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**Universal Design for Learning in Reducing The Triad Impairments
for Autistic's Children with Special Needs in Primary's Special School:
Preparing for Inclusive Education**

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Abstract. This paper presents the conceptual paper of Planning Learning for Autistic'Children with Special Needs (CSN) through Universal Design for Learning (UDL). Adaptability is the biggest obstacle to CSN. These obstacles include obstacles to communicating, behaving and socializing; or known as the triad of impairments. Adaption ability to be prepared for students and ready to train is one of the conditions for CSN to be able to continue to Inclusive Education (IE). CSN Autistic is one of the CSN who has a great opportunity to continue their education to inclusive schools. An inclusive environment will hone the ability of Autistic CSN adaptation to the maximum. Therefore, the adaptation ability must be started since the Autistic CSN learns at Special Education (SE). It starts from developing a learning plan that is oriented towards adaptability. UDL offers a new learning design that has a flexible concept for CSN. Each CSN has differences, including background, learning style, and ability to understand a context. UDL provides representative advice, means of action and expression, and means of engagement.

Keywords: Planning Learning; UDL; Autistic's CSN; The Triad of Impairments

INTRODUCTION

Autistic's CSN have obstacles in adapting. This condition has caused Autistic's CSN to have difficulties in attending IE. These obstacles include communication barriers, behavioral barriers, and social barriers, which is called The Triad of Impairments (Jarod & Russell, 1997). These obstacles can be reduced by preparing Autistic CSN for since primary school. One of the preparations is to arrange an accurate planning for learning.

Learning design for Autistic's CSN already exists but an innovation is needed to reduce these obstacles. Universal Design for Learning is one of the innovations in developing an appropriate learning plan for Autistic's CSN. UDL began to be known since 2011 and not all education staff in Indonesia use it as an alternative in designing learning for Autistic CSN. Research on the implementation of UDL has not been widely found in Indonesia. One of the UDL implementation studies was about increasing the mastery of the science subject concept through UDL for inclusive school students at the junior high school education unit level in the city of Kupang (Kasi, Chandra, & Hernani, 2016). For this reason, research will be conducted on planning learning with the UDL concept. The aim is to reduce the triad of impairments in Autistic CSN in primary schools.

The preparation of learning plans with the UDL concept is adjusted between the needs of students and culture in their environment. The steps for implementing this UDL study program need to pay attention to the obstacles that will be experienced by Autistic CSN in inclusive schools.

LITERATURE REVIEW

The UDL concept is to facilitate learning Autistic's CSN according to its purpose, namely to reduce the triad of impairments so that they can continue learning at SDI. The long term of this learning goal is that Autistic's CSN can easily communicate, behave and socialize in accordance with the prevailing community culture.

Relevant research on UDL includes curriculum design research that supports students in inclusive classes including their CSN (Zehner, Chen, & Aladsani, 2017). Other research on the impact

of a three-block model from UDL that can develop the concept of self and social (Katz, 2013); 3). In addition, the implementation of UDL in inclusive education makes CSN helped to achieve its objectives if there is collaboration between teachers and collaboration between student teachers (Wu, 2010).

Universal Design for Learning

The UDL concept stems from an architectural movement formulated by Ron Mace at North Carolina State University where the idea of creating a structure designed to build with accommodation for all spectrum of users, including people who have special needs, without the need for special adaptations or designs. This is done by architects so that the building can be used optimally, efficiently, and usefully (Rose & Meyer, 2002). UDL is analogous to a staircase in the form of a ramp, making it easier for children in wheelchairs to access a room (Ableser, 2015). Initially, David Rose, Anne Meyer, and colleagues at the Center for Applied Special Technology (CAST) compiled this UDL so that CSN had access to the curriculum, after access to facilities in public schools was obtained (Edyburn, 2005). This UDL began in 1999 where the CAST was challenged to answer the problem of linkages with access to the curriculum for CSN. And in 2004 the term UDL became a learning concept that was designed and had a product for all students both who could be used directly (without the need for technology) or using Assitive Technology (AT) or technology assistance (Edyburn, 2005).

As explained in the above description, UDL can provide services without technology or technology. According to Sears et. al most people will assume that UDL is associated with technology in education. UDL is not only about technology in education but also about pedagogy or learning practices (King, 2009). So the emergence of UDL is based on the emergence of insights about brain development, learning and digital media.

The rationale of UDL is how a curriculum can be accessed and in accordance with the needs of CSN who have different backgrounds, different learning styles, and the ability to understand a different context (Rose & Meyer, 2002). That's because not one curriculum can be suitable and suitable for everyone, remembering each individual is unique because of the unequal characteristics between individuals (Edyburn, 2005).

AT and UDL can be considered as two continuous interventions to reduce barriers to all students, especially CSN. And AT is not a substitute for UDL in meeting the needs of limitations. However, AT is used to reduce barriers for CSN (Edyburn, 2005). Pendapat lain yang senada menyebutkan bahwa UDL sebagai kerangka perencanaan dan instruksional untuk mengurangi hambatan belajar bagi pebelajar, baik CSN maupun pebelajar yang tidak berkebutuhan khusus (Israel, 2014). UDL memberikan peluang kepada CSN untuk mendapatkan akses untuk belajar sehingga hambatan berkurang dan tujuan belajar tercapai (Ableser, 2015).

The basic principle of UDL lies in developing a curriculum that aims to improve learning barriers through planning effective learning. Effective learning focuses on engagement, flexible use of materials, and accessible and meaningful instruction (Israel, 2014). Some of the guidelines prepared in the creation of effective learning are by providing various means of learning, according to Rose & Meyer (2002), namely providing means of representation, action and expression tools, and engagement tools (Ableser, 2015)



(King, 2009)

Figure 1. Principles of UDL

Figure 1 is the framework of the UDL principles outlined below.

1. Means representation is a means of delivery by presenting information in various forms, both audio, visual, and audio visual. Information presented in clear and detailed instructions with rubrics and examples. In addition there are study guides, keywords, and glossary reviews. The purpose of this facility is to make students more creative, knowledgeable and knowledgeable.
2. Means of action and expression by providing various means to students to do activities (actions) and expressions so that students can show their learning outcomes. This is done by providing feedback and opportunities for revision, increasing the number of tasks in an easy way, asking students to reiterate the things that have been learned. This tool is provided so that students have strategies in learning and have learning goals.
3. Engagement facilities by involving students and activating their motivation and interests through learning in groups and individuals; involve every student in class and online; students are given the freedom to choose a topic every time they do their assignments according to their interests; giving students the opportunity to gain experience, have an identity, know their interests, understand and understand about culture and provide technology tools for those who need it. This is provided so that learning becomes meaningful and students become motivated. The UDL framework on these three principles is as follows.

Autistic's CSN: The Triad of Impairments

Ability is the capacity of individuals to carry out various tasks in a job as the latest assessment (Robbin & Judge, 2008).

Barriers to Behaviour

Behavior is a complex subject matter, which is a process that is constantly changing, melting, and will disappear by itself or will develop (Skinner, 2013). Activity, response, reaction, action, performance, action, actions in an organism both visible and invisible are called behaviors (Martin & Pear, 2015).

Humans behave due to a condition or event. Human behavior can be predicted by finding and analyzing its causes. At this stage the behavior can be manipulated so that it can be controlled. Individual control is pinned on self-control and control of the group. Control is included in the theory of conditioning or known as operant conditioning (Skinner, 2013). The theory discusses learning in formation with aspects in the environment, including stimuli, situations, and events. Learning theories that support the formation of behavior include Thorndike, Pavlov, and Guthrie's theories (Schunk, 2012).

Behavioral characteristics that can be measured are called behavioral dimensions, namely duration, frequency, and intensity. The time needed for behavior in carrying out its activities is called duration. The frequency of a behavior refers to the number of actions that appear in the activity. The intensity or strength of behavior is the physical effort or energy involved (Martin & Pear, 2015). Good behavior ability is the ability to process continuously so that it experiences better changes in attitude and behavior

Barriers to Communate

Every individual communicates to meet the needs of life and the need for survival in society. Communication and society are two things that are reciprocal. Communication takes place in two directions where one gives information and one of them interprets the information received. The form of communication is not only in the form of conversation, it can be in the form of gestures, symbols of images, and attitudes. If there is a misinterpretation in communication, the communication has not run in two directions, so there needs to be confirmation from the recipient of the information. Article Error

The human driver to communicate with other humans because of the need to maintain survival and the need to adapt to the environment. Communication is the way humans build reality in their lives (Stewart, 1999). Effective communication is communication that takes two directions and has similarities in interpreting messages. Signals, speech, writing, movement and broadcasting are common forms of communication. The communication level is divided into intrapersonal communication, interpersonal communication, group communication, communication in organizations, mass communication, and cultural communication (Laksana, 2015). Humans communicate so as to gain meaning, identity, and relationships between people is called interpersonal communication (Budayatna, 2015). The purpose of interpersonal communication, among others, is a) finding yourself; b) find the outside world; c) forming and maintaining meaningful relationships; d) changing attitudes and behavior; e) play and pleasure; f) helps in interpersonal interaction (Laksana, 2015).

Communication skills are the capacity of individuals to convey and accept ideas and opinions so that they have the same interpretation as other individuals, both in personal and in groups.

Barriers to Socializing

Interpersonal social relationships that take place dynamically meaningfully are social interactions. The process of social interaction occurs when between individuals feel the meaning of the relationship for each of these individuals. Social interaction does not only occur between individuals but can also occur in groups (Soekanto, 2013).

Social contact and communication are the conditions for social interaction (Soekanto, 2013). Symptoms of social contact take place between individuals as they come into contact. The context of contact here is not only physical but can also use social media including e-mail, telephone, video 21 ling, and conversation applications. This form of social interaction is divided into two processes, namely associative processes and dissociative processes. The associative process is a communication process that aims to equalize the vision and mission.

1. cooperation in the form of harmony, negotiation, co-optation, coalition and joint venture;
2. accommodation in the form of compromise, coercion, arbitration, mediation, conciliation, tolerance, opposition and settlement of cases;
3. assimilation is an advanced form of social processes through efforts to reduce differences between individuals and between groups.

The dissociative process is an **oppositional** social contact process. This process is formed due to the nature of living things to survive in their lives so that interdependence arises between individuals and groups. Culture and **social** system of society **influence** dissociative processes. The forms of dissociative processes are as follows.

1. competition is divided into several **forms** including competition for position and role, race competition, and economic competition.
2. contravention can be simple, intensive, confidential, and tactical, such as personal opposition, conflict between social classes, political opposition.
3. conflict is a social process of an individual or group trying to fulfill its purpose by confronting opponents with threats or violence.

Social interaction is divided into three types, namely interaction between individuals, interaction between groups, and interaction between individuals and groups. Social interaction occurs if there are more actors than people; there is communication between actors; there is a time dimension; and have a purpose. Factors that influence the occurrence of social interaction are imitation factors, suggestion factors, identification factors, and sympathy factors. Imitation factor is the desire to imitate the behavior and behavior of other individuals. Even though imitation or imitating factors can anchor individual thinking but can lead to uniformity in views and behavior among individuals. The suggestion factor has similarities with the imitation factor. The difference is, in the suggestion factor, a person gives a view or attitude from him and is then accepted by the impersonator without criticism. Identical factors in social interaction occur when an individual learns the social norms of his parents or guardians. Encouragement to be identical or equal in meeting the norms and regulations in the environment so that there is acceptance in social interaction. The process of sympathetic factors is the assessment of feelings with other individuals without logical rationality. Unlike the identification process that can be done without awareness. The ability of social interaction is the capacity of individuals to interact with other individuals personally and in groups to be able to survive in society.

CONCLUSION

UDL's concept in Learning Planning for Autistic CSN in Special Education

Planning learning for Autistic's CSN in SE is arranged based on their the characteristics. The facilities referred to in UDL are as follows.

1. Representation

Submission to recognize the material being studied, for example by discussion, reading material, digital text, and multi-media presentations (Israel, 2014). In providing means of representation, there are three things that need to be prepared.

- a. Provides options for perception for Autistic's CSN in SE.
- b. Provides choices for language, mathematics, expressions, and symbols that match the needs of Autistic's CSN.
- c. Provides a comprehensive choice that suits the needs of Autistic's CSN.

2. Action And Expression

Action and expression to support how to learn by providing opportunities for students to show their understanding in various ways. For example with written tests, presentations, and recordings (Israel, 2014). Teachers can offer flexibility and choice to students to demonstrate

learning outcomes through presentations, essays, or videos. Students are given feedback and opportunities for revision. The number of assignments is multiplied but given ease of work. The teacher asks students to reflect on their learning, knowledge, skills, and dispositions. Technology tools can be included and to facilitate the delivery of material (Rose & Meyer, 2002). In providing facilities for action and expression, there are three things that need to be prepared.

- a. Provides options for acting according to the physical character of Autistic's CSN.
 - b. Providing choices for expression and communicating gradually with the right theme for Autistic's CSN.
 - c. Providing choices to be meaningful for the environment around Autistic's CSN.
3. *Engagement*

Terlibat untuk mendukung pembelajaran yang bersifat kepada sikap, pemahaman diri, dan tahu mengapa kita belajar. Misalnya dengan pembelajaran kolaborative, permainan atau simulasi, dan darma wisata (Israel, 2014). Dalam menyediakan sarana untuk berpartisipasi, terlibat, dan berasosiasi, terdapat tiga hal yang perlu disiapkan.

- a. Providing options for recruiting things that interest Autistic's CSN.
- b. Provides a choice of activities for continuous learning.
- c. Provides a choice of activities for self-regulation.

Students who have special needs, hereinafter referred to as CSN, have obstacles in undergoing a learning process. CSN's ability to receive education services cannot be equated with children without special needs. The CSN requires a flexible learning design. UDL is one of the learning designs that can provide a good route for CSN and children without special needs to achieve learning goals.

Steps for Implementing UDL's Concept Learning Planning

The preparation of learning plans will be implemented using the Research and Development model. This model was chosen because this study aims to improve the quality of education through the implementation of new knowledge (Gall, Joyce, & Borg, 2002). In this study the improvement of education in question is an increase in the ability to communicate, behave, and socialize for Autistic CSN through learning plans that have the UDL concept that will be carried out in this research are as follows.

1. preliminary studies which include needs analysis, literature study, literature review, as well as small-scale research and required report standards.
2. Research planning is by formulating research objectives, estimating funds, energy, and time; and formulate the researcher qualifications and their participation.
3. Design development that begins with
 - a. determine the product design to be developed, namely the planning of learning with the UDL concept;
 - b. determine the research facilities and infrastructure needed during the research process, namely the Inclusive Elementary School curriculum and the elementary school SLB curriculum for Autistic CSN;
 - c. determine the stages of the implementation of the field design test;
 - d. determine the tasks of the parties involved in the research.
4. Preliminary Field Test or limited product test on product design that is repeated so that it becomes feasible.
5. Revision of limited field test results is an improvement in learning planning after a limited field trial is carried out. At this stage a qualitative approach is taken to improve the initial product.
6. Main Field Test by testing the effectiveness of product design with the repetition model experimental technique to get an effective product in substance and methodology.

7. Revised Broader Field Test, namely the improvement of the two broader field tests to strengthen learning planning. In this case a quantitative approach is implemented.
8. Feasibility tests are carried out to test the effectiveness and adaptability of learning planning in the UDL concept. This test involves learning planning users, namely teachers and SD Autistic CSN.
9. Final Revision of Feasibility Test Results by obtaining reliable learning planning
10. Dissemination and implementation will be delivered through scientific forums.

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