journal. We will assess them throughout the process of implementing and completing the project, both individually and in groups. Assessment will be conducted through observation, questioning, review, and feedback. Students will also be encouraged to assess their understanding of the knowledge they have acquired and provide feedback to their peers." This is conveyed by Suharti (2016) that teachers have the role of motivator, informant, organizer, indicator, catalyst, conductor, facilitator, and evaluator. Therefore, the success of learning with the PBL learning model is also determined by the teacher's ability to process the learning. However, there are also some teachers who have not implemented this learning model due to various problems.

Conclusion

The results of the study indicate that 70% of teachers still experience difficulties in planning the PjBL model and 60% of teachers experience difficulties in implementing PjBL. However, 95% of teachers stated that the PjBL model can support the learning process for students with special needs. Obstacles faced by teachers in implementing the PjBL model include: a) limited infrastructure, b) difficulty implementing the PjBL model for PDBK with various characteristics, c) difficulty adapting the theme, d) some parents are less able to participate, e) collaboration with those around the students is necessary, as many children still need support. Given these challenges and teacher readiness, in-depth training on the PjBL model should be provided so that teachers can implement the PjBL model for students in inclusive schools.

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Conflicts of Interest

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