

Project Based Learning in Improving Critical Thinking Skill of Children with Special Needs

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Abstract—Active, creative, and innovative learning can produce students who can interact and compete globally including students with special needs. Students with special needs must be able to solve learning problems with critical thinking skills. However, teachers have not used alternative learning to improve critical thinking skills. One alternative learning that teachers can use is project-based learning. In this study, the method used is a systematic literature review on a national scale. The results of the survey stated that project-based learning could improve the critical thinking skills of students with special needs. This learning involved students actively and adjusted to the characteristics of students. Factors supporting project-based learning for students with special needs are teachers explaining material in real terms, reliable infrastructure and regular learning patterns. While the inhibiting factor is that students are not familiar with the learning so that it requires time, guidance and modification in planning a project.

Keywords—*project-based learning, critical thinking skills; the child with special needed*

I. INTRODUCTION

The application of the 2013 curriculum learning requires students to be able to construct knowledge actively. The 2013 curriculum states that experience is not only the process of moving from teacher to student, but students must actively seek and process it [1]. This experience will strengthen the learning process and real assessment (authentic) in attitude, knowledge and skills competencies [2]. Therefore, learners' knowledge can be developed in school learning actively, creatively and innovatively.

Learning is a process of teaching and learning carried out by teachers and students consciously to achieve learning goals. The application of successful learning is learning that gives effect to students [3]. Learning and teaching activities that involve students cognitively and socially and work on tasks productively [4]. One of them is active learning centered on students. Even so, there are still many teachers who use conventional learning methods.

An optimal effort is needed to change teacher-centered learning into active learning for students [5],[6] states that teachers who understand the ability of students must be able to design effective and efficient learning processes. Active learning or student-centered is learning that actively involves students. Active learning provides opportunities for students to be independent in solving problems. Learners need opportunities to understand cognitive processes and involvement in the learning process [7], [8].

The cognitive ability of students is a thought process in understanding various lessons to be able to adapt to the

environment. Felicia in [9] says that cognitive has a role for students' development which can be influenced by family, peers and school environment. Agreeing with this statement Retnaningrum in [10], suggests that cognitive ability is the ability to think the brain in recognizing, understanding every lesson that is useful in logical thinking, critical, solving problems, attracting causal relationships and adapting to the environment. Based on the above opinion it can be interpreted that the cognitive abilities of students can be developed by the family, school and peers environment so that students know the future, such as the ability to think critically.

Every student needs critical thinking skills. Critical thinking ability is an active process in depth to ask questions and find information. The ability to think critically signifies the ability to receive information than focus on skills in problem-solving, rational, and remembering [11]. Opportunities in critical thinking can be trained in the learning process at school because critical thinking can generate interaction with the environment. In skills to think critically is very important in various aspects of life so it must be trained and developed in learning [12].

Ennis explained that the factors that can improve critical thinking are focusing on questions, analyzing and clarifying issues, answers, and arguments, considering reliable sources, observing and analyzing deductions, inducing and analyzing induction, formulating explanatory, conclusions and hypotheses, interesting, valuable consideration, establish an action, and interact with others [13]. Therefore the ability to think critically determines the ability of students in life including children with special needs.

Children with special needs are individuals who experience physical, motoric, intellectual, behavioral, social-emotional disorders that require special services to be able to participate in life. Widjaya stated that children with special needs have different conditions with other children that affect the growth and development of behavior in their lives [9]. Children with special needs consist of several types with different characters. Every child with special needs to improve critical thinking skills, because it is crucial for life to interact and compete globally [10]. Learning in schools with special needs children can develop abilities in the field of knowledge, attitudes, and skills as individuals and community members accompanied by the teacher's active role [11]. Based on this statement it can be interpreted that the teacher has a broader role in conditioning active learning so that students can think critically and actively one of them by modifying project-based learning by the characteristics of students.

Project-based learning is learning that uses projects/activities as their goals. Project work is an activity that requires students to be active in solving problems.

Research conducted [14] resulted in project-based learning accompanied by an effective strategy to demonstrate an improvement in the process of critical thinking skills to solve problems until they produce products. For children with special needs, project-based learning can be an alternative to improving children's learning in real life. Because project-based learning is constructive learning that provides practical knowledge that is permanent [11]

Therefore the purpose of this study is to examine the application of project-based learning in improving the critical thinking skills of children with special needs through relevant research sought in the database. The research question in this article is (1) how can project-based learning improve the critical thinking skills of children with special needs? ; (2) supporting and inhibiting factors for children with hearing loss in project-based learning.

The rest of this paper is organized as follow: Section II describes the literature review. Section III describes the proposed method. Section IV presents the obtained results and following by discussion. Finally, Section V concludes this work.

II. LITERATURE REVIEW

This section presents the literature review.

A. *Children with special needs*

Children with special needs are children who experience physical, motoric, intellectual, emotional, social, behavioral disorders/obstacles so that they need special services in participating in life. Kosasih, *et al.* in [15] suggests that children with special needs experience physical and psychological barriers that require special learning. Desiningrum, *et al.* in [16] states that children with special needs are children who need special treatment because of developmental disorders and abnormalities experienced by children. Based on the statement, children with special needs are children who suffer physical, motoric, intellectual, emotional, social barriers that affect the growth and development of children so that they need special services to participate in life.

Conventional learning methods are teacher-centered teaching and learning processes [7], such as lectures, question and answer, and assignments during the teaching and learning process. Insyasiska, *et al.* in [8] states that the independent assignments given to students have not been able to make them think actively. This assignment is because the role of the teacher is still dominant in solving the problems presented in the LKS. Some teachers only pursue learning objectives according to curriculum targets regardless of whether students have understood the concept or not [6]. Therefore the teacher must be able to design learning that is by the abilities and characteristics of students.

Children with special needs consist of several types including; Children with Physical Disorders consist of blind people, namely children whose sense of sight is not functioning (blind/low vision) as the recipient of information; deaf, that is a child who loses all or part of his hearing power so that he is not able or unable to communicate verbally; quadriplegic, which is a child who has a permanent abnormality or disability in the locomotor (bones, joints and

muscles). Children with emotional and behavioral disorders (*Tunalaras*) are children who experience difficulties in adjusting themselves and behaving not in accordance with the prevailing norms; Speaking children, namely children who suffer voice disorders, articulation (pronunciation), or fluency of speech, which results in irregularities in the

form of language, language content, or language function; Hyperactivity, psychologically hyperactivity is abnormal behavior disorder. Children with intellectual impairments consist of mental retardation, namely children who experience obstacles and backward development of spiritual, intellectual growth below the average; Children Slow learning (i.e., learners who have the intellectual potential slightly below average but not including mental retardation and so on.

Every child with special needs has different characteristics so that teachers as educators and facilitators understand the character and abilities of children in learning. One of them is the ability to think. Thinking ability is the ability to learn, reason, find, solve problems and others [17], [18]. These abilities must be trained through critical thinking, such as mentally disabled children who are unable to think critically well but children can be taught to tell each activity that is experienced in real [19]. For children with special needs, the ability to think critically has become part of learning in schools. Teachers can create an active, creative teaching and learning process and guide children to understand knowledge to be applied in everyday life [20]. Also, the teacher can help the child in telling the problems encountered, devise a plan and produce a skill.

B. *Critical Thinking Ability*

Thinking is processing information that is in memory, meaning thinking using the mind to consider and decide something. Thinking underlies almost all human actions and their interactions. Critical thinking is the ability to find problems and determine the attitude to be taken. Ennis Baron and Sternberg, suggest that critical thinking is a pattern of reasoning that is reasonable and focuses on what to do. Elizabeth Frascella expressed the essential characteristic of thought is an attitude of curiosity and action; this shows courage in intellectual. So it can be interpreted that critical thinking is an ability to determine decisions and actions based on reflective thinking patterns and focus.

Aspects of critical thinking according to Edward Glaser are knowing problems, finding ways to deal with issues, gathering information, compiling information, recognizing possibilities, understanding language, analyzing, evaluating facts, understanding cause and effect, drawing conclusions, test similarities, arrange patterns based on experience and make judgments. . The ability to think critically can also help children with special needs to do skills, such as understanding the opinions of others and making decisions [20]. The benefits of critical thinking skills for children with special needs can live independently and not depend on others in community life [11].

One way to improve critical thinking skills for children with special needs is to provide material that is appropriate to the child's character, such as deaf children having limitations in receiving information through the sense of hearing and requiring visual explanation [21]. Likewise, blind children

deliver more concrete material with real objects and give children the opportunity to touch these objects [12].

Some supporting factors in critical thinking involve students actively in learning. Active students will create new ideas and information otherwise passive students will be limited in a rigid mindset and waiting for direction and guidance in doing something. The use of active learning methods is learning that can create something so that the ability of students to develop actively [14]. While the inhibiting factor in critical thinking is the use of ineffective learning methods such as the lecture method, the absence of an active role for students in learning. Based on this explanation, critical thinking ability has several inhibiting and supporting factors, one of which is increasing the ability to think in children with special needs is the use of learning methods that actively involve children.

C. Project Based Learning

Learning is a process of teaching and learning carried out by the teacher consciously to achieve learning goals. States that learning has the meaning that the two-way interaction process of a teacher and students, occurs intensive communication to achieve the goal. Active and creative learning provides opportunities for students to solve problems together [22]. Students are required to be able to build new knowledge with prior knowledge so that it becomes a meaning. Formation of sense which is the acquisition of information based on what is seen, heard, felt and experienced

Learning with constructivist theory expects students to construct and develop their knowledge and information obtained. One learning that uses a constructivist approach is project-based learning. Project-based learning is the process of teaching and learning that is designed using projects/activities as its objectives. Project-based learning (PBL) focuses on student activities in the form of information gathering and its use to produce something that is beneficial to the lives of students themselves or others [17]. Stated that the activities carried out by students to find answers to questions posed by the teacher can form observations or observations.

Project-based learning has several principles according to Wena in [23] following; (a) Centralistic tenets emphasize that project work is the essence of the curriculum. This learning strategy makes students learn the main concepts of knowledge through project work. (b) The principle of the question confirms that the project work focuses on "questions or problems" that can encourage students to struggle to obtain the central concept or principle of a particular field. (c) The policy of constructive investigation confirms design, decision making, problem discovery, problem-solving, discovery, and modeling. The main activities in project-based learning include the process of transformation and construction of knowledge. (d) The principle of autonomy confirms that project-based learning as student independence in carrying out the learning process is free to make their own choices, work with a minimum of supervision/group, and be responsible and (e) Realistic principles emphasize that the project is real. Project-based learning must be able to provide realistic feelings to students, including choosing topics, tasks and the role of the work context, work collaboration, products, customers, and product standards. Based on the principle of

project-based learning, it can improve students' critical thinking skills.

The principles of project-based learning can develop students' abilities through real experience and independent work. Project-based learning is one of active learning by involving students independently by increasing students' thinking power such as critical thinking [19]. The activity of finding answers to questions from problems makes children have the opportunity to understand meaning independently, and research activities have different patterns of thinking so that students can explore their abilities [24], [25]. Students can develop skills other than cognitive skills by adjusting needs in learning and improving learning outcomes. Therefore, teachers can use project-based learning as alternative learning in improving children's thinking skills including children with hearing loss.

III. PROPOSED METHOD

This study uses a systematic literature review. A systematic literature review is a series of studies that use databases, then synthesized with specific topics. The literature used in this study is a previous study on a national scale. The research was in the form of journals and articles during 2010-2018. In the year the journal was published using the latest year so that the results still have the newest validity and do not miss other studies.

After determining several questions, the writer answers the question by identifying the relevant literature. Literature found from an electronic database of academic resources, organizations. Publications are Google Scholar, NELITI, and Garuda Portal. The keywords used for search are "Project Based Learning and critical thinking skills, then" "Project-based learning and children with special needs." Criteria specified in the database are indicators of critical thinking, children with special needs, and project-based learning. Finally, 5 selected five journals that will be analyzed and synthesized according to the research question. The journal comes from the NELITI, Google Scholar, and Garuda Portal databases with topics that match the criteria.

IV. RESULTS AND DISCUSSION

This Section presents the results obtained and following by discussion.

A. Results

Review literature studies that are compatible with the standards consisting of 5 national-scale journals. Each articles has one or two variables that match the criteria. The description of the results is in Table I.

The research was conducted by Zulfah [26] with the title "Project approach to the learning outcomes of energy concepts in deaf children in grade II at SDLB (2016)". The reason for this research was because deaf children had limitations in receiving information, so their abstraction skills were low. When studying electrical circuits, the child is unable to understand because the teacher uses lecture learning. Teachers should use learning that involves children in a real way to know the circuit. The research is to find out the effect of the project approach to understanding the electric circuit. This study looked at six deaf children in B-C Harapan Surabaya SLB. The method used was the Experiment "one Posttest

Design Pretest group." The results showed that there was a positive effect of project-based learning on electrical circuit material. In this learning deaf children play an active role in composing questions, using real objects in a series to do projects about the range of electricity.

Research conducted by Rejeki [22] with the title "Increasing the ability to recognize numbers 1-20 using the Project Based Learning method for Deaf students in grade 1 basic SLB N 2 Bantul (2016)". The reason for this research was because deaf children had difficulty understanding numbers and symbols. This difficulty understanding happens because the child only looks visually, without any information from the audio. This impact makes children reluctant to understand abstract concepts. The reality of teachers has not been able to apply visual learning, concrete and by the character of children. Active learning makes deaf children play a more important role in composing questions, using real objects in a sequence of doing projects about electrical sets. This research objective is to improve the ability to recognize numbers 1-20 with project-based learning. This study observed deaf students in grade 2 SLB N 2 Bantul. This research method uses classroom action research with two cycles. The technique used to conduct tests and observations. The results showed that the ability of children to recognize numbers 1-20 increases in the second cycle. In the period, one child is still confused in understanding the material number 1-20. The 2nd cycle of children begins to understand the concept of numbers with the help of media and to make products using beam media.

The study was conducted by Florentine and Siti [27] with the title "the effect of the use of the modification of the project method on the ability to recognize the nature of objects of mild VII mentally retarded children in SLB A C Dharma Wanita Sidoarjo. The reason for this research is that mentally disabled children are known to experience obstacles in the intellectual field so that they need a concrete explanation and motivation in learning. But in reality, the teacher has not motivated for children to be able to be independent in learning such as knowing the nature of objects. Even though children can absorb material accompanied by real learning methods. The purpose of this study is to improve children's storytelling ability in understanding the learning material of the nature of objects. Project-based learning used has been modified by the teacher according to the child's character. The teacher continues to assist and guide the child in project implementation. Researchers observed six children with mild intellectual disabilities in grade VII at SLB A C Sidoarjo. The method used was the Experiment "one group Pretest Postets Design. The results showed that project-based learning affects the ability of children to recognize the nature of objects through real objects. Children's interest arises in learning to characterize things.

The research was conducted by Anandita [14] with the title "the project method on the skills of selecting waste for blind students at SMPLB (2017)". The reason for this study is that blind children have difficulty in choosing garbage in learning science. Learning material choosing organic and inorganic waste requires the ability of cause and effect by involving children's experiences. But in reality, the child does not understand which garbage can be renewed or not. This is

because the child does not know exactly how the waste forms. The purpose of this study was to determine the effect of project-based learning on the ability to actively select children with visual impairment, collaboration, discussion, and independence. Researchers observed children with visual impairment at YPAB A PLUG in Surabaya. The method used was the "one group Pretest Posters Design" experiment without control class. The results showed that project-based learning increased the ability to choose waste in blind children. This learning involves children to touch and recognize garbage directly. After this, the child is given the opportunity to do the project choosing to be renewable and not renewed.

Research conducted [8] with the title "Project-based Learning Model (PBL) on the ability to make blind children soy milk. The reason for this study is that blind children are not given the opportunity to be independent and active in learning in school and daily life. Learning skills given when learning in school requires an understanding of the ingredients of making soy milk.

As stated that the purpose of this study is to involve the real experiences of children with project-based learning. Practical experience in knowing the process of making soy milk, the stages, the steps that will have an impact on the child's daily life. The researchers observed seven children with visual impairment at YPAB-A's SMPLB in Surabaya. The method used was the "one group pretest design" experiment. The results of the study found that project-based learning can improve children's abilities in the real experience of making soy milk independently which will help children in their daily lives.

B. Discussion

a) *Question 1: how can project-based learning improve the critical thinking skills of children with special needs?*

Thinking ability is the ability to express that critical thinking is a pattern of reasoning that is reasoned and focused on what to do. In research that has been reviewed critical thinking skills can be described through the child's ability to find problems, make questions, answer questions, conduct product experiments, make an analysis by retelling.

Project-based learning consists of several principles, namely the centralistic principle, the principle of making questions, the principle of product investigation, the principle of autonomy and practical principles. Indicators of critical thinking skills can be developed in learning-based practices. Every child with special needs differs from the application of the principle of project-based learning used. Critical thinking skills in this literature review are illustrated in essential thinking indicators. Indicators of critical thinking think not only high but also the active role of children in finding problems [29]. The active part of children in learning can be improved through the selection of dynamic learning methods. One way to enhance critical thinking skills is project-based learning [30]. Project-based learning has teaching and learning activities that involve children in finding problems, answering problems, arranging product manufacturing plans, designing products and retelling product results [20].

TABLE 1. RESULTS OF A SYSTEMATIC LITERATURE REVIEW

Reference	Reason	Goals	Samples & locations	Method	Project area	Research result	Advantages	Deficiency
Zulfah [26]	Deaf children experience obstacles in thinking abstractly about sources of energy (heat, electricity, light, and sound) in the surrounding environment	To determine the effect of the project approach on learning outcomes in understanding energy sources	Six deaf children Location: SLB B-C Harapan Surabaya	The pre-experimental study "Pretest-Posttest Design one group	Science material with project assignment approach mentions shows and writes energy sources.	There is PBL influence on children's understanding of energy sources. Children can provide concrete examples of energy sources. There is PBL influence on children's understanding of energy sources. Children can give real examples of energy sources. In PBL students play an active and concrete material.	Material about energy sources is given visually through images and objects directly.	Not doing PBL activities such as making creative work or project about energy sources.
Rejeki [22]	Deaf children do not understand the concept and number names into the number of objects. This difficulty understanding is because the child's interest in learning is still low.	To enhance the role and importance of children in learning to recognize names 1-20 using project-based learning	Deaf students are 2 in elementary school Location of SLB N 2 Bantul	Classroom action research with two cycles. Data collection techniques are observation and test.	Mathematical Material by recognizing concepts and number names into objects 1-20 through planning, action, observation and reflection stages	PBL can improve the number concept of 1-20 deaf children. PBL gives children the opportunity to play an active role. Active children will be motivated to think and answer questions.	Teachers carry out PBL stages through project work making Building blocks.	The child's interest is not seen at the beginning of learning because it is not accustomed or not yet adapted and requires a second cycle time
Florentine dan Siti [27]	Mentally disabled children have not been motivated to actively and independently answer questions about material properties.	To observe the effect of project-based learning in recognizing the nature of objects. Children with intellectual disabilities can tell the kind of objects independently.	Six people with visual impairment class VII. Location: Sidoarjo, Surabaya	Quantitative pre-experimental research approach design "One group pretest-posttest."	Science material about the nature of solid and liquid objects with PBL stages of preparation, implementation, and closing.	The effect of modified PBL according to the characteristics of ATG can help in increasing children's interest and understanding of material properties of solid and liquid objects through real objects.	The teacher modifies PBL stages according to the character of the mentally disabled child.	For children with intellectual disabilities, understanding the two properties of objects requires a long time.
Anitta [28]	Blind children need skills to sort organic and inorganic waste. But, blind children have not been	To determine the effect of project-based learning in sorting out organic and inorganic waste of blind students.	Sample: blind child location: YPAB SMP LB-A Surabaya	one group pretest-posttest design "is an experiment carried out on a group without a control group.	Science material about the skills of garbage that can be renewed and not. The teacher does the planning such as	Project-based learning enhances the skills of selecting garbage in blind children. So the child has the powers to be independent in the life	The teacher modifies PBL stages according to the ability of blind children. Like adjusting the	Not yet described the stages of PBL in recognizing organic and inorganic waste.

The use of project-based learning is indeed effective in improving critical thinking skills. This is evidenced by the use of project-based learning in the literature review that has been studied. But the implementation of project-based learning in each child has a different purpose. In the researches of Rejeki in [22], Zulfah in [26] the teacher carries out a project-based teaching and learning process for deaf children. Deaf children are children who experience limitations in receiving information and multiplicative tasks (math problems with many symbols) [7]. Therefore learning that is used for children must also be clear and concrete visually indeed supported using real objects infrastructure [8].

Unlike the use of project-based learning in blind children. This is evidenced by the use of project-based learning in skill lessons [11], [12]. This study both observes the ability to think critically through indicators of problem-solving, cause and effect and concluding. Learning science instructs children to be able to understand skills in choosing organic and inorganic waste. The ability to find problems in a real and active way can leave an extended and permanent meaning for children [31]. Likewise, making soy milk skills requires the ability to solve problems and arrange steps. The ability to think critically can also develop students' skills for community life [14]. So for children with visual impairment project-based learning can improve critical thinking skills according to the child's character.

Project-based learning in mentally disabled children is different from other children with special needs. This difference is because the ability of children in the intellectual field is lower than other children. Teachers who act as facilitators can guarantee the implementation of project-based learning [32]. However, the teacher may modify the application of project-based learning for mentally disabled children according to a character. Mentally disabled children are not required to be able to think high-level, enough to retell the nature of objects [17]. The teacher still acts as an educator and facilitator. Its function is for children to have an interest in learning the kind of objects with real objects and direct experience. Based on the explanation above, it can be interpreted that project-based learning can improve the critical thinking skills of children with special needs in different ways and modifications according to the child's character.

b) Question 2: what factors support and inhibit children with special needs in project-based learning?

Supporting factors for children with special needs in project-based learning are the subject matter. The subject matter delivered by the teacher must be adapted to the abilities and character of the child. The strategy that can be done by the teacher is to convey the purpose and implementation of the material so that the child is not confused [32]. Project-based learning used for deaf children in research must identify the child's initial abilities. Deaf children experience obstacles in the process of real abstraction. So the teacher gives lesson material in class and discusses with group friends. Likewise with project-based learning used for blind children. Learning content is delivered to the child with concrete and guidance in the steps of collaboration that will be carried out in doing the project. While project-based learning for mentally retarded children uses simple language in recognizing the material to be studied.

The ability of teachers to modify, plan and evaluate project-based learning for children with special needs. Modification of project-based learning with other strategies can be done so that children understand the material quickly and attractively [20]. One of them is the application of project-based learning for mentally disabled children. The teacher can modify the step of implementing learning that requires level thinking skills to be a more straightforward step and able to be understood by mentally disabled children. Then for deaf and blind children the teacher only adjusts the project-based learning stage with the ability of each child. If the child can take part in the learning phase, the teacher only monitors and directs the child in the implementation of the project. Every project-based learning conducted by the teacher must evaluate the ongoing teaching and learning process, whether it is a discussion between the teacher and the child, the child with other friends and the making of the project. Teachers play an essential role in reflective activities and evaluation in learning [33].

Infrastructure facilities are also a supporting factor in project-based learning. By the realistic principle that children must learn something real and indeed do it independently. The teaching aids used in project-based learning are handy because children receive real lessons with concrete objects and make children's knowledge about the material more profound [34]. Learning media used in research for children who are deaf, visually impaired and mentally retarded are real media by the material given. Like electrical circuit material for deaf children, teachers help children to recognize objects related to electricity. For children with visual impairment, the teacher helps the child is touching the real object that will be used, so that the child knows the real purpose and its function. While mentally disabled children are given new and straightforward media, then the child is assisted in recognizing the nature of the object in real terms.

The inhibiting factor of children with special needs in project-based learning is the lack of knowledge of children on the implementation of project-based learning. Project-based learning has a systematic stage by involving students in the process of authentic problem solving and designing products [34]. Previously the teaching used was learning with lecture and assignment methods. The lecture and assignment method makes the child passive and undeveloped [23]. Deaf and blind children have previously never used project-based alternative learning, so that children need repetition of

material to achieve the learning objectives, such as making questions, expressing ideas or opinions requires prior guidance. While the mentally disabled child is not necessary to be able to understand the implementation of project-based learning with the right stages, but the child follows merely each step of project-based learning.

Project-based learning requires children to design a product made with friends. Children with special needs require teacher guidance in creating a product and modification in carrying out abstract things. Children with special needs need modification and small assistance in carrying out obscure things. Authors in [17] stated that the step of project-based learning for mentally retarded children is modified, namely the teacher and students both determine the material, then the teacher helps the child form a group, develop the tools that will be used, do the product and guide

the child to tell about the activities that have been done. While deaf and blind children are free to determine group friends, design projects and carry out projects with group friends. The teacher only occasionally guides the child in knowing the tools and materials that will be used when the child works independently.

V. CONCLUSION

Active learning can improve children's ability to think critically. The ability to think critically is an action that must be done to decide an activity. This ability consists of indicators of understanding the material, finding problems, making questions, conveying ideas, conducting analysis, drawing conclusions and so on. The development of critical thinking skills for children with special needs is project-based learning.

The application of project-based learning improves critical thinking skills of children with special needs through syntax, which is an action step that helps children to play an active role in a problem or material. The ability of the child to understand the article or the problem has been modified by the teacher by the skills and character of the child so that project-based learning for children who are deaf, visually impaired and mentally retarded has modified steps but equally improve children's critical thinking skills.

Supporting factors for children with special needs in project-based learning are the delivery of material adapted to children's abilities. The use of real and concrete learning media and the ability of teachers to design, modify project-based learning as an alternative. While the inhibiting factor of children with special needs in project-based learning is the ignorance of children with project-based learning. Then the step of doing a project in children requires modification or guidance from teachers and other peers. So it can be concluded that learning to use a project can improve the critical thinking skills of children with special needs by adjusting their abilities and characteristics.

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