



## Project-Based Learning and Health-Promoting Lifestyle for Students with Disability in COVID-19

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### ABSTRACT

**Aims** This study aimed to identify and describe online learning in Special Schools (SS) and implement Project-Based Learning (PjBL) and Health-promoting lifestyle (HPL) in children with mild to moderate special needs.

**Materials & Methods** The method used in this research is descriptive with the survey method. This study involved 80 special education teachers in Central Java Province, Indonesia. The data was collected through a questionnaire accompanied by 11 questions whose validity was tested through focus group discussions. Data were analyzed qualitatively, collecting data, validating data, tabulating, conveying data, and concluding.

**Findings** The results showed that 96% of SS teachers in Central Java Province admitted implementing online learning for children with special needs. 75% of SS teachers stated that online learning was ineffective and not meaningful. Project-based online learning needs for SS teachers are at a high level of 72% for the very needy and 28% for the needy.

**Conclusion** Online PjBL exercises for children with mild special needs increase critical thinking skills. In contrast, it means increasing activity-based and health-promoting lifestyles for children with intermediate special needs.

**Keywords** Project-Based Learning; Health-Promoting Lifestyle; Home Learning; Online Learning; Distance Education

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## Introduction

The COVID-19 pandemic has caused massive changes in everything in various dimensions of people's lives, including education [1]. Learning, usually performed face-to-face, must change to distance education to limit the spread of the COVID-19 virus. These online learning rules apply to all educational institutions [2]. Distance education applies not only in regular schools but also in Special Schools (SS). The implementation of distance education has various challenges and obstacles [3]. Such as special school teachers who are not ready to face the change from face-to-face learning to distance education and parents who have difficulty assisting children with special needs (CSN) in carrying out learning at home. Students with special needs may experience one or more categories of disability requiring assistance [4].

The teacher plays a dominant role in the teaching and learning process to achieve the desired goal [5]. Teacher-parent educational interactions and children (especially CSN) in distance education during the COVID-19 pandemic are the key to successful home learning [6]. With the higher intention of the teacher-parent and special needs educative interaction, it is expected that teachers' success during the COVID-19 pandemic can be realized. Therefore, finding effective and meaningful learning strategies for CSN in distance education is necessary. One of them is the application of Project-Based Learning through Blended Learning (PjBL). PjBL is a learning model that follows a student-centered learning paradigm [7]. Many studies have shown that PjBL is effective in building more meaningful learning. Students taught using the PjBL strategy performed much better in self-directed learning skills than students taught using conventional methods [8]. The PjBL model for students with special needs is needed because students are trained to work independently, creatively, and solve problems through the project model. PjBL can improve students' critical thinking skills with special needs. PjBL is also effective for blind learning, even for hearing impairment and mild intellectual disabilities. PjBL contributes to developing soft skills that will meet the needs of the 21st-century job market. PjBL plays an important role in the learning process as they complete their projects [9].

During this pandemic period, distance education is not easy for all students with special needs in special schools. The teacher must use a more child-centered learning strategy that emphasizes strengthening skills and independence by involving existing resources around the house. The learning model offered is project-based online learning. The intention of interaction between teachers - parents,

and students during the COVID-19 Pandemic is very much needed. This interaction will occur if the teacher implements PjBL in distance education, which combines online and offline or Blended Learning. PjBL will be more meaningful to be applied during a pandemic because the learning process is child-centered, while teachers and parents act together as facilitators. Appropriate learning strategies are needed to achieve these 4C competencies; one of them is PjBL. Project activities in PjBL place students in an active role, namely as problem-solvers, decision-makers, researchers, and document makers. With PjBL, students become active while teachers and parents act as facilitators. With better relationships with teachers, parents/guardians are more likely to contribute to student learning [10].

There are many benefits obtained in PjBL, including (1) stimulating student activity, (2) encouraging interactive learning, (3) focusing on students tailored to the needs of students, (4) the teacher is a facilitator, (5) encouraging students to be more critical, and (6) more in-depth knowledge. In addition, several studies have found that PjBL can increase learning effectiveness, including building independence, creativity, group work, critical thinking, and even self-motivation [11, 12]. The positive impact of PjBL in improving the quality of learning has prompted many countries to start implementing PjBL as part of an effort to respond to the learning needs of 21st-century students [13-20].

Steps in PjBL using authentic assessment are known as the GRASPS method, (1) Goal, which contains an explanation of "problems that exist in the real world" and the actions that students will take in the scenario to solve problems in the real world (2) Role, namely the role of students in scenarios, where these roles are professions that exist in real-world (3) Audience, namely resource persons/communities / other participants who will later relate to the role of students in scenario (4) Situation, namely the challenges and details of the atmosphere or series of activities carried out in the scenario (5) Product, namely the results of student learning activities or during the scenario (6) Standards, stating how this task will be assessed, with what criteria the product is will be assessed and what are the indicators of success based on the national curriculum standard. In steps 1, 2, 3, and 4 of the project design, goals and objectives have been prepared so that in step 5, different results will be obtained. Suppose the project objectives are problem solvers according to i. In that case, critical thinking is the strategy for it, and the target is more oriented on those who are in mild level, the results of each group's project are different. While the project aims to solve the problem but does not

require individual/group analysis, a guide with stages is designed with the same individual/group analysis results. This second strategy is called activity base. The target of this strategy is mostly for moderate and heavy crew members. The results of each individual/group project will be the same.

## Materials and Methods

This research involves 80 teachers from 40 Special Schools (SS) in Central Java Province. The research subjects were selected based on the number of special school representative teachers interested in participating in project-based online learning training programs. Each special school is only allowed to send two teachers interested in participating in the training. The results of the administrative selection were 40 special schools that passed, sending two teachers each. The 80 selected teachers were then given an initial orientation regarding the training program through the In-On-In approach. (Online, Practice and Online). A need assessment is carried out using a closed multiple-choice questionnaire to determine the level of needs of the training participants. A valid questionnaire is formatted into a Google form and sent to prospective trainees. The incoming data were analyzed using percentage descriptive statistics to describe four things according to the research objectives, namely (1) describing the current online learning conducted by SS teachers, (2) knowing the obstacles faced by special school teachers in implementing online learning, (3) knowing the effectiveness of online learning for CSN, (4) knowing the level of teacher needs in implementing project-based online learning for CSN and (5) knowing the implementation of PjBL for CSN with mild and moderate level conditions. Teachers are given three days of training (In-1; online), on-the-job learning for one month (practice), and then return to In-2 activities to report implementation results PjBL model by respondents and discussion to determine the level of meaningfulness of PjBL implemented in online schools. A total of 40 schools reported the implementation of PjBL in writing, and four of them were asked to present their results. The four reports presented were analyzed qualitatively based on the project's name chosen in the learning process, the level of learning activity implementation, parental involvement, and activities-based and critical thinking.

## Findings

This research involves 80 teachers of special schools (Table 1). Teacher education produces relevant effects on teachers, which may have beneficial consequences for students and school improvement. The skill level can be considered as quite good

(81%). Only 14% of teachers claimed to be unskilled in online learning (Table 2). Teacher competence in information and communication technology is important in adapting to online teaching during COVID-19 school closures.

**Table 1)** Characteristics of Respondents

Parameters	Number	Percentage
<b>Gender</b>		
Male	14	18
Female	66	82
<b>Employment Status</b>		
Civil Servant	40	51
Non-Permanent Foundation Teacher	18	23
Permanent Foundation Teacher	21	26
<b>Length of work</b>		
1-5 years	32	40
6-10 years	9	11
Over ten years	39	49
<b>Educational background</b>		
Bachelor of Special Education	48	60
Bachelor of Non-Special Education	32	40

**Table 2)** Teacher skill level in using information technology

Teacher skills	Number	Percentage
Highly skilled	4	5
Skilled	65	81
Unskilled	11	14
Highly unskilled	0	0

92% of teachers used WhatsApp, 1% used Google Classroom and Zoom Meeting, and 3% used Google Meet media and a combination of various media. Social media and social networking applications can serve as helpful communication and teaching tools for developing countries.

28% of teachers stated varying obstacles, 68% said they had few obstacles, and only 4% indicated that they did not experience any difficulty.

25% of teachers stated that online learning was considered effective. However, 57% of teachers stated that online learning was considered less effective (Table 3).

**Table 3)** The Effectiveness of Online Learning for CSN

Effectiveness of Online Learning	Total	Percentage
Highly ineffective	1	1
Ineffective	2	3
Less effective	57	71
Effective	20	25
Highly effective	0	0

Finally, from the point of view of the meaningfulness of online learning for CSN, only 1% of the teachers explained that it was significant, 35% said it was meaningful, 39% was moderately meaningful, and 1% said it was far from meaningful (Table 4).

**Table 4)** Meaningful level of online learning for CSN

Meaningful level of online learning	Total	Percentage (%)
Highly meaningful	1	1
Meaningful	28	35
Moderately meaningful	31	39
Fairly meaningful	19	24
Highly meaningless	1	1

In the PjBL model, 72% of teachers wanted to participate, and 28% were motivated to try their abilities. Therefore, teachers need to try to apply PjBl learning in the classroom. Special schools need the PjBL model because many teachers still do not know and have never participated in this learning model training activity. 91% of teachers never attended training, and 9% attended PjBL training. Project-based learning and training to 80 teachers from 40 special schools in Central Java Province were conducted to determine the implementation of the PjBL Model for children with special needs. The training was conducted for three days face-to-face,

continued with field assignments for one month, and then ended with reporting the field results in face-to-face meetings. There are four schools used as examples of this research. The qualitative analysis of the implementation of PjBL in 4 sample schools is as seen in Table 5. PBL models allow students the freedom to develop their strengths by getting involved in something that matters to them. PjBL for children with special needs through online learning can encourage teacher-parent and special needs cooperation. PjBL for a mild level of special-needs children is meaningful in activities-based projects and encourages critical thinking.

**Table 5)** Implementation of the PjBL Model for CSN

School	Condition level of children	Implemented project learning	Project implementation level	Assessment result of children
SS N Tamanwinangun Kebumen	Moderate and severe level	Chili planting project with Polybag	Implementation is not yet optimal. There is cooperation with parents.	Activity-based PjBL implementation has not yet been a critical thinking process.
SS/D YPAC Surakarta	Mild level	Making vase by using eggshell project	Conducted well There is cooperation with parents. Emersion of new creation	PjBL implementation has a critical thinking process.
SS/B YPLB Karanganyar	Mild level	Waste management project	Conducted well There is cooperation with parents. Emersion of new creation	PjBL implementation has a critical thinking process.
SS C-C1 Yakut Purwakarta	Moderate and severe level	Project for utilizing plastic waste for wall decoration	Partially implemented plan There is cooperation with parents.	Activity-based PjBL implementation has not yet been a critical thinking process.

## Discussion

The application of online learning during the COVID-19 pandemic can affect students' attitudes and learning motivation to some extent. There was a statistically significant impact of online learning on students' learning difficulties. The effect of online learning on students with learning difficulties differed based on their disability and was higher in the case of multiple learning difficulties [21]. This study shows that, qualitatively, PjBL for children with special needs through online learning means two things: increasing activities based and critical thinking. It can encourage children's activities based and critical thinking at a mild level, but it can only increase activities based on moderate and severe levels [22]. Although most special school teachers in Central Java Province claim to be skilled and highly skilled in using information technology during online learning (86%), in terms of implementation, they still experience obstacles or difficulties when applied to children with special needs. Only 4% admitted that they did not experience difficulties or obstacles, which means 96% of teachers admitted to having difficulties in online learning for children with special needs. They also admit that online learning is less effective and less meaningful, and therefore they need solutions to make online learning more meaningful for children with special needs [23]. Professional development of teachers in digital skills is needed to prepare for future teaching

activities [24]. The quality of the educational process in an online environment depends on several factors, including teacher understanding of technology, strategies to attract students' attention, collaborative learning, motivating and encouraging students in learning [25].

According to the perception of SET, some of the obstacles that arise from parents include lack of coordination and communication, limited use of cell phones, and limited time for parents to accompany students. The obstacles that come from students are boredom and their lack of ability.

## Conclusion

Although most particular school teachers in Central Java Province think skilled enough in implementing online learning, 96% of them admitted that they experienced obstacles in implementing online learning for children with special needs. Most teachers, 75%, admit that learning is less effective and less meaningful. Therefore, the need for project-based online learning for special school teachers is 72% highly needed, and 28% need it. Project-based online learning training is needed by special needs teachers to improve meaningful home learning for children with special needs during the COVID-19 pandemic. The results of PjBL for children with mild level conditions have meaning in developing activities based and critical thinking skills. In contrast, those with moderate and severe level

conditions can only improve their activities-based skills.

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