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Development of a Multirepresentation-Based Learning Model to Increase the Emotional Intelligence of 5 - 6 Years Old Children

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Abstract. This research aims to discover a learning model that can improve the emotional intelligence of children aged 5-6 years. The alternative taken to achieve this goal is by developing a pitutur luhur learning model based on multi-representation that focuses on the development of the emotional intelligence of children aged 5-6 years. The development of this learning model is based on the lack of learning models to improve children's emotional intelligence, especially those related to local culture. The research method used adopted the research and development procedure of Borg & Gall with the research stage; 1) preliminary study, 2) model development, 3) model validation and revision and 4) model implementation. Data needs for the model were obtained through questionnaires and group discussions. The questionnaire was filled out by 30 kindergarten teachers in Bantul Regency, Yogyakarta. Data collection techniques using questionnaires and emotional intelligence tests of children aged 5-6 years. Test the effectiveness of the model using the pretest-posttest control group design experimental method. The results of the research showed that The pitutur luhur learning model based on the multi representation could improve the emotional intelligence of children aged 5-6 years.

Keywords: *learning model of pitutur luhur, emotional intelligence, multi-representation*

Introduction

The first year of human life will determine future success. To have a balanced relationship today and in the future, early childhood needs to receive education in the development of emotional intelligence. The development of children's emotional intelligence really needs adult attention and support. The foundations for empathy, self-awareness, motivation, and other aspects of emotional intelligence are established in the first years of a child's life.

Early childhood is a very important and fast period in the development of human life. The first years to eight years of age are very important for cognitive, emotional and physical development of children. Emotions are the most important part of a child's life, this will have an effect on all aspects of life. Emotions are not only psychological experiences, they can also affect the condition of the body. Psychologically, emotion refers to feelings with distinctive thoughts, psychological and biological states and range of propensity to act. Every human being has different abilities to recognize, understand, express and manage their emotions. This difference in ability is reflected in someone's emotional intelligence (EQ).

Emotional intelligence (EQ) was first discovered and proposed by Salovey and Mayer (1990) in. The EQ construct refers to a group of different mental abilities, where individuals 1) perceive, assess and express emotions, 2) use emotions to facilitate thinking, 3) understand antecedents and emotional consequences and manage emotions in themselves and others. The explanation above can be concluded that EQ has three main domains, namely emotional expression, emotional knowledge and emotion regulation. Goleman in arguing that EQ is divided into four main constructs, namely self-awareness, self-management, social awareness and relationship management. EQ principles provide new ways of understanding and assessing people's behaviour, attitudes, interpersonal skills and potential.

Low EQ triggers the emergence of deviant behaviours in children. Based on data from public complaints to the Indonesian Child Protection Commission (KPAI) in the last 7 years, 26,954 cases of child abuse were found. There were 9,266 cases of children facing the law, both perpetrators and victims, as well as cases of pornography and cyber-crime, both as victims and perpetrators of 2358 cases. The case of children as perpetrators proves that children do not have mature EQ. EQ in children appears as a major aspect of life success both in personal and academic achievements, further EQ supports relationship management at a high level (Evelin, 2017).

EQ aspects will not develop properly if they do not get attention and stimulus from adults. EQ development in early childhood education is currently lacking, teachers are pursuing more to increase children's IQ rather than increasing children's EQ. One of the obstacles to learning EQ in schools is that there is no suitable model to improve children's EQ, teachers tend to only introduce a small portion of negative emotions and positive emotions to children. In this study, the researcher attempted to create an EQ learning model that was appropriate for the child's development stage and was easy for teachers to apply.

The development of these aspects of EQ is greatly influenced by the environment and culture around the child. One of the cultures on the island of Java that is able to hone a child's EQ is the *pitutur luhur* culture. The culture of *pitutur luhur* can be defined as a guideline for behaving in self-control and cultivating a sense that must be understood by each individual to maintain good relations with God, humans and nature so as to make life wiser. The lack of understanding and application of the *pitutur luhur* will result in the loss of the identity of the nation's children. Children have no shame, lack courtesy, irritability, selfishness, fight their parents and have bad habits.

Learning of *pitutur luhur* as a manifestation of increasing EQ can be conveyed in writing, orally, and demonstration / symbolic language. For example, through *paribasan*, *mocopat* songs, fairy tales, traditional expressions, *sanepo* and meaningful images. EQ improvement by referring to the *pitutur luhur* learning can be realized properly if it is accommodated through an appropriate learning model.

The learning model in question is a multi-representation learning model based on the *pitutur luhur*. Multiple representations are a way of presenting or re-abstraction of knowledge, information, or concepts into several different forms both verbally (orally) and visually (symbolic, pictorial). Specific information can be better understood when represented with appropriate representations (Treangust & Tsui, 2013). Multi-representation has three basic functions, namely 1) as a complement where multi-representations are able to provide complete information, 2) limiting interpretations or multi-representations can be used to limit the possibility of misinterpretation in the use of other representations, 3) multi-representations are able to build deeper understanding.

The use of multi-representation models is usually used in science learning such as mathematics, chemistry, physics, and so on, but it does not rule out being used for non-scientific ones. Research conducted by Atlan found the fact that a multi-representation-based learning environment has a positive effect on improving non-scientific students' ideas. Multi representation, which usually means understanding concepts in various ways, is widely applied to learning mathematics and physics to strengthen learning concepts.

The application of multi-representation is able to provide deeper knowledge and understanding compared to conventional learning. Applying the right learning model will provide

more understanding of the knowledge conveyed by the teacher. The multi-representation learning model is very appropriate to be applied to early childhood. Given that early childhood is an active learner and is still at the level of concrete thinking.

The presentation of the multi-representation learning model must also pay attention to the aspects that want to be improved. The application of a multi-representation learning model to improve emotional intelligence will be combined with Javanese culture to incorporate local wisdom values. One of the local wisdom of Javanese culture is the various teachings of virtue or guidance in living life which in Javanese are called *pitutur luhur*. *Pitutur luhur* is the nation's culture as teaching of virtue in living a life that will result in virtue if it is lived and practiced seriously, and becomes a form of an exemplary attitude in life. This *pitutur luhur* culture includes various dimensions of life such as ethics and manners, parent-child relations, justice and truth, social relations, intimacy, mutual cooperation, tolerance, democracy.

By inserting the *pitutur luhur* characteristics in the learning model, it will form a good EQ in children. This is because children are taught to always be grateful, patient, sincere, have the courage to be vigilant, and other noble values that will help children manage their emotions in children. The problem that kindergarten teachers still feel is low emotional intelligence. owned by children aged 5-6 years and teachers still have difficulty in developing learning models that are able to hone children's emotional intelligence, especially with regard to cultivating virtue and in accordance with the information processing style possessed by the child. Therefore, in this study, the author tries to examine things related to the development of a multi-representation based sublime learning model to improve children's EQ.

Method

This research method refers to the Borg and Gall research and development method with the following research stages; Phase 1 preliminary study; Stage 2 planning and model development; Stage 3 model validation and revision, and Phase 4 model implementation.

Stage 1 Preliminary Study, The preliminary study aims to collect preliminary data and prepare a conceptual framework of the research theme. In the preliminary stage the researcher carried out the main activities, namely, 1) literature/literature study, 2) preliminary surveys, and 3) measuring the emotional intelligence of children aged 5-6 years. The preliminary survey was carried out by distributing questionnaires and direct interviews with kindergarten teachers in Bantul, Yogyakarta. The survey aims to determine learning that is specifically applied to develop emotional intelligence, to find out cultural values in the Yogyakarta area that can improve emotional intelligence as well as modification and development of learning that can be done.

Stage 2 of Planning and Development, at this stage the researcher compiled an initial draft of a multi-representation-based pitutur luhur learning manual and model which was then tested on a small and large scale in kindergarten

Stage 3 Model Validation and Revision At this stage the draft model that has been tested is validated by expert judgment then revised to obtain a final model.

Stage 4 Model Implementation, carried out after obtaining a final model that was disseminated by applying it to TK B at TK ABA Dukuh II.

Results and Discussion

3.1. Needs Analysis Results

Needs analysis aims to determine the extent of the need for a learning model that can be used to develop children's emotional intelligence. The analysis of the need for a multi representation-based the *pitutur luhur* learning model was carried out on 30 Kindergarten teachers in Bantul Regency. I summarize the results of the needs analysis as follows:

a. Learning Process Conditions Applied

Learning related to the development of emotional intelligence in kindergarten is still rarely done, many teachers still emphasize the development of children's cognitive intelligence such as arithmetic, reading, and writing. Based on the results of interviews with kindergarten teachers in Bantul Regency, only a few teachers apply to learn to improve children's emotional intelligence. Some learning activities are carried out, namely through playing together to develop sharing attitudes and caring for others. In habituation activities, children are trained for independence, politeness, care, and respect for friends. In addition to developing noble values in the learning process, based on the results of interviews, several teachers stated that in teaching and learning activities the teacher introduced some emotional expressions through pictures and videos. The teacher also uses singing and storytelling learning strategies to develop children's emotional intelligence. Singing learning strategies are intended for children to be able to express sad, happy, and angry emotions. Meanwhile, the teacher uses storytelling to provide an understanding of what character children should be role models.

b. Yogyakarta Cultural Values Needed to Develop Emotional Intelligence

Yogyakarta is a cultural city that has noble values that have been used as guidelines by its people since ancient times. Based on the results of the questionnaire distributed to several kindergarten teachers in Bantul, Yogyakarta, the following data were obtained:

Table 1. Noble Values that Need to be Developed

Noble Values	Frequency	Percent (%)
Mutual cooperation	14	15
Tolerance	16	17
Vigilant	5	5
Honesty	11	12
Empathy	10	11
Responsibility	14	15
Discipline	7	8
Patience	9	10
Thrifty	6	7

From table 1 it can be seen that 17% of teachers want an attitude of tolerance, 15% of teachers want an attitude of mutual cooperation, 12% an attitude of honesty, 11% an attitude of empathy, 15% responsibility and 10% an attitude of patience. For other noble values such as being vigilant, disciplined, and thrifty, they only get below 10%. The values of tolerance, mutual cooperation, responsibility, empathy, honesty, and patience, will be developed in the *pitutur luhur* learning model.

c. Emotional Intelligence of 5-6 Years Old Children

Aspects that are measured to determine the level of emotional intelligence of children, namely, children's emotional knowledge, emotional expression, and emotional regulation. Measurement of emotional intelligence was carried out on 51 children aged 5-6 years. The results of measuring children's emotional intelligence in Bantul Regency can be seen in the following table:

Table 2. Measurement Results of Emotional Intelligence of Children Ages 5 - 6 Years

Criteria	Frequency	Percent
High	10	20%
Moderate	16	31%
Low	25	49%
Total	51	100%

From the table, it is known that 20% of children have high emotional intelligence, 31% of children have moderate emotional intelligence and there are 49% of children still have low emotional intelligence. Based on the results of the above calculations, it is known that almost 50% of children still have low emotional intelligence, such as the number of children who understand the basic emotions that appear in themselves and others and the ability of children who are still not good at regulating their emotions. For this reason, it is necessary to have a special learning model that is able to increase children's emotional intelligence through learning activities that are fun and in accordance with the child's emotional development stage.

3.2 Early Product Development

The results of the design or design of the multi representation-based *pitutur luhur* learning model are still in the form of drafts that are ready to be assessed by experts. The design of the learning model contains six stages of learning, such as a) determining themes and sub-themes, b) determining the aspects of emotional intelligence to be developed, c) developing activities through multi representation-based sublime learning, d) perceptions, e) core activities and f) appreciation. The core activities consist of representation, demonstration, and repetition. The representation activity is an activity of displaying learning material with various views that are carried out by playing learning videos and telling a story using pictorial story media. Demonstration activities are designed so that children are able to directly practice learning, this activity is carried out by applying traditional games to see children in regulating emotions that exist in themselves and understanding the attitudes of the *pitutur luhur* that are learned. Repetition is a stage that is carried out after passing through the representation and demonstration learning steps. Repetition is intended so that children are able to repeat the lessons that have been taught. Repetition activities are carried out through picture card games.

3.3 Product Trial Results

a. Small Scale Trial

Small-scale trials in this study are also called legibility tests. Readability and presentation tests were carried out to assess the level of readability of the script. Attractive presentation, as well as clarity of manuscripts and pictures in the guidebook. The data source from the readability test was 6 teachers from TK ABA Dukuh II on May 6, 2019, by distributing questionnaires to assess the readability of the handbooks prepared. Small-scale trials were carried out by applying a learning model that had been designed for 15 students at TK ABA Dukuh II. At this stage, the teacher assesses the practicality of the book and assesses the shortcomings of the manual. It can be concluded that in small-scale trials, as a whole, the multi representation-based learning guide book in the "Good" category can be seen from the content feasibility component which scores 32.17 with the "Good" category and the presentation assessment component with a total score of 28 with category "Good". In addition to producing quantitative data, small-scale trials also produced qualitative data in the form of

criticisms and suggestions for improving the multi-representation-based learning model of sublime learning models. The results of the small-scale test also show that the multi-representation-based pitutur luhur learning model can be applied to children aged 5-6 years and can be captured well by children. The results of the readability test and the small-scale test were used to revise the next guidebook into draft 1 which would be validated by experts.

b. Expert Validation Results

The design of this learning model is validated by learning model development experts, early childhood education experts, and child emotion experts. The validation process is carried out by giving scores to the model expert assessment questionnaire, early childhood education, and children's emotions to the multi-representation-based pitutur luhur learning guide book.

**Table 5 Results of the Assessment Quality Assessment
Multi-representation-based the *Pitutur Luhur* Learning Guidelines Book**

NO	Evaluator	Component Assessment Results		
		Appropriateness	Presentation	Total
1	Model Validator	40	36	76
2	PAUD Validator	42	32	74
3	Child Emotion Validator	39	28	67
Amount		121	96	217
Percentage of ideals		84%	80%	82%
Category		Very good	Very good	Very good

Based on the table above, it can be seen that the content and presentation feasibility components are in the very good category with the ideal percentage of respectively 84% and 80%. Based on the results of the guidebook assessment, it can be concluded that the quality of the multi-representation-based instructional guidebook is generally very good with an overall ideal percentage reaching 82%. Draft I which has been revised and assessed by the validator is called Draft II which will later be used during large-scale field trials. Draft II The multi-representation-based the *pitutur luhur* learning model can be seen in Figure 1.

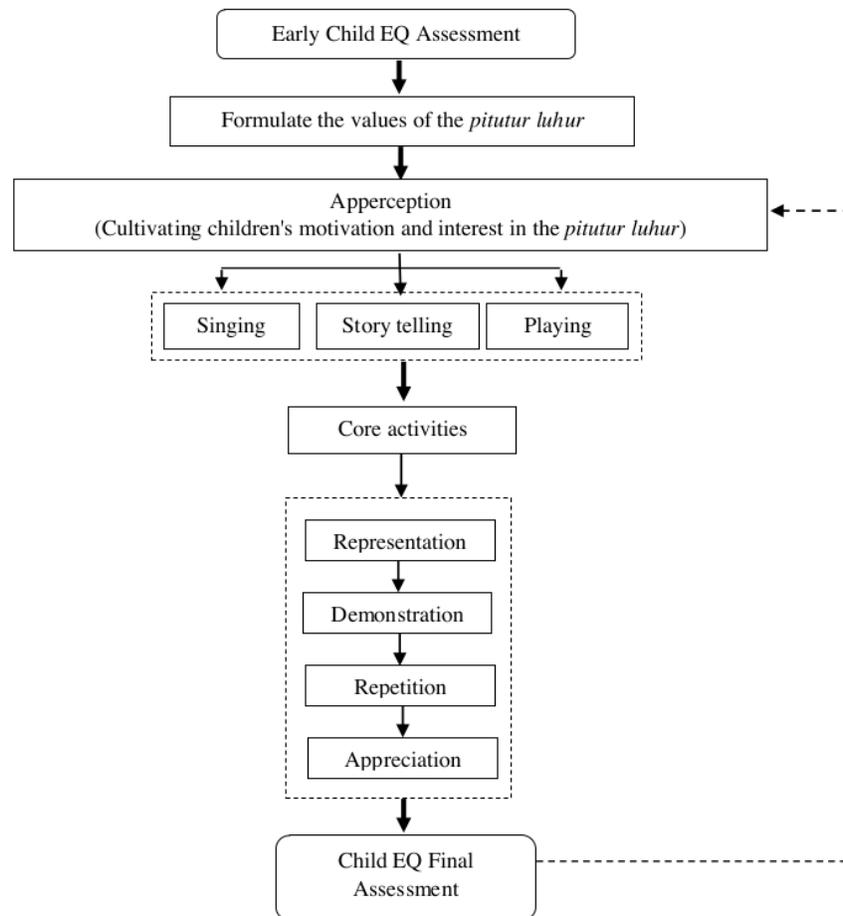


Figure 1. Draft II. The multi-representation-based pitutur luhur learning model

Draft II of the *pitutur luhur* learning model is the result of the refinement of the learning model of the draft I. In draft II there are several learning steps that have been perfected with five main learning steps 1) Initial assessment of children's emotional intelligence, 2) Formulating the values of noble principles to be taught in children, 3) Apperception activities, 4) Core activities and 5) Final assessment of children's emotional intelligence.

c. Large Scale Trials

After making several revisions on a small-scale trial, the next step was a large-scale trial involving children and teachers as model users. The large-scale test was carried out in two different schools, namely TK ABA Dukuh I and TK ABA Dukuh II. The results of the calculation of the teacher's response to the guidebook for the Luhur Luhur learning model based on multi-representation can be concluded that the feasibility of the content has an average of 38.45 with the category "Very Good" and the presentation component has an average of 31, 27 with the category "Very Good".

3.4. Effectiveness Test

- a. Data on Increasing Children's Emotional Intelligence Before and After Experiment
To find out emotional intelligence in children, it is done by using a paired sample t-test, but beforehand the prerequisite test is done first, namely the normality test and the homogeneity test. Data on the results of the normality test and homogeneity test can be seen in the following table:

Table 4. Data on the results of the normality test for children's emotional intelligence

Indicator	Sig (p-value)		Condition	Explanation
	Experiment Class	Control Class		
Children's Emotional Intelligence	0,540	0,275	P > 0,05	Normal

Based on table 4, it can be seen that the significant value of the child's emotional intelligence indicator is greater than 0.05 so that H_0 is accepted or the data is normally distributed.

Table 5. Data on Homogeneity of Children's Emotional Intelligence Test Results

Indicator	Sig (p-value)	Condition	Explanation
Emotional Intelligence	0,875	p > 0,05	homogeneous

Based on table 5, it can be seen that the significant value of the child's emotional intelligence indicator is $0.875 > 0.05$ so that H_0 is accepted. Thus, it can be concluded that the variance of the Post-Test group in the Control class and the Post-Test group in the experimental class is the same or homogeneous. After the prerequisite test is fulfilled, the next step is to determine the formation of a child's emotional intelligence using the paired sample t-test. This paired t-test is to test the research hypothesis.

Paired t-test result data for indicators of emotional intelligence can be seen in table 6 and table 7.

Table 6. Data on the results of different tests of children's emotional intelligence in the experimental class

Indicator	Data	Mean	N	Df	Sig (p-value)	Analysis	Explanation
Children's Emotional Intelligence	Pretest	69,40	15	14	0,000	p < 0,05	Ho Rejected
	Posttest	94,53					

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Based on table 6, the significance value of 0.000 is less than 0.05 so that Ho is rejected and Ha is accepted. Thus, there is a significant increase in the indicators of the emotional intelligence of children whose teachers apply a multi-representation-based the *pitutur luhur* learning model.

Table 7. Data on the results of different tests of children's emotional intelligence in the control class

Indicator	Data	Mean	N	Df	Sig (p-value)	Analysis	Explanation
Children's Emotional Intelligence	Pretest	70,67	15	14	0,057	p > 0,05	Ho Accepted
	Posttest	75,53					

Table 7 shows a significance value of more than 0.05 so that Ho is accepted and Ha is rejected. Thus, there is no significant increase in the indicators of emotional intelligence where the teacher applies a multi-representation based sublime learning model.

- b. Data on Differences in Emotional Intelligence of Control Class and Experiment Class Independence t-test (independence sample t-test) was used to determine whether there is a difference in emotional intelligence in the control class and the experimental class. The summary of the data on the results of the t independence test calculation for the indicator of the love for the fatherland of children is in table 8.

Table 8. Independent t-test of Emotional Intelligence in the Control and Experimental Classes

Indicator	Class	Mean	N	Sig (p-value)	Analysis	Explanation
Children's Emotional Intelligence	Control	75,53	15	0,000	p < 0,05	Ho Rejected
	Experiment	94,53	15			

2

Based on the table, it is known that the significance value for children's emotional intelligence is 0.000 or less than 0.05 so that Ho is rejected and Ha is accepted. Thus, there are differences in the emotional intelligence of children whose teachers apply a multi-representation based sublime learning model with teachers who do not apply the learning. Research and development of multi-representation-based sublime learning models to improve the emotional intelligence of children aged 5-6 years was carried out due to inequality in the field based on previous research studies and literature reviews so that a needs analysis research was carried out using a questionnaire to support the development of this learning model. In the next stage, the researcher carried out the planning and model development, feasibility testing, and model effectiveness. This research and development have resulted in a learning model

contained in a multi-representation-based instructional guide book and emotional intelligence instruments aged 5-6 years.

CONCLUSION

Empirical findings show that the emotional intelligence of children aged 5-6 years on average is still not well developed, this is because many teachers still think that cognitive intelligence is more important than emotional intelligence so that the stimulation to hone this intelligence is still lacking. Based on the results of questionnaires and interviews related to the analysis of the needs of a special learning model to improve emotional intelligence, it is concluded that the teacher wants a learning model that is able to increase the noble values of life such as tolerance, responsibility, honesty, mutual cooperation, empathy, and patience, which are all values. These noble values are able to develop children's emotional intelligence. Based on the above problems, the researcher tries to design a multi-representation-based sublime learning model which is the requirement for the development of noble values. The learning stages of the sublime pitutur consist of 5 stages, namely, apperception, representation, repetition, and demonstration. The learning model adopts the TANDUR learning strategy; *Tumbuhkan* (Grow), *Alami* (Experience), *Namai* (give the name), *Demonstrasi* (Demonstrate), *Ulangi* (Repeat), and *Rayakan* (Celebrate).

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