

# The Development of Multiple Intelligence and Self Efficacy in Primary School Students

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**Abstract**—Multiple intelligence is a set of abilities to process particular types of information derived from human biological and psychological factors. Self-efficacy is people's beliefs about their ability to produce designated performance levels that affect their daily activity. This research is based on the significance of multiple intelligence and self-efficacy for primary school students. The results of previous studies indicate that multiple intelligence and self-efficacy of students are still below average. This study aims at developing multiple intelligence and self-efficacy of primary school students. The research used a descriptive approach involving 27 first-grade students at one of the schools in Purwakarta Regency. The result of this study indicates that multiple intelligence and self-efficacy of students were still in sufficient category; therefore, a particular strategy was required to develop multiple intelligence and self efficacy.

**Keywords**—multiple intelligence, self efficacy

## I. INTRODUCTION

Based on Law on the National Education System, Chapter II Article 3, the purpose of education in Indonesia is to develop students' potential in order to become human beings who have faithful and pious to one and only God; who have decent morality; who are healthy, knowledgeable, capable, creative, democratic, responsible and independent as citizens [1]. Thus, in accordance with the law, it is compulsory to develop multiple intelligence for students. Multiple intelligence is an individual's ability to deal with various problems in life. there are eight aspects relating to this ability, namely linguistic, logical-mathematical, spatial-visual, kinesthetic, musical, interpersonal, intrapersonal and natural intelligences [2]. However, in fact, multiple intelligence of students is still rarely developed; because society generally assumes that multiple intelligence is closely related to academic ability. Society assumes that multiple intelligence is only related to individual's ability in mathematical and logical subjects. Society assumes that intelligence is related to the academic aspects or subjects at school. This phenomenon occurs, because the instrument to measure multiple intelligence is academic in nature [3].

A teacher needs to develop multiple intelligence for students in order to nurture them through the development of various intelligence at the most possible levels. If students have the opportunity to learn through their capabilities, they will positively and miraculously obtain cognitive, emotional, social, and even physical changes [4].

The students' multiple intelligence may decrease when facing difficulties, and it will also decrease their confidence in the intelligence. Mathematics is considered as one of difficult subjects. According to the National Education National Standards Agency (BSNP: *Badan Standar Nasional Pendidikan Nasional*) [5], mathematics is significant to be taught because it is given at every level of primary and secondary education with aiming at utilizing mathematics as a way of reasoning (logical thinking, analytical, systematic, critical, and creative and cooperative) for students. The learning activities cannot be separated from curriculum in which the objective of mathematics learning curriculum listed in National Education of Minister Regulation (Permendiknas: *Peraturan Menteri Pendidikan Nasional*) Number 22 of 2006 [6] is to have an attitude of appreciating the usefulness of mathematics in daily life, an attitude curiosity, attention, and interest in learning mathematics as well as tenacity and confidence in problem solving. Based on these objectives, the purpose of learning mathematics requires students to have confidence in problem solving; which is also called self-efficacy. Self-efficacy is a belief in handling any situations and obtain positive results [7]. Self-efficacy is a confidence in ability to carry out certain behaviors and achieve certain goals [8].

The significance of self-efficacy for students is explained by Schunk, self-efficacy affects students' choice in their activities; the students with low self-efficacy in learning may avoid many learning assignments, especially those are challenging, while the students with high self-efficacy have a desire for these learning assignments [7]. The students with high self-efficacy are more diligent to finish assignments compared to the students with low self-efficacy.

Self-efficacy has a significant role in the improvement of education, because self-efficacy helps students become

confident in their own abilities, and deal with the difficulties in the learning experience effectively [9].

Self-efficacy affects the choice of taken action and the amount of effort when facing difficulties and obstacles [10]. An individual with high self-efficacy chooses to make a greater effort and not easily give up. However, in fact, many teachers do not consider psychological factors of students related to students' learning processes. According to [11], the increase in students' self-efficacy who obtains CPA learning is better than students who obtain conventional learning, but the increase was still in the low criteria. If students' self-efficacy is always ignored by the teacher, mathematics and other subjects will be considered difficult. Sriyanto even argued that mathematics is considered a difficult subject by most students, even though mathematics is not the only subject that influences their confidence, but also other subjects [12].

The lack of improvement in students' multiple intelligence and self-efficacy is due to the choice of approaches, models or learning methods applied by teachers in the classroom, which are still conventional or focused only to cognitive aspects. This is supported by [13] who stated that students' self-efficacy can be improved by choosing a learning approach that emphasizes the active role of students in the learning process. The lack of attention to multiple intelligence and self-efficacy requires to be solved by an appropriate learning in order to maintain the development of multiple intelligence and self-efficacy of students.

**II. METHOD**

Data collection was conducted using a descriptive method by calculating the percentage of initial result of multiple intelligence and self-efficacy tests. The sample was consisted of 27 students: 12 female and 15 male respondents. The age was ranged from 6 to 7 years. Multiple intelligence was measured using an instrument consisted of 46 statements from 9 items of multiple intelligence and 24 statement items from 4 aspects of self-efficacy. Each statement provided measurement points ranged from 1 to 4. If in positive statement, the point 4 indicates a strong agreement; while, if in negative side, the point 4 is a strong disagreement that only applies on self-efficacy. The highest score indicates that the respondents has a high level of intelligence and self-efficacy; otherwise the lowest score indicates that the respondents try to agree with the provided. The measurement scale followed Likert's scale.

**III. RESULT AND DISCUSSION**

*A. Development of Multiple Intelligence for Primary School Students*

The nine items of multiple intelligence were expanded into 46 items of statements adjusted to students' daily life. It was used to measure the indicator of multiple intelligence of primary school students. The statements on multiple intelligence have been examined thoroughly by experts in the fields of guidance and counseling, psychology, and

readability test at the student level. The following is an instrument test result depicted in Table 1:

Table 1. Instrument Test Result

Intelligence	Average	Standard Deviation	Validity	Reliability
Verbal Linguistics	306.33	93.06	0.81 (High or Decent)	0.90 (Very High or Very Decent)
Mathematical logic				
Kinesthetic				
Visual				
Musical				
Interpersonal				
Intrapersonal				
Natural				
Spiritual				

The four aspects of self-efficacy were expanded into 24 statement items that was studied by experts' judgment in the field of psychology and readability test at the student level. The following is the result of self-efficacy instrument test depicted in Table 2:

Table 2. The Result Of Self-Efficacy Instrument Test

Aspect	Average	Standard Deviation	Validity	Reliability
Personal Experience	21.90	5.76	0.54 (Normal / Respectable)	0.70 (High or Decent)
Others' Experience				
Verbal Persuasion				
Psychological Index				

*B. Profile of Multiple Intelligence of Primary School Students*

Based on the findings, students' multiple intelligence was classified into the decent and low criteria. Logical intelligence was classified into in the decent criteria; intrapersonal, spiritual and natural were in the low criteria while the rest were in sufficient criteria. The data can be seen completely in the following Table 3.

Table 3. Multiple Intelligence of Primary School Students

No	Intelligence	Score	Criteria
1	Verbal Linguistics	68	Sufficient
2	Mathematical logic	80	Decent
3	Kinesthetic	68	Sufficient
4	Visual	65	Sufficient
5	Musical	64	Sufficient
6	Interpersonal	64	Sufficient
7	Intrapersonal	46	Low
8	Natural	44	Low
9	Spiritual or Existential	47	Low

Based on the findings in Table 1, the nine-multiple intelligence of the students needed to be developed especially intrapersonal, natural and spiritual intelligence. In line with these findings, based on preliminary data from [14] 55.6% of students have below average intelligence criteria.

This is in accordance with the age of low-class children, in which Suyadi [15] stated that the development of intellectual capacity had reached 50% when children are four years old, 80% when children were eight years old and even

100% when children are 18 years old. Further research on children's ability in kinesthetic intelligence activities prior to action, which based on coordination elements of children body, shows that there were 15 children or 71.43% of total children who meet the criteria of starting to develop; there are four children or 19.05% that meet the criteria of developed according to expectation and there are two children or 9.52% that meet the criteria of decent development. In the element of children's agility there are seven children or 33.33% of the total children who meet the criteria of starting to develop; there are 11 children or 52.38% who meet the criteria of developed according to expectation and there are three children or 14.29 % who meet the criteria decent development [16]. Based on the explanation above, it is suggested to improve the development of multiple intelligence on the students in order to generate amazing generation.

### C. Primary School Students' Self-Efficacy Profile

Based on the findings of the four aspects of self-efficacy, students' self-efficacy profile was classified into sufficient criteria. The data can be seen completely through the following Table 4:

Table 4. Primary School Students' Self-Efficacy Profile

No	Aspects	Score	Criteria
1	Personal Experience	68	Sufficient
2	Others' Experience	66	Sufficient
3	Verbal Persuasion	63	Sufficient
4	Psychological Index	68	Sufficient

Based on the data in Table 4, the students' self-efficacy was required to be developed, because there are still many students who do not have good self-confidence. This lack of confidence is seen through students' learning process in which many students question their assignment whether it is correct or not. These findings are in line with [14] who revealed that primary school students' self-efficacy in generative learning has a low achievement. According to [12], the result of initial self-efficacy scale was in the medium criteria of CPA learning. Meanwhile, [17] stated the percentage of students' self-efficacy prior to the application of multimedia-based discovery learning model upon the aspects of trusting one's own ability was 64% (good criteria). In the aspect of acting independently in making decisions, the result shows that there were 64% (good criteria). Meanwhile, for the aspect of having positive self-esteem, there were 69% (good criteria). Furthermore, the percentage in the aspect of ability to express mind and thoughts, there were 57% (sufficient criteria).

Based on the findings and previous studies, the development of primary school students' self-efficacy was required to be improved an increase in the confidence and competence of primary school students.

## IV. CONCLUSION

Multiple intelligence is a new finding and breakthrough in the field of intelligence discovered by Howard Gardner [18]. Multiple intelligence consists of seven types: verbal linguistics, kinesthetic, music, visual, intrapersonal, interpersonal, logical-mathematical along with two additional new intelligences namely natural and spiritual/existential [2]. Based on the result of the initial nine tests of intelligence, there is still a room to improve the development of the multiple intelligence, especially intrapersonal, natural and spiritual intelligences. Self-efficacy is a set of factors of human motivation, influence and action [19]. There are four self-efficacy aspects: personal experiences, others experiences, verbal persuasion and psychological index. Based on the result of initial self-efficacy scale measurement, it shows that the scale is in sufficient criteria. Therefore, the development of the students' self-efficacy is required to increase the confidence of primary school students.

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