The Need of Functional Academic Learning Resources for Teacher in Developing Metacognition of Student with Intellectual Disability

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Abstract— **The research is aimed to describe the need of learning sources required by the teachers in developing the metacognitive abilities of student with intellectual disabilities in functional academic and to identify how the strategy used by teacher to develop the student's metacognitive abilities. Method used in the research was descriptive qualitative. Data was obtained by using the techniques of observation and interview. Subjects of the research were the teacher in extraordinary school (SLB) Yapenas and SLB Tunas Bhakti Yogyakarta. The validity of the data was obtained by triangulation of techniques and sources. Data analysis technique was descriptive-qualitative analysis technique. The results of the research were 1) the development of learning resources are required by teachers to develop metacognitive abilities of students with intellectual disabilities in functional academic fields. The learning resources should be arranged according to the student's abilities, arranged from the easy to difficult materials (task analysis) and can be applied in daily life (practical), 2) The metacognitive abilities of student with intellectual disabilities still needs to be improved. The strategies used by the teachers to develop the student's metacognitive are the role-playing and practice methods.**

Keywords—need of learning resources, functional academic, teachers, metacognitive, intellectual disabilities

I. INTRODUCTION

In learning process, learning sources are one of the elements that must exist to conduct the teaching and learning activities [1]. Learning resources are all forms of resources that exist outside of the students and those help the students easier in joining the learning process [2]. Learning process can be taken for the benefits of teaching-learning process either directly or indirectly, in-part or as a whole [3]. Learning resources provide the opportunities for the students to get more knowledge from various sources; not only from books but also from the environment.

According to the interview and observation in SLB Tunas Bhakti and SLB Yapenas Yogyakarta, the development of functional academic learning resources for students with intellectual disabilities is still low. The teachers use the textbook from official government, 2013 Curriculum book. Teachers feel that they do not need to make any development on learning resources since they are available in textbooksfacilitated by the government. On the other hand, the teachers play the important role in giving

assistance to the students in obtaining knowledge. The teachers have a role to prepare, to conduct, and to evaluate the learning process.

The teacher role are related to teacher competency. In developing their career, teachers should have 10 competencies which include: mastery of teaching materials, able to manage learning, mastery of class, mastery of media and teaching resources, mastering educational foundation, able to manage teaching interactions, able to assess learning achievement, engage in activities school administration, and understand research principles [4]. Based on these explanations, we can conclude that the role of a teacher in designing or arranging teaching materials influences student learning success. But the fact that happens is that there are still many teachers who have not developed teaching materials due to their lack of understanding when compiling teaching materials.

The development of learning resources emerges after appearing a problem designed to help the students achieve their learning goals. The need of learning resources for students with intellectual disabilities is more emphasized in the practical academic field or it is called functional academic. The functional academic in schools is implemented in a functional curriculum. The functional curriculum is also called the life skills curriculum. It is designed to teach and to deliver the functional life skills, or in other words, the skills are needed to support life, work, and to pursuit fun in an inclusive community [5,6,7].

Therefore, the approach used in the functional curriculum is the consideration of teaching the students with intellectual disabilities to help them becoming productive individuals in their community, and to support positive post-school outcomes [8]. Learning for students with intellectual disabilities in school life is more directed at the functional academic. It is because there are limitations of their metacognitive abilities.

Metacognitive is a person's awareness on how he/she learns, ability to assess the difficulty of a problem, ability to observe the level of understanding about himself/herself, ability to use various information to achieve goals, and

ability to assess the progress of learning themselves [9]. Metacognitive is the knowledge and the awareness of cognitive processes; or metacognitive thinking is an awareness of thinking itself, how our cognitive works when

we are thinking, and how our cognitive works when solving the problems [10].

Regarding metacognitive abilities, the students with intellectual disabilities expose characteristics of abstract thinking difficulties and limitations in their cognitive abilities. Limitations of cognitive abilities appear in the ability to remember, to generalize, and to focus on or to pay attention [11]. Explaining more about the cognitive disabilities that occur in students with low metacognitive abilities, they have difficulties in four areas: attention, memory, language, and academic.

The teachers can help the students with intellectual disabilities by making all things they have learnt relevant to real life experiences [12]. For this reason, learning resources that have been designed must be closer to the experiences of their daily life. The teachers design the learning activities in the classroom as similar as the real life [13].

Development of learning resources for students with intellectual disabilities must be arranged based on particular principles in order to be effectively used during the learning process. The purpose of the research is to describe the need of developing metacognitive learning resources for students with intellectual disabilities, and to find out how the strategies are used by teachers in developing the metacognitive abilities of students with intellectual disabilities.

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II. METHODS

The research used qualitative approach with type of descriptive research. In learning process, learning sources are one of the elements that must exist to conduct the teaching and learning activities [1]. Learning resources are all forms of resources that exist outside of the students and those help the students easier in joining the learning process [2]. Learning process can be taken for the benefits of teaching-learning process either directly or indirectly, in-part or as a whole [3]. Learning resources provide the opportunities for the students to get more knowledge from various sources; not only from books but also from the environment.

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Qualitative descriptive research is the research with the purpose to describe, to give a picture of a certain condition, situation, social phenomenon that occurs in the community without any interference from the researcher.

Table 1. Literature Guideline for Interviews of Teaching Material Requirement to Develop Metacognition of Student with Intellectual Disability

Literature Guideline for Interviews			
Variable	Aspect	Indicator	Item
Functional academic learning resources	Learning resources	Learning resources used by the teachers	1
		Learning media used by the teachers	2
		Lack of functional academic learning resources	3
	Functional academic learning	Functional academic curriculum	4
		Functional academic learning strategies	5
		Functional academic evaluation	6

In this study, researchers describe the need for functional academic teaching materials needed by teachers to teach students with intellectual disabilities. This research was conducted in SLB Yapenas and SLB Tunas Bhakti. The subjects of the research were five teachers of those schools. Data collection techniques were observations of functional academic learning in 4th grade and interviews with five teachers who are the subjects of the research.

Observations were made on functional academic learning with basic competencies about the concept of money. Interviews were conducted on teachers to determine the need of functional academic learning resources in developing the metacognitive ability of student with intellectual disability.

Table 2.
Literature Guideline for Observation of Teaching Material to Develop Metacognition of Student with Intellectual Disability

Literature Guideline for Observation			
Variable	Aspect	Indicator	Item
Metacognition skill of student with intellectual disability	Metacognition knowledge	Declarative knowledge	1
		Procedural knowledge	2
		Conditional knowledge	3
	Metacognition experience	Planning	4
		Information management strategy	5
		Comprehensive monitoring	6
		Debugging strategy	7
		Evaluation	8

Data of the research was obtained from primary data sources and secondary data sources. Primary data sources were obtained from the results of teacher interviews with 5 respondents. Secondary data sources were obtained from the study results of literature particularly the books of intellectual disability and the teacher's books used for functional academic teaching.

Data analysis techniques of the research were descriptive-qualitative analysis techniques. These followings were the steps [14]. First was data collection. Data collection

was taken from the results of interviews, observations, and documentations. Second was data reduction. Data was filtered into the specific data truly required as the basic data to develop metacognitive learning resources for students with intellectual disabilities. Third was data presentation in the form of narrative report. Fourth was drawing conclusions. Functional academic learning resources used by teachers are the student's book and teacher's book based on curriculum 2013. These books are provided by the government. Based on the results of content analysis of student's and teacher's books on functional academics, on basic competencies of concept of money, the arranged learning materials seem to highlight more on the academic realm; the affective and psychomotor domains is less indicated in the student books. Lack of learning resources on 2013 curriculum books, according to the teachers, are still uninformed, so that they are sometimes not on accordance with student's abilities.

The teachers reveal that functional academic learning resources for students with intellectual disabilities are very important. They believe that academic learning delivered to the students should be directed more at the practical and functional which can be applied by the students in daily life.

Metacognitive barriers experienced by students make the students are easier to forget to accept the learning, so it takes a special strategy to teach them. The learning methods that have been implemented by teachers so far include role-playing method and hands-on methods of teaching using concrete learning media. Learning evaluation is conducted in both writing and performance tests.

Metacognition ability is to think about thinking [15]. Metacognition is the ability to think in which the object of thinking is the thought process that occurs in itself. Learning designed by teachers to develop thinking processes in students with intellectual disabilities is by learning the simple and easy things first then moves to more difficult things. The teachers use task analysis to make it easier for students to understand the functional academic learning.

According to results of teacher interviews, student's metacognitive knowledge including declarative, procedural, and conditional knowledge still needs to be improved. Students with intellectual disabilities generally do not have the awareness to put themselves as the learners. They must still be assisted in determining what will be done or simply how to use the knowledge they have in their learning activities.

In terms of metacognition experiences, the students with intellectual disabilities also need to be guided in planning their learning activities. Knowledge information processing possessed by students with intellectual disabilities requires the specific strategies; for example, with a lot of concrete media, task analysis, and practical experience, so that the students are able to construct knowledge simply from themselves. About the evaluation, it is general to teachers who determine the best learning strategies that have been implemented so far. Whether it is effective or not; if it is ineffective, the teachers look for other learning strategies that are suitable for developing the student's metacognitive abilities.

Discussion

Functional academic field is the important thing that has to be mastered by the students with intellectual disabilities. Academic functional itself, is interpreted as a real-world application of core academic content and related skills that are meaningful and relevant to an individual's life [16]. This field is used when the students are deemed to need the assistance of life skills. The same issue is also needed when student's educational experiences in school where the formal education curriculum is applied is less effective to improve the student's skills required to get the success in post-school [17,18].

For students with intellectual disabilities, they need help in mastering basic skills such as reading, arithmetic, and writing. In teaching basic skills to students with intellectual disabilities, the teacher will use certain techniques or methods that are useful. The technique or method given by this teacher is using prompt, additional instruction, and allowing extra guided practice [19]. Student with intellectual disability needs assistance learning, the content and skills that many of other peers learn without special educational activities [20].

Students with intellectual disabilities have difficulty applying concepts that have been learned in a particular situation. For example, they may be able to identify a certain amount of money but have difficulty when applying numeracy skills when shopping. In this way, we can help students with intellectual disabilities overcome this by releasing what they learn with real-life experiences and making learning functional [21].

Based on result, the teachers reveal the lack of existing functional academic learning resources (for examples: the learning material is too difficult for the students with intellectual disabilities). There are some aspects need to be considered by teachers in developing teaching materials. One of them is by recognizing the characteristics of users (in this case, the students), the compatibility of learning objectives, the learning materials, and the evaluations. With this idea, the learning materials that should be developed by the teachers will meet the particular criteria. The criteria include: the appropriateness of content and linguistic aspects, the appropriateness of presentation, and the appropriateness of graphics [22]. The teachers also want a functional academic handout/ handbook that can deepen the teachers' knowledge in teaching functional academics. Of course, the preparation of handout/ handbook must be in accordance with the criteria of good teaching materials.

The teachers' strategy in developing the student's metacognitive abilities is conducted through the role-playing method or task analysis. These methods bring the students get closer to the daily life experiences. Teaching using role- playing is a holistic teaching method that grows the critical thinking processes, influences the emotions and moral values, and informs the factual data [23]. Thus, the students can feel the real pictures of something simply from this teaching method.

Teaching with role-playing method increases the efficacy of the learning experience and makes it feel more real in reality [24]. The results of other studies indicate that the students will be more successful in mastering the learning materials particularly when they get involved in real situations. One learning model that can be used by teachers in bringing the reality closer to learning method is the experiential learning method.

The experiential learning method activates the learning process to build knowledge and skills through hands-on experience [25]. This method will be meaningful if the students participate in carrying out the activities [26]. The students are actively guided by the teachers to find their own or to build their own knowledge through direct activities they have.

The experiential method is applied in the basic competence of functional academics. For example, the students can be invited to shop in the school's canteen directly, or the students are invited to set up the classroom learning where the students act as the seller and buyers and they have to use money and other concrete media. Therefore, the development of learning resources for students with intellectual disabilities should be arranged with task analysis and systematic. It's also able to help developing metacognitive abilities of the student through real learning which close to their daily life.

III. CONCLUSION

The results of analysis reveal that the development of learning resources required by teachers to develop the metacognitive abilities of student with intellectual disability in functional academic field. Arranging learning resources should be in accordance with the student's abilities, arranged from the easy to difficult materials or using task analysis and can be implemented in daily life and is practical. The strategies used by teachers to develop the student's metacognitive abilities are role-playing and practice methods.

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