Research Article

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The Development of Instrument for Identifying Linguistic Intelligence of Autistic Children Aged 4-5 Years at Kindergarten of Tursina Banyuwangi In 2022/2023 Academic Year

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Abstract: Developing linguistic intelligence in children with autism is one way to prepare children with autism so that they have a strong foundation for further development. For this reason, teachers need efforts to understand linguistic intelligence in children with autism, both through analyzing theories related to children's linguistic intelligence and identifying the linguistic intelligence of autistic children. This research aims to develop an instrument for identifying linguistic intelligence in children with autism aged 4-5 years at Tursina Kindergarten, Banyuwangi. The research method used is Research and Development (R&D) with the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) approach. The analysis stage produced 6 indicators of linguistic intelligence in children with severe autism aged 4-6 years. The design stage produces an instrument design in the form of short statements and orders. The development stage developed an instrument in the form of a checklist with 5 assessment scales after going through revisions based on the results of the FGD with 3 validators. The implementation stage involves testing the instrument in class by the teacher, and the evaluation stage is carried out by asking for a qualitative assessment from the teacher. The results show that the instrument is suitable for the conditions of children with severe autism aged 4-5 years, with the note that implementation requires conducive conditions for the child. This research contributes to the development of methods for identifying linguistic intelligence in children with autism and can be a guide for teachers in supporting the development of children with autism.

Keywords: Autism, Linguistic Intelligence, Instruments

Introduction

Multiple intelligences were discovered and then first developed by Howard Gardner, a developmental psychologist and professor of education from the Graduate School of Education, Harvard University, United States (Gardner, 2009: 15). Gardner characterizes intelligence as the capacity to generate ideas and find solutions in a variety of real-world contexts and circumstances. This understanding leads to the conclusion that intelligence is not an individual's capacity to respond to IQ test questions in a limited context without regard to their environment. However, intelligence also includes the capacity to find solutions to actual problems in various contexts (Gardner, 2009: 17).

Nearly everyone is drawn to certain learning modalities that serve as filters for communicating, processing, and learning. Intelligence is an expression of a person's thought process. Gardner (2009: 25) suggests that multiple intelligence is based on several benchmarks of ability where each child has multiple or multiple intelligences which include eight types of intelligence. Knowing multiple intelligences is by looking at several characteristics contained in them, namely the child's sensitivity to certain specific conditions. According to Gardner (in Musfiroh, 2014: 1.12), there are nine intelligences in multiple intelligence (MI) which include: linguistic intelligence (self-intelligence), existential intelligence (essence of intelligence), kinesthetic intelligence (motion intelligence), linguistic intelligence (picture-color intelligence), verbal-linguistic intelligence (word intelligence),

logical-mathematical intelligence (number intelligence), and visual-spatial intelligence (picture-color intelligence). Several experts suggest that children's language intelligence and thinking intelligence are interrelated (Pusari, 2011: 27). The development of a child's thinking will be higher if the child has a rich vocabulary. With this, it is very important for parents and educators to be able to understand and stimulate to improve language development in everyday life. According to Sujiono (in Tanfidiyah and Utama, 2019: 11) The ability to understand language and use it both verbally and non-verbally is known as linguistic intelligence. He believed that those with linguistic intelligence would persuade others easily, such as arguing, and, in the case of a teacher, presenting material using clear and concise language. Ideally, a person with linguistic intelligence is able to listen carefully, speak effectively, read well, and write skillfully. However, not everyone with linguistic intelligence has these four skills, because everyone has a different level of linguistic intelligence.

Verbal-linguistic intelligence in early childhood can be identified through several activities (Ambara, 2014: 32): Observing the willingness and ability to speak. Children who have verbal-linguistic intelligence talk more often, like to tell stories, express feelings through words, negotiate, and can influence the people around them; Observe children's ability to tell jokes using simple and acceptable words; Observe children's activities when exploring letters in class, namely matching letters, guessing words, exchanging letters, and many more activities related to spoken or written language. Pay attention to feelings of happiness when it comes to reading and writing activities and interest in books. Children who have verbal-linguistic intelligence learn by listening, pronouncing and paying attention to writing. Therefore, stimulation can improve children's verbal-linguistic abilities by taking them to a bookstore, providing facilities that children are interested in writing activities. The aims of improving abilities and developing linguistic intelligence are: (1) children can communicate well and correctly orally and in writing, (2) children are able to convince people around them, (3) children can understand and remember information, (4) children can express a explanation, (5) children can discuss the language itself (Sujiono, 2013: 197). Linguistic intelligence is intelligence that is closely related to language development (communication). Language and communication skills are said to be good and developed only in linguistically intelligent children (Utaminingsih, 2018:10). Language abilities in early childhood vary greatly. In children with special needs there are several disorders in communication and social interaction. Communication will take place if social interaction is also still taking place. However, it turns out that some children are unable to carry out social interactions due to problems in communication. According to Ni'matuzahro & Nurhamida (2016:31) children with autism tend to experience problems in communicating both orally and in writing.

According to Reber (in Trevarthen et al. 1998: 114), autism is a condition of a person who is extremely preoccupied with himself. This condition is a complex developmental disorder which is related to three things, namely disorders in communication, social interaction and imagination/behavioral abilities. Autism was first discovered by Leo Kanner, an American psychiatrist. This psychiatrist found dozens of children who had the same characteristics, namely that they were unable to communicate and interact with other people, did not care about the state of their surroundings, so they seemed absorbed in their own world. The Diagnostic Statistical Manual developed by American psychiatrists describes qualitative disorders of

social interaction and communication in autistic children which are characterized by the following symptoms (Dewi, 2014: 57): 1) Having difficulty making eye contact, body posture, facial expressions and body language others that regulate social interactions. 2) Difficulty developing relationships with peers. 3) Difficulty in sharing happiness, spontaneous success, lack of interest in something related to it. 4) Difficulty in social or reciprocal relationships. 5) Delay in speech development, 6) Inability to initiate and maintain a conversation. 7) Use of repetitive language (idiosyncantric), 8) Lack of variety in the nature of play, difficulty in socially imitating according to the stage of development.

Developing linguistic intelligence in children with autism is one way to prepare children with autism so that they have a strong foundation for further development. For this reason, teachers need efforts to understand linguistic intelligence in children with autism, both through analyzing theories related to children's linguistic intelligence and identifying the linguistic intelligence of autistic children. Based on this, an instrument for assessing the linguistic intelligence of autistic children is needed, especially those in the severe category or who are not yet able to use verbal language well. The laws that govern spoken and written words are the focus of linguistic intelligence. Children with extraordinary language intelligence tend to be good speakers, like to tell stories, and listen to stories or read attentively. Babies must be able to retain a variety of important knowledge about their mental processes to have this intelligence.

Certain characteristics differentiate linguistic intelligence from other intelligences. Manipulation of grammar, sound systems, meaning, use of language, and standards of usage all fall under this component of intelligence. (Khabib, 2016: 24). In this case, it is the linguistic intelligence of children with autism aged 4-5 years. The implication is that measuring the linguistic intelligence of children with autism with scientifically prepared instruments can provide significant information regarding the linguistic intelligence profile of children with autism aged 4-5 years. When conducting observations in early February 2022 at Tursina Kindergarten, Kabat District, Banyuwangi Regency, researchers found one child aged 4-5 years who had limited speech. This is characterized by the gaze shown in response to very minimal interaction, the child does not want to speak at all, even in response he only clears his throat. This is based on the diagnosis made by the psychologist at Tursina Kindergarten and the results of interviews with educators at Tursina Kindergarten provide information that the child really needs a stimulus that can stimulate the child's speaking ability slowly.

Based on the problems above, this research will develop an instrument for identifying linguistic intelligence in children with autism aged 4-5 years. This research was carried out at Tursina Kindergarten, Kabat District, Banyuwangi Regency, which is one of the institutions that provides inclusive education/schools, with the title "Development of Linguistic Intelligence Identification Instruments for Children with Autism Aged 4-5 Years at Tursina Banyuwangi Kindergarten".

The definition of linguistic intelligence is a person's ability to use words well, process words effectively, and be able to practice them in verbal and non-verbal forms. There are four skills in this intelligence, namely reading, listening, writing and speaking. According to Sujiono (in Tanfidiyah and Utama, 2019: 11), linguistic intelligence is when someone is able to read well, listen carefully, write skillfully, and speak effectively.

According to Gardner (in Chatib, 2012: 13) the core components of linguistic intelligence are sensitivity to sound, structure, meaning, function of words and language. Then it is related to the

ability to read, write, discuss, argue and argue. Linguistic intelligence is a form of intelligence that is closely related to word processing and its characteristic is sensitivity to sound, structure, meaning, function of words and language (Fadillah, 2017: 142). According to Musfiroh (2014: 1.13), children tend to like and are good at communicating effectively both verbally and in writing, like to make up stories, are enthusiastic in discussing and debating a problem, learn foreign languages, choose language games, read with high comprehension, easily remembering what other people say, not easily writing or spelling mistakes, good at writing simple poems and jokes, effective at grammar, rich in vocabulary, and able to write clearly are the abilities of children who have linguistic intelligence. Meanwhile, according to William W Hewit in the book Maskyur (2017: 19) linguistic intelligence is the ability to apply the benefits that differentiate geniuses from less brilliant people in their domain known as linguistic intelligence. Linguistic intelligence also refers to the capacity to skillfully persuade and influence others through words. For speaking, listening, reading and writing in everyday life, linguistic intelligence is very helpful. Linguistic intelligence can usually help someone in a career in the fields of hosting, marketing and politics.

Based on these opinions, this research refers to the opinion of Sujiono and Musfiroh that linguistic intelligence is a person's intelligence or ability to use or process words to convey them both verbally and non-verbally so that they can communicate effectively.

A developmental disorder that is so severe that it is included in the Pervasive Development Disorder (PDD) group. Autism is the inability to interact socially and understand the world in ways that others take for granted. Children with autism have very complex developmental problems that first manifest before the age of three. They are unable to communicate or express their desires as a result of the disease, which disrupts their behavior and interpersonal connections. Autism can occur in all children from various social and cultural levels. Based on survey results taken from several countries, it shows that 2-4 children per 10,000 children have a chance of having autism with a ratio of 3:1 for boys and girls. This shows that boys are more susceptible to autism compared to girls (Wijayakusuma, 2014:24).

Children diagnosed with autism have complex brain development difficulties that affect a variety of functions, including perception, intention, imagination, and feelings. These difficulties usually manifest before the age of three and are characterized by communication barriers in social situations and fixation on one activity or object.

As a result, these children require special education services to reach their full potential. Autism is a developmental disease that affects behavior, interaction, and communication in a variety of severe ways. The cause is a disruption in the development of the central nervous system, which causes abnormalities in brain function. Anyone can have autism; Socioeconomic position, educational attainment, ethnicity, or nationality are not factors (Indiarti MT 2007:7).

Many factors contribute to the development of autism symptoms, including genetics, infection during pregnancy with the rubella virus or galovirus, food allergies, metabolic disorders resulting in abnormalities in the limbic system, the health of pregnant women who smoke, and heavy metal pollution, especially lead.

According to Ginanjar (2008: 30-31) explains several possible causes of autism in children. The factors that are thought to cause autism in children are: 1) Genetic factors. Genetic factors are one of the causes of autism in children. This is based on studies of twins which show that genetic factors play an important role. This was later proven, If one child shows symptoms of

autism, there is a strong possibility that his twin will follow suit. Genetically related variables include things like the age of the father when the wife became pregnant, the age of the pregnant woman, and problems that arise during pregnancy and childbirth. The conclusion is that there is a possibility of autistic disorder because there are family members who show characteristics of autistic disorder and there are family members who show characteristics of autistic disorder and there are environmental factors that trigger it. 2) Problems with pregnancy and childbirth. The risk of autism is associated with problems that appear in the first eight weeks of pregnancy. It is believed that mothers who use illegal drugs and alcohol increase their child's chance of autism. Compared to newborn babies who are born normally, premature babies are also more susceptible to suffering from neurological problems. 3) Measles, mumps and rubella vaccine, or MMR. This is still debated, but one of the things that is widely considered to be the cause of autism is MMR. A number of research projects conducted in the US and UK do not support a link between MMR and autism. 4) Pollutants from the environment and heavy metals. Autism is mostly caused by environmental causes. The fetus can be harmed by various toxins from wall paint, air pollution, and pesticides. Studies conducted on several children with autism revealed increased levels of heavy metals in the blood. Thus, metal poisoning is considered a contributing factor in autism spectrum disorders. 5) Regurgitation. Research conducted by experts reveals that low immunity, high allergies, and digestive disorders of various types of food are common in children with autism. The food they eat cannot be converted into the nutrients the body needs because of problems with the intestines.

According to Handojo (2008: 11) the causes of autism are:

a. In the first trimester of pregnancy, namely 0-4 months, these trigger factors can consist of: infections (toxoplasmosis, rubella, candida, etc.), heavy metals, drugs, severe vomiting (hyperemesis), heavy bleeding.
b. Birth process: A long birth process (prolonged parturition) where there is disruption of nutrition and oxygenation to the fetus.
c. After birth (post partum) Severe-mild infections in babies, MMR and Hepatitis B immunization, heavy metals, MSG, dyes, preservatives, cow's milk protein (casein) and wheat flour protein.

Symptoms seen in autistic children are uncontrolled diarrhea or constipation, abdominal pain, gas and bloating, foul-smelling and lighter-colored stools, and difficulty sleeping every night due to intestinal damage because stomach acid rises and burns the esopaghus and lifts and burns the esophagus, where the food enters the stomach (in Yuliana, 2006: 9).

According to Mujiyanti (2011: 8), there are many behaviors involved in autistic children and there are 4 symptoms that always appear, namely:

1) Social isolation
   Extreme autism alone is a term for a condition in which many autistic children isolate themselves from other people. Older children will be more aware of this, and he will act as if the other person is not there.
2) Cognitive Weakness
   The majority of autistic children (about 70%) have mental retardation; IQ refers to autism with intellectual disability; Nevertheless, infertile autistic children did slightly better, for example in sensory motor skills. Children with autism may have better social interactions with their peers, but this does not reduce the mental disability they experience.
3) Deficiencies in language
   More than 50% of those with autism are nonverbal; The remaining people simply babble, complain, or display ecocalia, which is an imitation of someone else's speech. Some

children with autism repeat random word samples, TV commercials, or parts of songs. Certain children with autism use pronouns in strange ways.

4) Stereotyped behavior
   Children with autism often move in the same way non-stop without a clear goal. such as tiptoeing, circling, and so on. Physical damage, such as a neurological condition, causes these actions to recur. Children with autism also often pull their hair and bite their fingers. The urge to engage in this strange behavior is quite strong in them, even though they often suffer as a result of their own actions. Autistic children are also only interested in certain parts of an object, for example the wheels of a toy car. Autistic children also like monotonous environments and habits.

According to Hadrian J (2008:10), Autism can be classified into several parts based on its symptoms. This classification can be provided through the Childhood Autism Rating Scale (CARS). This scale evaluates how well a child can utilize their body and belongings, communicate with others, imitate others, react to emotions, adapt to changes, and provide tactile, visual, auditory, taste, and olfactory reactions.

The Childhood Autism Rating Scale also evaluates how scared or anxious children are, how well they can communicate verbally and nonverbally, how consistently they respond intellectually, and how they appear overall. The classification is as follows:

1) Mild Autism
   Even though it doesn't last long, children with autism still make eye contact. Although rare, autistic children may show facial emotions, speak in both directions, and respond minimally when called by name. The actions taken are still easy and controlled. Because this behavior is usually only rarely exhibited, it is still easy to control.
2) Moderate Autism
   Children with autism still make very little eye contact in these circumstances, but they also don't react when their name is called. Although they can still be managed, aggressive or hyperactive behavior, self-harm, apathy, and stereotypic motor disorders are usually more difficult to manage.
3) Severe Autism
   Children in this category with autism show very erratic behavior. Children with autism usually bang their heads against the wall repeatedly and incessantly. Autistic children repeatedly hit their heads while parents try to stop them, but the child ignores them and continues to do it, even when they are in their arms. The child doesn't stop until they are completely tired, at which point they fall asleep. Another problem was that the young man seemed completely exhausted and helpless, and he continued running around the house, smashing his body against the walls, until late at night. Sweat drenched his entire body. but continued running while sobbing. Like wanting to stop, but finding that he was powerless over everything. Until the young man finally woke up and fell asleep, tired.

Communication is the process by which people exchange information and express their thoughts. This occurs through language, with the sender encoding the message and the recipient decoding or understanding it (Krech in Uno, 2013). Language can be expressed through writing, speaking, gestures, visuals, and symbols. When messages are exchanged, the communicant and communicator build a connection based on their understanding of each other's language. Children with autism struggle to understand and use language when interacting with others. Receptive language (receptive language) and expressive language (expressive language) are two areas in which autistic children's use of language presents communication challenges

(Alloy, 2005: 426). Maurice (2002) calls them receptive speech and expressive speech. Receptive language is a child's capacity to hear and understand words, known as receptive language. Children's ability to use language through gestures, written words, and vocalizations is known as expressive language. The three main aspects of social interaction, communication, and autism behavior are covered by autism. It's important to start teaching autistic children to communicate from a young age (between two and three years old). Other areas of development will be affected if children with autism do not show satisfactory progress in their communication skills by this age. Children with autism usually struggle with interaction and communication. Consequences for education: Even in elementary school, children with autism struggle to learn at the pre-school level. The social, emotional, and cognitive elements of growth do not develop well in this environment. According to Nugraheni (2008: 20), the communication characteristics of autistic children are: Delayed in speaking, no ability to communicate non-verbally with body language, babbling in strange language and babbling (echolalia).

Components of Linguistic Intelligence for Children with Autism according to Yunandys (in Nafiah, 2018: 13) argue that someone who has high linguistic intelligence will have criteria such as: Can easily convey words that are difficult to pronounce; Likes to read anything; Can express something easily through speech or writing; Likes playing games related to words such as crossword puzzles; Really likes giving speeches and debating explaining solutions and also answering questions; Has a very large vocabulary; It is very easy to learn through listening or reading; His imagination comes out when he writes or speaks. Linguistic intelligence helps speaking, listening, reading and writing in everyday life. Appreciation for activities related to language, such as reading, composing essays, poetry, aphorisms, and so on, is a common trait among students with high language intelligence. Such students also often have excellent memories, especially when it comes to names, unfamiliar vocabulary, and specific details. They usually pick up things more quickly through talking and listening. These students usually have a greater ability to learn a new language than other students. They like to communicate verbally and enjoy reading, writing, and speaking. They serve words not only for their explicit and implicit meaning but also for the form, tone, and vision they imagine when they are made different from the typical (in Julia, 2016: 44).

Method

The type of research used in this research is research and development (R&D). According to Sugiyono (2019:29), the Research and Development research and development method is a research method that systematically examines how to design a product, develop/produce the design, then evaluate the performance of the product which aims to obtain empirical data so that can be used as a basis for creating products, tools and models in learning and non-learning. The product of this research is an identification instrument which focuses on multiple intelligence, especially the linguistic intelligence of children with autism.

The place used in the research is the target location that the researcher will visit as a place for carrying out the research. The place where this research was carried out was Tursina Banyuwangi Kindergarten. The research subjects in this development research were carried out on one group A student who was in the 4-5 year age range with special needs, namely people with autism with a diagnosis of moderate autism and group A educators/teachers.

The instrument for identifying linguistic intelligence in children aged 4-5 years with autism is a tool used by teachers in the process of collecting data about the potential and development of children's abilities in recognizing, responding, imitating and using words which include aspects of listening ability (passive language/ receptive), speaking (active/expressive language), reading (passive/receptive language) and writing (active/expressive language).

The development research design in this research is to use the R&D method with the ADDIE approach consisting of Analysis, Design, Development, Implementation and Evaluation which was developed by R. Maribe Brance (in Sugiyono, 2019:38). Here is the explanation:

1. Analysis Stage (Analysis)
   The analysis stage is an activity that involves analyzing work conditions or situations and the environment in order to find products to develop (Sugiyono, 2019:38). At this stage, researchers divide the analysis stage into several parts. These sections consist of needs analysis and analysis of student characteristics. Needs analysis is used to find out and understand the problems found by researchers related to the condition of the object to be studied. The analysis of student characteristics is an analysis stage to see the condition and behavior of students related to their linguistic intelligence. The expected result of this analysis stage is the formation of indicators of linguistic intelligence for autistic children aged 4-5 years.
2. Design Stage (Designing)
   The second stage of the ADDIE approach model is the design stage, which is the initial design stage of a product that is in accordance with what is needed (Sugiyono, 2019:38). In this research, the design consists of preparing statements as a form of testing the linguistic intelligence abilities of children with autism, designing product specifications, and product targets.
3. Development Stage (Development)
   The Devolopment stage is the activity of creating and testing a product that will be implemented (Sugiyono, 2019:38). In this stage, instrument forms are developed that are ready to use, guides and media needed for implementation. Furthermore, the forms, guides and media used as instruments of linguistic intelligence for autistic children aged 4-5 years will be submitted for validation to several validators including the Principal of the Tursina Banyuwangi Kindergarten, the class teacher at the Tursina Banyuwangi Kindergarten, and a school psychologist at the Tursina Banyuwangi Kindergarten.
4. Implementation Stage (Implementation)
   The Implementation stage is the activity of implementing and using a product (Sugiyono, 2019:38). The purpose of this stage is the implementation of a product that is declared to have passed the test by the validator and is ready to be used and implemented. The implementation activity in question is carrying out trials on children with autism who have previously passed the test by the validator. The trials were carried out twice, with each test carried out after revision by expert validation of the linguistic intelligence instrument for autistic children with one student at Tursina Kindergarten who had autistic disorders as the research subject.
5. Evaluation Stage
   The Evaluation stage is the final stage of activities to provide value to the development activity steps for a product that has been made and meets specifications (Sugiyono, 2019:38). This evaluation was carried out after the instrument for identifying linguistic intelligence in autistic children aged 4-5 years had been implemented. The evaluation aims to find out what is lacking and needs to be

improved in the development of an instrument for identifying linguistic intelligence for autistic children aged 4-5 years. After implementation, the next stage is to analyze the effectiveness and efficiency of a product in the field. Effectiveness is based on whether the product used is appropriate and refers to indicators of linguistic intelligence in children with autism. Meanwhile, efficiency is seen from the instrument items which are not too long or are arranged briefly but are still clear to apply. At this stage, product deficiencies in implementing the instrument are identified one by one. After identification, the next step is final revision. The results of the revision are used to improve products that previously could not be met according to their needs.

The data collection method is a process of obtaining empirical data through respondents using certain methods (Ulber, 2009). Data collection methods are important to support the success of research. This research uses observation and interview data collection methods. Observations were carried out by looking at children's linguistic intelligence when interacting with teachers and other children both inside and outside the classroom at Tursina Kindergarten, Banyuwangi Regency to observe the linguistic intelligence abilities of autistic children aged 4-5 years, then recording things related to the signs. being investigated. In this case the researcher only makes observations and is not directly involved in the field in ongoing activities. In this study, the researcher used a checklist observation sheet (√) for each aspect observed if it was appropriate to what the child was doing, and marking was done during the observation activity. Observation sheets are contained in field notes or anecdotal report sheets. Interviews were conducted with several important questions to both parents and teachers. The questions asked to the teacher consisted of understanding linguistic intelligence and implementing identification in autistic children aged 4-5 years. Meanwhile, the interview questions asked to parents were about children's communication skills, children's repetition of language, listening to stories, mentioning the names of objects around them and children's writing abilities.

Data Analysis Techniques are 1) Data collection, 2) Data reduction, carried out by summarizing, focusing on themes and how the design will provide an accurate picture and make it easier for researchers to carry out further data collection. 3) Data display, displaying data which can be done in the form of short descriptions, flowcharts, relationship charts between categories and theoretical explanations which will make it easier for researchers to understand what will happen in designing the next performance. The type of validity carried out in this step is content validity which will check the match between the test items created and the indicators, which have been determined before the assessment instrument is tested. According to Susetyo (in Fitriyanti, 2020:36) a good test tool is a test tool whose measurement results can provide a true picture of the test taker's abilities in the particular field that is the target of the measurement. Arikunto (in Fitriyanti, 2020:37) The measure of the level of validity or validity of an instrument is called validity. If an instrument can measure the expected results and does not deviate from the intended validity description, it is considered valid.

Content validity is the type of validity used in this investigation. Thus, experts determine whether a test item is valid if it meets the specified indicators or objectives. In calculating content validity, researchers used a calculation developed by Lawshe, known as the Content Validity Ratio (CVR), with the following formula:

$$CVR = \frac{2Mp}{M} - 1$$

Keterangan:

Mp = Jumlah ahli yang menyatakan penting
M = Jumlah ahli yang memvalidasi
Indeks rasio CVR berkisar $-1 \leq CVR \leq +1$

$Mp < \frac{1}{2}M$ $\quad CVR < 0$
$Mp = \frac{1}{2}M$ $\quad CVR = 0$
$Mp > \frac{1}{2}M$ $\quad CVR > 0$

Figure 1. Content Validity Ratio

An item is declared valid if the CVR index is positive and if it is negative then it is declared invalid because the CVR ratio index is 0 = 0.50. Items are declared to have met content validity if there is a match between raters above 0.50.

Results and Discussion

The subject in this research was a student at the Tursina Banyuwangi Kindergarten who, based on analysis when he first entered school, was declared to have autism. Based on the results of interviews with educators, the student experienced many limitations in his communication (there were written documents). The student is Ar. Ar is the initial name of a boy who is currently in class A at the Tursina Banyuwangi Kindergarten who is physically normal. Initially, Ar students were children who were born normal both physically and in terms of communication. Ar is active like any child his age. Ar's difficulty in communicating until he was finally diagnosed with severe autism began when Ar felt different symptoms when he experienced stomach ache and high fever when he was only 3 years old. Ar slowly began to lose his receptive abilities and experienced several conditions such as difficulty speaking after experiencing stomach ache and high fever. He is often silent and is only able to make eye contact in response to people around him who are communicating.

When he entered the Tursina Banyuwangi Kindergarten, student Ar was placed in group A. At that time he was 4 years old and when he first entered school Ar could not speak much because his vocabulary was still limited. Based on the results of an assessment by experts when he first entered school, Ar still had difficulty making eye contact when communicating, experienced signs of autism as in general, namely parroting, flapping, circling, licking and biting all the objects around him, difficulty concentrate, and Ar also sometimes experiences hyperactivity to the point of physically injuring the people around him. The results of Ar's learning progress report (Student Progress Report) in class A, report 1, stated that every morning Ar always received a speaking stimulus from the class accompanying teacher. Ar is also often involved with his class friends in activities carried out every morning such as stimulus response, snack time, and circle morning. However, Ar's condition is not always calm every morning, there are times when Ar experiences tantrums and starts to become hyperactive, when this happens the therapy teacher who is also one of the psychologists at the Tursina Banyuwangi Kindergarten immediately calms Ar and takes Ar to a special room.

Currently student Ar is 5 years old and is occupying class B at the Tursina Banyuwangi Kindergarten. Your child's behavior is not much different from his previous age. However, because Ar's son diligently attended therapy with the school psychologist which was carried out every day after school, namely 3x a week, Ar slowly experienced significant changes, including turning his head when his name was called, Ananda was able to carry out the instructions given on condition that the teacher still had to point to the target object, his behavior. flapping, parroting and biting objects around him also began to decrease. In the next semester, Ar's students experienced changes which actually

returned to normal, Ar's behavior changed 180 degrees to the situation when he was first accepted at Tursina Banyuwangi Kindergarten, according to information from Ar's parents he had undergone stem cell therapy. This matter is still being consulted with your therapist until now.

Analysis Stage (Analysys)

Before starting to develop and test linguistic intelligence instruments on autistic children, researchers first carried out analysis activities. The analysis stage is the initial stage to analyze the need for instrument development. The analysis stage in this research is needs analysis and analysis of student characteristics (the object under study). The related analysis stages carried out by researchers are as follows:

1) Needs Analysis

The first thing researchers do is analyze needs. The needs analysis is intended to find out and understand the conditions of the school and the research subjects as a basis for designing an instrument for assessing linguistic intelligence for autistic children aged 4-5 years at the Tursina Banyuwangi Kindergarten. Based on the Individual Education Program (IEP) at Tursina Banyuwangi Kindergarten, Ar, who is a child with severe autism, was recorded as having several needs or limitations. The IEP itself is a design or program that is structured based on the results of assessments for children with special needs that are adapted to the child's needs, abilities and condition (Asri, et al, 2023: 2). This is because the IEP is the main curriculum for students with special needs. These needs are divided into five categories. First, in terms of learning behavior, Ar still needs to practice to increase focus and concentration on the learning process and doing the tasks given by the teacher. In general, you still need to continue to be accompanied and motivated in training Ar's focus. Apart from that, Ar still needs to practice patience and restrain his emotions in learning to train his focus. Second, readiness to study at school in the Ar class is quite good. Ar needs to continue to be motivated to be ready to join the teacher and his friends in the learning process and activities inside and outside the classroom. You also need to understand your schedule every day. Third, social-communication-emotional. Ar still needs to develop a good attitude with the teacher and his friends in class, such as not pulling on clothes, pulling on headscarves, pulling hair, or taking other people's food. You still need to learn vowels (a, i, u, e, o) and improve your communication skills. Ar also needs to develop a patient attitude and also improve his ability to interact or look at the person he is talking to when a friend or teacher asks him to talk. Fourth, namely cognitive-academic where Ar needs assistance to complete all of your assignments. Fifth, Ar's psychomotor skills still need assistance to focus and actively follow instructions in carrying out activities that involve movement activities.

2) Analysis of Student Characteristics

This analysis of student characteristics was carried out to see the condition and behavior of students in terms of their linguistic intelligence, such as communicating with teachers and their peers, both in teaching and learning activities in the classroom and during activities outside the classroom. Ar is one of the students at the Tursina Banyuwangi Kindergarten who was diagnosed with autistic disorder. Ar is a student who still has difficulty speaking. Ar often experiences tantrums during class hours. This condition causes him to have to be completely calm when he wants to take part in class lessons. Under these conditions, the teacher uses several methods so that Ar can learn well. Some of the methods used by teachers in their daily learning

activities include providing stimulus responses, playing games related to letters and numbers, inviting students to join in prayer together, etc.

From this analysis stage, indicators of linguistic intelligence for children with severe autism aged 4-5 years were produced, namely:

Table 1. Indicators of Linguistic Intelligence Instruments for Autistic Children Aged 4-5 Years

Statement
Able to carry out two-word commands
Able to point to the part of the body in question
Able to answer questions with the answer "yes" if accept and "no" if refused
Able to repeat words consisting of two syllables
Able to say words consisting of two syllables
Able to pronounce the names of objects he likes clearly

Based on the indicators of the linguistic intelligence instrument for autistic children aged 4-5 years above, it can be seen that measuring the linguistic abilities of autistic children consists of two aspects of development. The first aspect of development is understanding language. Understanding language in autistic children means that the child is able to carry out two-word commands instructed by the teacher and the child is able to point to the part of the body in question. Meanwhile, the next aspect of development in the linguistic intelligence of autistic children is expressing language. Expressing language in autistic children means that the child is able to answer questions with a "yes" or "no" answer, the child repeats words consisting of two syllables, the child is able to say words consisting of two syllables, and the child is able to say the names of objects he likes with clear.

Design Stage (Design)

The design stage is a design process before the researcher designs an instrument for identifying the linguistic intelligence of autistic children by studying several existing theories and analyzing the needs and situations of autistic children. The design stage is carried out by:

1) Compiling statements as a form of indicator of the linguistic intelligence abilities of autistic children

   The first stage carried out in the design stage is to determine statements for each indicator of the linguistic intelligence abilities of children with severe autism. Statements are structured as a form of ability that can be measured and a 2-3 word command to trigger that ability to emerge so that it can be assessed.
2) Draft product specifications

   The product designed in this research is a linguistic intelligence instrument for autistic children aged 4-5 years with severe autism disorder. The form of the linguistic intelligence instrument is in the form of a checklist of several statement items. This checklist form is considered easier to understand and carry out by both therapists and class teachers.
3) Product goals

   The targets in this research were autistic children aged 4-5 years at Tursina Banyuwangi Kindergarten with severe autism disorders. In the next stage, this product can be developed to test the linguistic intelligence of autistic children aged 4-5 years with severe autism disorders.

Development Stage (Development)

Based on the results of the design that has been carried out by considering the results of needs analysis and student analysis, as well as compiling a grid of linguistic intelligence instruments for linguistic intelligence for children aged 4-5 years with severe autistic disorders, the next stage of product development is carried out. The product development stage in the form of this

instrument begins with describing statements as a form of instruction to then analyze the impact or response of autistic children when the instructions are carried out. In the results stage of developing linguistic intelligence instruments, autistic children aged 4-5 years with severe autism disorders also used FGD or Focus Group Discussion consisting of kindergarten teachers, the Principal of Tursina Banyuwangi Kindergarten, and school psychologists. This FGD is intended for researchers to obtain a lot of information in the form of suggestions and input related to the linguistic intelligence instruments that will be assessed and finally tested. In this process, researchers also provide as much space as possible for experts or validators to assess the contents of the instruments that have been prepared. Bearing in mind that the validators are experts in their fields at Kindergarten Tursina Banyuwangi, so the input and suggestions produced really go through deep thought and are accompanied by several considerations. The following are the results of data reduction from the validator assessment.

Based on the table above, it is known that the results of this instrument, the validator, stated that all the items were valid. So the next stage is to create instructions or guidelines for carrying out instrument testing. These instructions aim to ensure product testing activities run well. This instrument was tested 3 times and carried out when the research object was at school. The trial was carried out with the permission of the school.

Instructions for using linguistic intelligence instruments for autistic children aged 4-5 years with severe autism disorders are:

1. Implementation is carried out only during school activities
2. Filling in the results of the instrument trial using the checklist sheet provided by the researcher
3. The instrument assessment criteria consist of BB (Not Yet Developed), MB (Starting to Develop), BSH (Developing According to Expectations), BSB (Developing Very Well)
4. Charging can only be done once per attempt.

The next step is a validity test. Content validity testing is carried out by experts or validators. Experts or validators in this case are those who have expertise in their field. This expert or validator assessment was carried out to test whether the linguistic intelligence instrument for autistic children aged 4-5 years with severe autism disorder was valid for development. The validators who are experts are school psychologists and teachers who accompany Ar student stimulus at Tursina Banyuwangi Kindergarten and another therapist at Tursina Banyuwangi Kindergarten which will be held on July 22 2022.

Validators are parties who have expertise in their field and often provide treatment for autistic children. The first validator is Benidha RF Nisa who is a School Psychologist, the second validator is Lailatul Hasanah as Principal of Tursina Banyuwangi Kindergarten and the third validator is Dwi Risqiana as class teacher. Validation is carried out with expert judgment using CVR or content validity ratio by lawshe, where the test can be said to be valid if according to the experts there is a match between the instrument items and the previously determined indicators of linguistic intelligence for autistic children. The following are the results of the first content validation that have been assessed by the validator.

Table 2. Expert Validation Results

No.	Statement	Expert			CVR	Note
		1	2	3		
1.	Able to carry out two orders say	1	1	1	1	Valid
2.	Able to point to body parts asked	1	1	1	1	Valid
3.	Able to answer questions with the answer "yes" if you receive and "no" if you refuse	1	1	1	1	Invalid
4.	Capable repeating words consisting of two syllables	1	1	1	1	Valid
5.	Able to mention Valid word consisting of two syllables say words consisting of two syllables	1	1	1	1	Valid
6.	Capable say No object name which he likes clearly syllables say words consisting of two syllables	1	1	1	1	Invalid

The table above shows that there are several points that reach the CVR limit of 1, while other points also reach a CVR of 1. A content validity coefficient of 1 indicates that content validity has been met, because Mp > ½M and CVR > 0. Meanwhile, a content validity coefficient of 1 indicates high content validity.

Implementation Stage (Implementation)

The implementation stage is the activity of using a product that has been created. In implementing the development of an instrument for identifying linguistic intelligence in children with autism, it is carried out in real life in the classroom. After the first improvement process is carried out based on suggestions and input from instrument experts, it is then tested. The trial was carried out by a special accompanying teacher who is a therapist for children with severe autism. In the first trial, the application of the linguistic intelligence instrument developed by the researchers was carried out with one child with severe autism and one therapist. Specifically, in the first trial, the researcher paid attention to suggestions and corrections by interpreting the input provided. The first trial focused on the content of the activity items to carry out implementation. The therapist said that the activities carried out for children with severe autism were still too difficult, so researchers had to improve them. The first trial was analyzed using qualitative analysis. From the first trial there were several things that needed to be improved, namely regarding the activities that would be carried out for implementation.

The implementation phase was carried out at Tursina Banyuwangi Kindergarten in the even semester of the 2021/2022 academic year. The implementation was carried out during 8 meetings on different days and dates.

Evaluation Stage

The evaluation stage is the final stage of the ADDIE model development process (Sugiyono, 2019:38). The results at the evaluation stage are used to provide feedback to users of instruments for identifying linguistic intelligence in children with autism. Revisions are made in accordance with evaluation results or needs that have not been met by the developer of the linguistic intelligence identification instrument being developed. The evaluation stage is carried out after the test results are obtained. Based on interviews conducted with teachers at the Tursina Banyuwangi Kindergarten, several answers were obtained related to the linguistic intelligence instrument for children with severe autism aged 4-5 years. These data will be used as consideration for improvements. Evaluation is carried out to make improvements to make the assessment instruments that researchers develop better.

The product of this development research is

a linguistic intelligence instrument for children aged 4-5 years with severe autistic disorders. This instrument was developed based on the need to develop linguistic intelligence in autistic children aged 4-5 years with moderate autistic disorders. This assessment instrument meets the requirements for good content validity. This is known from the results of the expert validity test which produced a content validity coefficient of 0 to 1.00, which indicates that content validity and content reliability have been met.

The instrument design developed by researchers meets the requirements for validity and reliability. This is indicated by the agreement of the experts which states that there is a match between the assessment instrument items and the indicators or objectives that have been set. From the experience of users, namely therapists at the Tursina Banyuwangi Kindergarten school, they said that the assessment instruments prepared by researchers were good enough to measure the linguistic intelligence of children aged 4-5 years. This assessment instrument has the characteristic of using a checklist form. The aspect of the development of linguistic intelligence that is included in the development of this assessment instrument is sensitivity in distinguishing and responding to behavior displayed by other people. The activities carried out in the assessment are activities that can help children with severe autism develop their linguistic intelligence.

Apart from that, at the reliability testing stage, the assessment instruments that the researchers developed also met the requirements for good reliability. This is known from the results of the second limited trial with one child with moderate autism, which produced a reliability coefficient of 0.938. The reliability aspect is related to item score variance and respondent score variance. However, it is necessary to carry out trials on a large scale so that the development of this assessment instrument can develop more optimally. The additional point of this assessment instrument is that it can be implemented in informal situations, when children carry out assessments in other areas of intelligence. This is because it is necessary to create situations that can provide opportunities for children to display behavior related to linguistic intelligence.

Theoretically evaluated, the aspects and indicators in the linguistic intelligence assessment instrument for children aged 4-5 years with moderate autistic disorder that the researchers developed are related to their psychosocial development. As expressed by Sefeefelt and Barbour, children who can communicate with other people are realized by being involved in friendly relationships, working together in teams, being able to control emotions, helping others, and understanding values that are considered good and not good (in Jamaris , 2017: 8).

The results of the development of linguistic intelligence assessment instruments for children aged 4-5 years with severe autistic disorders that researchers found, are in accordance with Helm's statement (in Kuntjojo and Wijaya, 2017: 357), namely a tool or process for answering specific questions about various aspects of knowledge. , skills, behavior and personality of children. In this case, the development of the assessment instrument that the researchers developed focuses on the linguistic intelligence of children aged 4-5 years. Research has been carried out as far as possible to develop research instruments for assessing linguistic intelligence in autistic children aged 4-5 years with moderate autistic disorder. However, researchers also admit that there are limitations and there are still many shortcomings. Firstly, the results of data analysis still use classical analysis so that the measurement results are influenced by the respondents. For similar research, it is possible to use modern analysis where the measurement

results do not depend on the respondent. Furthermore, regarding data collection, there was a lack of respondents in implementing the linguistic intelligence assessment instrument for autistic children aged 4-5 years with moderate autistic disorders at the Tursina Banyuwangi Kindergarten Institute. This is due to the limited number of respondents involved in the field trial. In the future, if there is similar research, it can use a wider sample so that the results can be maximized.

Conclusion

Based on the results of the research findings explained in chapter 4 regarding the development of an instrument for identifying linguistic intelligence for children with autism aged 4-5 years, namely: 1) The development process was carried out in the analysis stage which produced 6 indicators of linguistic intelligence for children with severe autism aged 4-6 years, the design stage which produced instrument design in the form of a statement to measure each indicator and 2-3 word commands to provoke children's responses, the development stage which developed the instrument in the form of a checklist with 5 assessment scales and carried out revisions based on the results of the FGD with 3 validators, the implementation stage which was carried out as a trial use instruments in class by the teacher, and the evaluation stage is carried out by requesting a qualitative assessment from the teacher. The result of developing the assessment instrument is a qualitative assessment which states that the instrument is suitable for the condition of children with severe autism aged 4-5 years, only in implementation it is necessary to make the child's condition conducive first.

The suggestion from this research is that it is necessary to conduct trials with more subjects of children with severe autism and quantitative evaluation of the practicality and effectiveness of the instrument. In addition, it is necessary to explore the characteristics of linguistic intelligence with more subjects of severely autistic children aged 5-6 years in order to identify variations in ability as a more accurate indicator of multiple intelligence assessments.

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