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Conceptual Level of Electricity in Logical-Mathematical and Naturalist Intelligence of Elementary School Students

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Abstract. For a teacher who teaches science concepts to a group of students, he should investigate the level of understanding of various background variants, including differences in dominant multiple intelligence owned by students. This level of understanding can be identified from students' ability to understand concepts in a series of learning phases through tests of concept understanding about a topic of teaching material. This study aims to map the level of conceptual change about electricity based on two types of multiple intelligence of elementary school students, namely logical-mathematical intelligence and naturalist intelligence. This research is a qualitative descriptive research that aims to produce an accurate description of the characteristics of elementary school students related to the conceptual level of electricity for those who have logical-mathematical and naturalist intelligence. The research findings show that 1) the profile of the level of multiple intelligence of students in the logical-mathematical intelligence type has a trend pattern that is relatively the same as naturalist intelligence in the subject studied and in the process of learning about electricity; 2) students are distributed at the level of understanding in almost all categories, with the largest percentage (47.83%) of students being at the revising level with 4 different variants, and 4.35% of students being at complete their knowledge; and 3) students' understanding of the concept of electricity is distributed randomly at all conceptual levels, both in the type of logical-mathematical multiple intelligence and in the type of naturalist intelligence.

Keywords: comprehension, intelligence, revision, logical-mathematical, naturalist, electricity.

1. Introduction

Variations in student characteristics while learning a lesson must be considered in facilitating learning, so that a teacher can adapt to the students' learning needs. A learning that considers the students' multiple intelligence types can be done in various ways. Several learning methods based on multiple intelligence have been developed to help students learn according to their type of intelligence.

Considering multiple intelligence in the learning has several benefits. First, it helps students to understand how they learn and excel in various fields. Second, it helps teachers identify the potential of their students and creates opportunities for them to develop their strengths. Third, it can help students overcome learning difficulties with certain subjects that they have traditionally considered weak. Fourth, it helps students build confidence when they show how smart they are. Finally, incorporating multiple intelligence theory into learning can increase students' sense of responsibility, self-direction, independence, and discipline while reducing disciplinary problems.

The theory of multiple intelligence helps students identify their strengths by recognizing that everyone has different skills, strengths, and weaknesses. This theory argues that there are eight types of intelligence, including visual-spatial, linguistic, logical-mathematical, bodily-kinesthetic, musical, interpersonal, intrapersonal, and naturalistic. By understanding these different types of intelligence and how they apply to themselves, students can identify their

strengths and use them to excel in a variety of areas. For example, a student with strengths in visual-spatial intelligence could do well with drawings and puzzles. Likewise, a student with linguistic intelligence strength can excel in reading and writing activities. Generally, the theory of multiple intelligence provides a framework for students to understand their unique abilities and how they can use them to succeed.

Understanding multiple intelligence can help build students' self-confidence by showing how smart they are. When students realize that they have advantages in a particular field, it will motivate them to become specialists and increase their self-esteem. By teaching to understand and cultivate their strengths, students can cultivate their multiple intelligence and feel more confident in their abilities. The research findings also show that teaching activities based on multiple intelligence can significantly improve student achievement.

The MI theory insists that everyone has at least one strong intelligence domain. Therefore, it is needed to find the strong intelligence domains and consistently develop them. Because strength domains may support weakness domains, it is also necessary to develop those strengths in order to facilitate overall achievement (Jung & Kim: 2005).

Logical-Mathematical Intelligence involves the elevated manipulating skill, understanding numbers and the ability to reason effectively (pp. 128-169), however Naturalistic Intelligence is the ability to appreciate, categorize, classify, explain, and connect to things encountered in nature (Gardner, 1999, p. 115). In addition, Al-Qatawneh, (2021) states that logical-mathematical intelligence points out to the capacity to solve problems, use numbers effectively, understand cause and effect relationships, and recognize patterns, meanwhile naturalistic intelligence transacts with the awareness of nature and the environment; this is the ability to recognize and categorize different types of living species.

1.1. Problem Statement

The main problems of students in learning are related to characteristics not only in aspects of cognitive abilities but also other factors that also influence, including students' dominant multiple intelligence. The several types of multiple intelligence that theoretically have been put forward by experts, the researchers focused qualitative exploration on two types of multiple intelligence related to learning scientific concepts, namely logical-mathematical and naturalist intelligence. Both types of intelligence are assumed by researchers have a significant contribution to the way students understand science concepts, especially for elementary school students.

Therefore, the researcher conducted an analysis of students' conceptual change patterns on the topic of electricity from the two dominant types of intelligence possessed by students. This needs to be done by the teacher to facilitate the learning needs of students from the dominant type of multiple intelligence they have, and it is hoped that with this process students feel very happy with their learning activities because they are in accordance with their type of intelligence.

1.2. Related Research

Learning activities in the classroom from best possible signs (stage 4), what is really expected is students' understanding the material should be a top priority, a good learning condition, focus on students centered activity, teacher reflection is used to improve environment of learning. Those conditions, of course, need various fundamental information on the student's profile, such as styles of learning and variations of multiple intelligence that student possesses.

Some of relevant studies have been carried out previously, including what was carried out by Al-Qatawneh, (2021) who found that teachers' understanding of the importance of the attitude of incorporating MI theory needs to be strengthened and improved. Meanwhile, Tullo, et al. (2023) suggest an eclectic approach that considers high levels of attention, learning, and cognition when diagnosing ADHD, SLD, or ODD, and González-Treviño, (2020) found that the average age students across the eight MI categories were similar across both

male and female; in fact, the only significant difference in gender was found in intrapersonal intelligence (males reported higher intrapersonal differences than females). No other significant differences in MI were found, nor were there any interaction effects between gender and school grade. In conclusion, these results make us acknowledge that various types of MI may not be applied as well to elementary school children.
Based on these varied findings, it illustrates that multiple intelligence in children may be an alternative choice for teachers to consider, therefore this research is positioned on things that are more specific to certain intelligence for appropriate understanding, namely for scientific concepts that theoretically have a relative relationship with the intelligence of mathematical logic and naturalists

1.3. Research Objectives

Regarding above description, one of the important factors should be considered by the teacher in running the learning process is the type of student's multiple intelligence which have been explored by various perspectives, both by educational experts and practitioners.

Almeida et al., 2011 revealed that the findings of the research analysis suggested a three-factor structure is used for individuals with higher performance and a two-factor structure is applied for individuals with lower performance; González-Treviño et al., 2020 responding to a survey of 161 Mexican students. In general, the results show that the mean scores of students in the eight MI (multiple intelligence) categories are the same for both sexes; In fact, the only significant difference between the sexes was found in intrapersonal intelligence (men reported greater intrapersonal differences than women). No other significant differences in differences in multiple intelligence were observed, nor were there any interaction effects between gender and school class. Taken together, these results give us an understanding that different types of MI may not apply well to primary school children; The research results of Thambu et al., 2021 show that the use of active learning methods in moral education increases oral language intelligence, logical-mathematical intelligence, musical intelligence, spatial intelligence, body-kinesthetic intelligence, intrapersonal intelligence, interpersonal intelligence and can develop students' naturalistic intelligence. Integration and internalization of eight intelligences in active learning broadly shapes the personality and character of students in social life; Yavich & Rotnitsky, 2020 who found that the number of a dominant level of intelligence can forecast and show student success in school.

In addition, Yi et al, 2011 stated that it is pertinent to recognize students' intelligence profile and their level of creativity based on the domain. It is conducted to help students in learning, supply them with optimal learning in accordance with the environment through their preference learning media and then assist them to reach their best in talent areas.

In order to apply student-centered learning, a proper learning strategy is needed, where variations in all students' abilities can be developed. Differentiated learning, students learn according to their needs and development, is one of the learning options that have been applied recently.

Although various researches related to this subject have been conducted, however, the recognition of conceptual understanding profiles referred to the supreme multiple intelligence of elementary school students, specially on their academic abilities or understanding concepts and their conceptual changes in specific material has not been explored optimally. It is related with how certain intelligence functions on the way students think.

Several kinds of multiple intelligence that have been put forward by Gardner, it was found that students generally have multiple intelligence that are dominant in certain types. Therefore, this study is expected to explore further whether mathematical logical intelligence, including an improved ability to manipulate and understand numbers, the ability to reason effectively, and the ability to perceive, classify, describe, and relate to things that occur in nature (McClellan & Conti, 2008) also can be classified as intelligence. Naturalistic

intelligence requires sense in recognizing and classifying many species of plants and animals in the environment which was introduced by Gardner in the mid-1990s (Akpan & Kennedy, 2020) the supreme multiple intelligence had by learners.

Some researches were conducted to investigate and assested students' conceptual understanding in numerous perspectives about supreme intelligence (Susilaningsih et al, 2019; Hashemi et al, 2014; Andayani et al, 2018; Nielsen et al, 2008; Ross et al, 2006; Huang et al, 2011; Jensen et al, 2014; Saricayir et al, 2016). One of interesting findings was proposed by Yavich & Rotnitsky, 2020 that the dominant intelligence which has huge influences and measures achievement in the education system is only logical-mathematical, not the combination between logical-mathematical and linguistic-verbal. This data is absolutely essensial to be considered, to be exact if logical-mathematical intelligence is combined with other intelligence besides linguistic-verbal intelligence, for instance, students' naturalist intelligence, it must be quite interesting to be elaborated.

In accordance of above results, the researcher recognized the profiles of elementary school students in the logical-mathematical intelligence and naturalist intelligence which dealing with scientific concepts, namely the concept of electricity. Of course, with diverse students inside the classroom, education authorities, teachers and school administrators try to find teaching and learning strategies that can facilitate students with different learning profiles and the dominant multiple intelligence. A paradigm that is getting recognition in educational settings lately is differential teaching. This model suggests a rethink about class structure, management and content, involving students engaged in the process of learning activity, for the benefit of all (Subban, 2006).

2. Theoretical Framework

2.1. Conceptual Understanding

Concept is abstract. Tables do not come into real world with same name every where. In fact, a name of table is depending on where you live in the world. A table is called by many names, depending on what language you speak. However, different name of table no matter you live, the concept of the table is the same in all areas.

The table is a concept in the human mind. Concepts are basically tools built for the purpose of managing observations and used for prediction of action and classification. In science, concept is fundamental building blocks of deep thinking. Words, like energy, force, evaporation, respiration, heat, erosion, and acceleration, are labels for concepts. They are all abstractions that thrive in the minds of people trying to make sense of what's going on in their world.

Concept does not only consist of one word but also it can be phrases such as conservation of energy, balanced and unbalanced forces, food chains, or closed systems. Concept infers the meaning behind natural phenomena such as Moon phases, energy transfer, condensation, or cell division. When we use a concept, an agreement associated with it is set. For example, the concept of condensation. This reflexes a description of water droplets forming on an object.

Concepts become ideas when it is going to be elaborated. For example, the concept of condensation comes when it is connected with water vapor in the air that returns as a liquid when it has into contact with a cold object. It becomes an explanation when explaining condensation as the change of water in a gaseous form to a liquid. Concepts are the building blocks of ideas and definitions (Konicek-Moran & Keeley, 2015).

Conceptual change is constructed by two models of change similar to Piaget's concept, namely, assimilation and accommodation. Assimilation is the use of previous concepts to adapt to new phenomena, while accommodation is the change or rearrangement of basic concepts, this adjustment process is the release of concepts. Before accepting the new design, it represents the sudden change. Concept change is also known as the process of

modifying previous designs into intermediate designs and ending with scientific designs (Kristianti et al, 2019).

2.3. Logical Mathematics and Natural Intellegence

Based on Gardner's, 2003: 57 the theory of multiple intelligence, an intelligence is an order and a method or medium for conveying that content. Therefore, it is possible to use as an essensial solution to give instruction in learning. Therefore, Gardner emphasizes the importance to acknoledge and bring up all kinds of human intelligence, and those combinations of intelligence. Humans are very different in large part because of their disparate combinations of intelligence. By recognizing it, humans at least have a better chance of dealing properly with the many problems faced in the world (Armstrong, 2009).

Neuman, 2017 has highlighted the term natural intelligence is "relational" and the relational architecture itself can be represented and studied through morphism, what we envision as abstract structures. An in-depth experiment conducted by Gestalt psychologist Wolfgang Köhler can assist us to further reinforce and explaine this concept.

Many of the great scientists of the modern era, including Newton, Boyle, and Einstein, have been motivated partially (sometimes mostly) by religious, spiritual, or cosmic concerns (Einstein, for example, rejected the uncertainties of quantum physics because he did not believe that God would play dice with universe). Teachers can address science existentially in class by spotlighting areas that entail, as Gardner (1999 in Armstrong, 2009) puts it, "the farthest reaches of the infinite and infinitesimal cosmos" namely, theories about the origin of the universe, subatomic physics, and so on. Like science, mathematics has been entwined for thousands of years with existential issues. The first Western mathematician, the Greek thinker Pythagoras, was a mathematician and mystic who believed that patterns of numbers revealed the ultimate harmony of the cosmos. Following Pythagoras, Plato believed that mathematical reasoning is closer to reality than unreliable data gathered by just human senses.

3. Method

3.1. Research Design

This research is a qualitative descriptive research that aims to produce a precise description of a group, elaborate the mechanism of a process or relationship, impart a complete picture either verbally or numerically, provide basic information about a relationship, create a set of categories and classify research subjects. This study expresses in depth the characteristics of elementary school students related to the conceptual level of electricity for those who have logical-mathematical and naturalist intelligence.

3.2. Participant/Respondent

Respondents in the research were 23 grade VI elementary school students, consisting of 13 boys and 10 girls. This sampling consideration was carried out because these students were already in the high class phase who had experienced a learning process related to the concept of electricity, and it was easier to identify them in the dominant multiple intelligence group on logical-mathematical and naturalist intelligence. The determination of two multiple intelligence was chosen with the consideration that the concept of electricity has a close relationship with the intelligence of students' mathematical logic and naturalist intelligence.

3.3. Data Collection

Data on students' dominant multiple intelligence were obtained from student responses through questions related to their daily activities which were interpreted to be certain dominant multiple intelligence. Based on these data, data on the distribution of students with dominant logical-mathematical intelligence and naturalist intelligence were obtained. The

instrument used is the Multiple Intelligence Test (Talent Test). The collected data on the dominant multiple intelligence of students provides an overview or profile of students who will be processed to find out the dominant multiple intelligence of students. The data related to the way students interpret/explain electrical concepts is data that is interpreted at their conceptual level.

The implementation of the research activities can be seen in the following table

Stage	Activity	Information
I	Determination of Student's Dominant IM Distribution as a Reference for Data Analysis of Students' Two Kinds of IM	Fulfilling online with Google form link
II	Arranging a lesson plan to capture details on a student's prior knowledge of a concept before teaching the student Devising a format for discerning students' conceptual thinking structures from electrical materials taught as intermediate comprehension	Working with teachers as a preliminary step before learning.
III	Collect data on students' initial proficiency in relation to the concepts being taught. An analysis of the distribution of students in her two IMs in Logical Mathematics and Science as a basic reference to begin learning. Collecting data on students' electrical conceptual skills at each stage of design. Determining the type of student activity based on their progress in interpreting concepts (learning progress). Analysis of comprehension among students as a foundation for evaluating the development of student notions into concepts	Cooperating with teacher throughout learning activity. Observing learning
IV	Establishing conceptual levels that correspond to the student's thought pathways based on the pattern of change in thought concepts obtained from the student's responses to questions following the electrical concept being taught.	Analyzing student comprehension of concepts related to the material being taught

3.4. Data Analysis

Initial analysis of conceptual understanding based on students' internal reactions depending on each prior knowledge and the process of changing knowledge. This is accompanied by knowledge until the student has a final understanding of certain concepts in classifying the following types of responses.

Table 1. Response categories group

Category	Description
No response (B)	Students do not give any answers
Incorrect (IC)	Students have alternative answers that are not following scientific rules
Incomplete (NC)	Students have incomplete answers
Complete (C)	Students have correct and comprehensive answers

The movement pattern of students' ideas on an interpretation of initial knowledge and final understanding concept based on changes in response categories can be described in Table 2 below.

Table 2. Patterns of changes in students' understanding responses and *conceptual change levels*

Response change	Level *Conceptual*	Description

Beginning	End	*Change*	
No response	Complete	Construction (Co)	Students can construct knowledge
No response	Incomplete		
Incorrect	Complete	Revision (R)	Students can revise their initial understanding
Incorrect	Incomplete		
No response	No response	Static (S)	Students cannot upgrade their understanding into better one
Incorrect	Incorrect		
Incomplete	Incomplete		
Complete	No response	Disorientation (D)	Students experience a change in understanding but to a worse understanding
Complete	Incorrect		
Complete	Incomplete		
Incomplete	No response		
Incomplete	Incorrect		
No response	Incorrect		
Incorrect	No response		
Incorrect	Incomplete	Complementation (Cp)	Students can produce new knowledge from prior knowledge into more comprehensive one
Complete	Complete	The student knows the term correctly from the beginning (No conceptual change) (K)	Students have correct concept based on scientific rules from the beginning to the ending of learning

Adapted from Kristianti *et al,* 2019.

Based on the students' answer about electricity, the categories mentioned above are used. Meanwhile, for multiple intelligence students are processed according to responses that move from strongly agree, agree, neutral, disagree and strongly disagree.

3.5. Validity and Reliability

The validity of the data, both multiple intelligence data and data on solving electricity problems by students, can be confirmed through a triangulation process on class teachers from students as well as existing video documents of the learning process.

4. Findings

4.1. Students' Profile in Logical/Mathematical Multiple Intelligence and Naturalist

Prior to learning about the concept of series and parallel circuits, it is important to determine the student's MI, especially in the two types of MI, logical-mathematical intelligence, whose basic components are sensitivity and discriminatory ability, logic and denominators; long-term reasoning abilities (scientists and mathematicians) and natural intelligence, one of its essential components being the ability to describe (natural) relationships Armstrong (2009: 10-11). Both types of IM are used as a reference for grading and facilitating student in learning.
After taking and processing data from both types of MI on 23 students, the data can be shown in the following Figure 2.

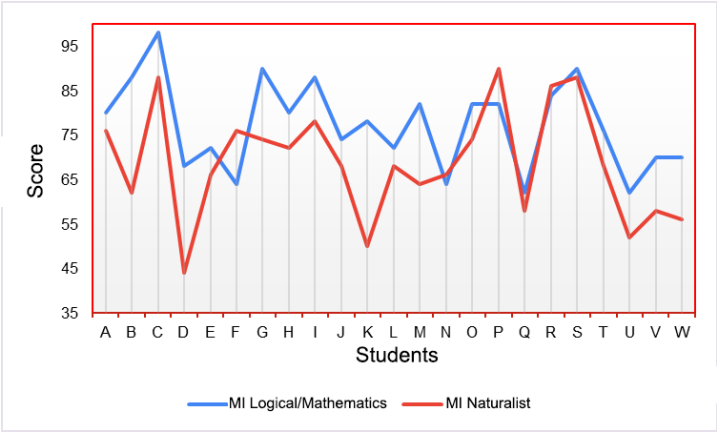

Figure 1. Students' Profile in Logical/Mathematical and Naturalist MI

Based on Figure 2, there are several findings that can be elaborated as follow:

First: In general, for 23 students, with the exception of student B and K, there are roughly the same patterns or traits between logical/mathematical MI and naturalistic intelligence. This finding suggests that students with specific logical/mathematical MI also have naturalistic intelligence that corresponds to their intelligence in specific populations.

Second: Students' logical mathematics MI tends to be higher than natural intelligence, with the exception of student F and P. Developmental psychologist Howard Gardner's theory of MI. This relates to child's ability to reason, solve problem, and learn using numbers, abstract visual information, and causal analysis (Logsdon, 2021).

On the other hand, according to Gardner, naturalistic intelligence is the ability to identify, classify, and manipulate elements of the environment, objects, animals, or plants. Intelligence is concerned with harmony with nature and one's natural surroundings. It can be seen in weather forecasting, gardening, cooking, civil engineering, landscaping, and/or plant/animal classification is not specified like a standard IQ. It can enlarge and evolve over a person's lifetime (Matthew et al., 2020).

Student profile results of Logic/Math and Naturalist MI can be considered by teachers when assigning students to groups or when supporting students individually. In addition, it is important for students to understand scientific concepts. This is because proper understanding helps students find solutions to life problems through ideas or work (Fuadi, 2020).

There are basically 8 MIs, 1) verbal intelligence. 2) logical/mathematical intelligence; 3) visual-spatial intelligence. 4) musical intelligence; 5) kinesthetic intelligence; 6) intrapersonal intelligence; 7) interpersonal intelligence; 8) naturalistic intelligence. Nevetheless, this study focuses only on two types of intelligence: logical-mathematical intelligence and scientific intelligence. This is because these two can be used as benchmark that are directly relevant to issues related to interaction-based perspectives of student science learning experience with the environment.

Moreover, Hoerr (2000: 5) claims that "Teachers using MI can enable students to use their strengths to demonstrate what they have learned." In line with previous statement, a teacher profiling a student's MI can provide the student with an opportunity to demonstrate that they are learning using their dominant intelligence. Fulfillment of students' learning needs based on the type of multiple intelligence can assist teachers in effectively desiring learning objectives.

4.2. Student Conceptual Change Level based on MI

Regarding the analysis of the research data, it is possible to make a distribution of students' conceptual changes level in electricity, which is illustrated by their initial and final knowledge as shown in the following table.

Table 3. Students level of knowledge distribution about electricity

Knowledge Level	Total Students	Percentage
Complementation	1	4.35
Disorientation	2	8.70
Revision	11	47.83
static	6	26.09
Scientific	3	13.04

Based on the data above, there are 11 (47.83%) students who perform the revision process at different levels, namely type of revision-3 (incomplete to correct).

4.3. Mapping the understanding level of electricity at the level of MI

To focus on the grouping between the students' multiple intelligence levels in the two types of students' MI selected with the type of level of conceptual change can be seen in Figure 3.

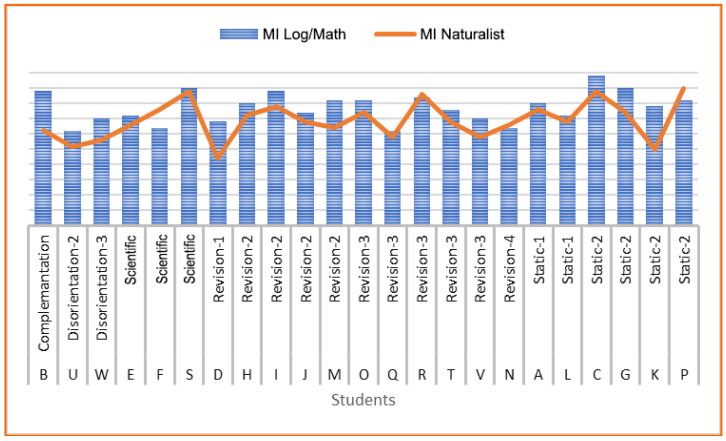

Figure 2. Mapping the students' level of conceptual changes in electricity based on logical-mathematical and naturalist MI

Information:

Complementation : Not true → Incomplete
Disorientation-2 : True → Incomplete
Disorientation-3 : Incomplete → Not true
Scientific : True → True
Revision-1 : Incorrect → Incomplete
Revision-2 : Incomplete → Complete
Revision-3 : Incomplete → True
Revision-4 : Not true → True
Static-1 : Not true → Not true
Static-2 : Incomplete → Incomplete

5. Discussion

This study has found various essential results in dealing with the level profile of students' conceptual changes in two types of multiple intelligence which are assumed to be related to students' conceptual understanding on the topic of science about electricity, namely the combination of logical-mathematical intelligence and naturalist intelligence in learning. Hence, in the up coming research can be carried out related to other types of intelligence that are related to other elementary students' material in science and others on the variation of multiple intelligences of different students.

Theory of Multiple Intelligences asserts that everyone has at least one strong intelligence domain (Jung and Kim, 2005). Therefore, it is necessary to find dominant strengths and

consistently develop them. Because domain strengths can complement domain weaknesses, it is also important to develop those strengths to facilitate overall achievement.

The large numerous of students experienced revision process, as shown in Table 3 (47.83%) indicated that students basically did not yet have firmness or confidence in the concepts of studying, in this case regarding the concept of electricity. Students who are at the elementary school level do not have sufficient experience about electricity, so that when the teacher explains the concept students generally still think very abstractly, even though in learning they do practice and some are simulated by the teacher, but the number of students who think scientifically is only 13.04%. Meanwhile, based on Figure 2 it can be seen that the tendency of students who carry out the complementary and static processes is more in students who have dominant logical-mathematical intelligence, while those who are disoriented occur in students who have relatively the same proportions of the two intelligences.

Various relevant studies have been conducted to identify and evaluate students' conceptual understanding in various treatment perspectives and their findings (Susilaningsih et al, 2019; Hashemi et al, 2014; Andayani et al, 2018; Nielsen et al, 2008; Ross et al, 2006; Huang et al, 2011; Jensen et al, 2014; Saricayir et al, 2016). However, one of the important findings is what has been explained by Yavich & Rotnitsky, 2020 that the dominant intelligence that greatly influences and measures achievement in the education system is not logical-mathematical and linguistic-verbal, but only logical-mathematical.

Mathematical logical intelligence refers to the ability to use numbers effectively and to reason well. This intelligence includes sensitivity to patterns and logical relationships, statements and propositions (if-then, causation), functions, and other related abstractions. The types of processes used in logical-mathematical intelligence services include categorization, classification, inference, generalization, calculation, and hypothesis testing. Meanwhile, naturalist intelligence is the ability to recognize and classify many species from an individual's environment. This also includes sensitivity to other natural phenomena (Armstrong, 2009: 7). These two types of intelligence are often interrelated, but they are not the same. Someone can have high mathematical logic intelligence but low naturalist intelligence, or vice versa.

Although these two types of intelligence are different, they are often interrelated and support each other in solving problems. For example, someone who has high logical-mathematical intelligence may find it easier to solve problems that require analytical thinking, but he may also need naturalist intelligence to understand the context of the problem and find the right solution.

Nevertheless, Namiot, 2020, finds that a number of arguments can be given showing that intelligence based solely on algorithms cannot contribute to survival, and that the problems of survival and evolution of biological systems, which are somehow solved by this natural intelligence, cannot solved by a more algorithmic artificial intelligence.

Mathematical intelligence and naturalist intelligence are two different types of intelligence, but they are often interrelated and complement each other in solving problems. Mathematical intelligence is the ability to understand and use mathematical knowledge, while naturalist intelligence is the ability to understand and use knowledge about the natural and human world and the ability to learn and adapt to new environments.

For example, someone who has high mathematical intelligence may find it easier to solve problems that require sharp analytical thinking and reasoning, but he may also need naturalist intelligence to understand the context of the problem and find the right solution. Conversely, someone who has high naturalist intelligence may find it easier to understand and adapt to their environment, but they may also need mathematical intelligence to solve problems that require analytical thinking.

In the end, both types of intelligence are important and can be very beneficial depending on the situation one is in. However, there is no type of intelligence is more important than the other, because these two types of intelligence are interrelated and can support a person to solve problems in various situations. Does this type of intelligence work simultaneously or partially or or does the composition or proportion of the dominant types work according to the problems faced by an individual, it seems that a deeper study is needed.

There are several factors that can affect variations in conceptual thinking of elementary school students, one of which is the factor of students' immediate experience in the surrounding environment, for example, students who come from urban have a relatively more conceptual frame of mind when compared to students from suburban who use more frameworks. Even so, both students who come from urban and suburban generally use analogies from everyday experiences in interpreting concepts. In the context of learning, it can trigger children to be able to manage the natural and social environment in one unit.

The implication of this research is that fulfilling students' needs for their dominant intelligence becomes very important to be considered by the teacher, especially considering the relationship between the concept to be taught and the type of dominant intelligence of the students he teaches, thus the teacher's task becomes relatively more in his role as a learning catalyst.

6. Conclusion

Regarding the research findings, it implies that 1) the profile of the level of multiple intelligence of students on the type of logical-mathematical intelligence has a trend pattern that is relatively the same as naturalist intelligence in the subjects studied and in the learning process about electricity; 2) students are classified at the understanding level relate to conceptual changes from begining understanding to ending in almost all categories, with the largest percentage (47.83%) of students being at the revising level with 4 different variants, and 4.35% of students being at the complete their knowledge; and 3) students' understanding of the concept of electricity is randomly distributed at all levels, both in logical-mathematical and naturalist multiple intelligence categories.

Limitation

Regarding the data collection process, especially data related to the dominant type of multiple intelligence of students in the types of logical-mathematical intelligence and naturalist intelligence, there are some limitations that are experienced and can be a number of factors to be taken into account for researchers who will conduct further research related to the findings of this study. The weaknesses that need to be considered in future studies as limitations in this research, include:

1. The total of students as research subjects is only 23 students, of course it can hinder to portray the actual condition.

2. Even though data on students' conceptual understanding of electricity material was taken through paper tests, on the other hand, data on students' multiple intelligence types was taken paperless test, via Google form link from students' responses.

3. Collecting data of multiple intelligence are respectively low validity, because the information delivered by students through questions sometimes does not show true opinions, this occurs because sometimes thoughts, assumptions and understandings are different for each respondent, also another factor such as the factor of honesty in filling out the questionnaire.

Recommendation

Based on the conclusions that have been drawn, the researcher provides some recommendations:

1. Every teacher should have a sociogram in dealing with the type of dominant multiple intelligence had by students, Therefore, it can be used for grouping students in the learning process.
2. In facilitating the process of forming students' conceptual thinking, the role of the teacher is expected to be maximized. This is because based on the results of this study, there are still many students who make revisions to the initial concept.
3. Students with logical-mathematical and naturalist multiple intelligence types who have the same pattern in a student, must be counted in learning science.

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Conflict of Interest

Although this research was carried out by providing funding for Internal Basic Research FKIP Halu Oleo University, there was no conflict of interest in the implementation until publishing of this research article.

We also declare to the fact that all the authors listed in this article have made significant contributions to this work, have read the manuscript, attested to its data validity, data interpretations, and approved its submission to the Elementary School Pulpit Journal.

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