

# Analyse Ability of Early Childhood Based on Gender

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**Abstract**—The experimental design in this study has a interest in making conclusions made about gender differences in the ability to analyse children aged 5 years in the perspective of Taxonomic Bloom. The problem in this research is represented by the sample of research subjects by using items that have been loaded instrument. Test reliability and heterogeneity of variance can be randomly drawn conclusions from the scores of women and men on the instrument used. The results showed a statistically significant effect size difference (.01 Mean) in favor of women. The magnitude of gender differences in the impact of learning outcomes, however, differs substantially throughout the specific product domain graphically.

**Keywords**—gender, cognitive and analyse ability.

## I. INTRODUCTION

The problem in this study is to see how different the ability to analyse boys and girls. It is seen or researched in situations of the child's learning process when the child performs cognitive aspect activities for one semester. The research process has resulted in a fair and valid assessment that allows researchers to understand the differences that are found, the difference between boys and girls, and the reasons underlying them have differences in analytical skills. Boys are more inclined to think logically [1], nevertheless in doing girls' schooling activities more closely and their memory memory is better [2] The child's ability to analyse is important in the conduct of each child's activities. Having good analytical thinking skills from an early age will help the child in various aspects of life of further development. Thinking analysis is a reflective form of thinking by emphasizing the idea of what to believe and do to make the right decision. The category analyzing, evaluating, and creating is an abstract concept that belongs to a higher level and not all preschoolers can understand it [3]. Therefore in this study, researchers only limit the ability to analyse only. This research is important because it can see how different the ability to analyse boys with girls at the age of five to six years. By knowing the differences in the ability to analyse across gender, teachers or parents can be better prepared to adapt the right way and learning activities for the child. The ability to analyse is a high-level thinking level, because it encourages the learning performance of learners [4] thus affecting how the child's learning outcomes. Ability to analyse becomes one of the capital for children to be able to complete the tasks that children have, both in life learning and in daily life. The learning process that uses a learning system that emphasizes interaction tends to produce students who have good learning outcomes [5].

In the research implementation, there was a gap in the learning process used, because in this study researchers and

teachers used the same treatment for each gender of children and more dominant in the number of research, so researchers took the number of girls according to the needs of research. The diversity in every half of the population and the large number of variables affecting the subject adds considerable complexity to the research process. I consider here some experimental design problems that are essential for gender study differences because the nature of the results depends, in large part, on the way the research is done. The steps taken in the process of research that is, children and teachers do learning activities as usual. Learning content covers cognitive, linguistic and motor aspects. Researchers see the process of each child and the child's learning outcomes in the cognitive aspect. In the bloom taxonomy, analytical ability has sub aspects of differentiation, organizing and deconstruction capabilities [6].

Therefore, researchers assess the results of child learning based on three sub-aspects. Limitations in this study that researchers only discuss aspects of the ability to analyse children only from aspects of High Order Thinking Skills (HOTS). So for the ability to evaluate and create not reviewed in this research.

The rest of this paper is organized as follow: Section II describes the literature review. Section III describes the material and proposed methodology. Section IV presents the obtained results and following by discussion. Finally, Section V concludes this work.

## II. LITERATURE REVIEW

This section presents the literature review.

### A. Analyse Ability

The category of cognitive process dimension is intended to provide a set of categorization for the cognitive processes of learners included in the objectives. The cognitive process dimension according to Bloom's Taxonomy Revision consists of 6 categories: remember, understand, apply, analyse, evaluate, and create [7]. Categories range from the most common cognitive processes found in this purpose, relating to remember, through understand and apply, for the less frequent ones of learning, evaluate, and create. Remember means taking back relevant knowledge from long-term memory. Analyse is the breakdown of matter into its constituent parts and determines how the parts are related to each other as well as the overall structure or purpose.

In the six categories of cognitive process dimensions, the objectives (targets) to be conducted in this study is limited to the category of analytical ability. This is based on the consideration that the cognitive abilities of children have stages that must be considered and not all categories of

cognitive process dimensions are measured because it is adapted to the stage of child development to perform high-order thinking skills. Higher order thinking skill is a cognitive ability that is empirically based on Bloom taxonomy learning theory, which is mechanistic, giving priority to process ability and higher thinking result. The thinking process included in the HOTS category is the ability to analyse, evaluate and create [8]. Children are given the condition so that children think more creative and critical behavior then appear based on the learning conditions provided in the learning process. Higher order thinking skills or HOTS is the ability or cognitive skills of children in thinking at a high level that helps children the opportunity to be skilled in thinking more creative and critical.

Ability to analyse is one of the cognitive abilities that are in the fourth level on the theory of Bloom. Analyzing involves the process of classifying the material and determining how the relationship between parts with each part with its overall structure. Children who have the ability to analyse will facilitate their life when children become adults [9]. The ability to help the child to take any action and support changes in the child's behavior for the better. Without the foundation of the ability to analyse children early on well, then the child will have difficulty to understand whether the child is doing right or wrong and can change the behavior of children when he grew up later. The process analyzing categories include cognitive processes in differentiating, organizing and attributing. Analyse includes learning to determine relevant pieces of information (differentiating), determining ways to organize the pieces of information (organizing) and determining the purpose behind the information (attribute). Analyse as an extension of the child's ability to understand and as the foundation of the child to be able to evaluate and create. The ability to analyse what children have early on will greatly assist the child's literacy skills [10]. The child's ability to analyse will help the child in sentence, number, and symbol related issues. The ability to analyse will make it easier for the child to manage the words that the child should speak while speaking, since the child has static or arranged speech skills [11]. So the ability to analyse the child will facilitate the child in readiness to read and count. In the ability to analyse children are able to distinguish between conditions, linking conclusions with supporting statements, distinguishing relevant material, and linking ideas. These things will facilitate the child in the learning process from an early age to the next stage because of the ability to analyse it [12]. Process categories understand, analyse and evaluate each other and are often used to perform cognitive tasks.

#### *a) Differentiation*

Differentiation is a child's ability to differentiate in analytical skills involving the process of sifting through the relevant or important parts of a structure. Differences occur when the child discriminates relevant and irrelevant information, important and unimportant. The process of differentiation is also different from comparing, because in comparing its form with relevant information while to distinguish that sort, focus and choose.

#### *b) Organizing*

Organizing involves the process of identifying situations and the process of recognizing how the elements form a coherent structure. Organizing is usually at the same time as

the process of differentiation. The child first identifies relevant or important elements and then determines a structure formed from the elem. When organizing, the child is given a situation or problem, then the child can identify the relationship of these problems.

#### *c) Deconstruction*

Deconstruction is the ability of the child to attribute to occur when the child can determine the point of view, opinion, value, or purpose behind. Attributing involves the process of deconstruction, in which the child determines his own actions from his point of view. Children will behave based on the results of his analysis which then formed in the form of value or understanding of children in accordance with the process of analysis that has been done children.

### *B. Gender*

Gender is a set of characteristics that are bound to and distinguish masculinity and femininity. Such characteristics may include gender (male, female, or intersex), gender-based (social structure such as gender role), or gender identity. [13] Some cultures have specific gender roles that are different from "men" and "women" collectively referred to as the third gender such as the Bissu group in Bugis society in Sulawesi and the hijras of South Asia. New Zealand sexologist John Money sparked a difference in the use of gender biological and gender terms as a role in 1955. Prior to that, the word "gender" was rarely used to mention anything other than grammatical gender in linguistics [14]. The word gender comes from the French language *Mid gender* which in turn comes from the Latin word *genus* which means "type" or "type". The related modern French word is *genre* (as in the sexual *genre*). The Oxford English Dictionary of the first edition of 1900 mentions that the initial meaning of *gender* as "kind" is unusual. The word *gender* is still widely used, especially in linguistics, for grammatical gender (masculine, feminine, and neutral nouns).

The word *gender* is still widely used as a substitute for sex or sex (as a category of biology), although there are some who try to maintain the distinction between the two. The American Heritage Dictionary uses the following two sentences to illustrate the difference between the two terms while pointing out that the differences between them are in principle useful but not widely used and varying usage in various contexts. The definition is still used today for some contexts such as in social science [15].

Some knowledge about gender one of them is branch of social science that is study of gender. Neurology and neurology also discuss some issues about gender. Gender studies generally discuss gender as a social construct while the sciences in the natural sciences deal with the biological differences between men and women that can influence gender development in humans. Both approaches contribute to investigating the extent to which biological differences influence the formation of gender identity in a person. Social identity is a common identification of a society of people or a social category that constitutes a common culture among its members [16]. According to social identity theory [17] an important component of self-concept derives from membership in social groups and categories. It is shown in the group process as well as in how intergroup relationships have a significant influence on one's perceptions and behaviors. The

group then provides its members with a definition of who they are and how they should behave in their social environment [18].

Taken together, developmental gender literature shows that boys and girls enter preschool years with very similar levels of cognitive and pre-academic skills, but with some potentially larger differences in language, social, emotional and behavioral domains. In preschool classroom settings, these differences are thought to lead to differences in child-teacher relationship quality as well as how children spend their

time, especially during unstructured children's play. In particular, girls are described as having a closer and less conflicting relationship with their teacher than boys [19]. In addition, women were also depicted more involved in cognitive stimulation of classroom activities and imaginary verbal mediated and prosocial play, rather than boys, especially during free self-play [20]. If teachers are instructional content channels and serve important scaffolding roles in children's learning [21], then girls proximity to their teachers provides a basis for stating that girls tend to learn early academic skills from analytical skills rather than boys. Perhaps the same hypothesis also applies to the impact on girls' behavior. Again, better women's self-regulatory skills and closer relationships with their teachers can mean that they are very likely attending their teacher's efforts to develop their social and behavioral skills, and they may be better able to meet the expectations of their teacher's behavior, thereby creating a positive interaction of materials further fuel prosocial behavior and self-regulation. In particular, this developmental explanation is consistent with the observation [22] that "skills" during the childhood.

III. MATERIAL & METHODOLOGY

This section presents the material used and the proposed methodology.

A. Data

This research is the data of children learning outcomes on the cognitive aspects in terms of ability to analyse it. The data in this study were taken from 20 boys and 20 girls by the age of five. Kindergarten used is a school located in Deli Serdang district located in North Sumatra. The data used is the data of children's learning outcomes during one semester by seeing the average value of achievement with Likert scale then from each learning outcomes of children assessed ability to analyse with differentiation, organize and deconstruction aspect. All data obtained will be obtained by using an appeal or t test and data regression test.

B. Methodology

To understand whether the ability to analyse with different gender in five-year-olds, we do quantitative method that uses the results of studies on each data that has been obtained by using comparative data for boys and girls. This methodology tends to see how it is compared so that it uses the t test in its methodology. Results from individual reports are used to estimate average effect sizes across the results of the child's analytical skills. In addition, test whether the average effect size is different from the characteristics of analytical skills, in this case the gender of the participants. After defining interest issues, takes place in the following steps, described below: (1)

literature search, (2) data evaluation, (3) Interviews with teachers and (4) data analysis.

Based on Table I, the results of the data to see how the cognitive abilities of boys based on the learning outcomes of children during one semester that can be seen there is a very significant difference with the value, 67. The numbers are significant enough to state that there is a difference in cognitive ability between boys and girls using the results of a child's learning outcomes for one semester.

TABLE I. COGNITIVE ABILITY OF GIRLS AND BOYS

GROUP STATISTICS					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
CognitiveAspects	Girl	20	3,5000	,45883	,10260
	Boy	20	3,4000	,47573	,10638

INDEPENDENT SAMPLES TEST

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								lower	upper
Cognitive Aspects Equal variances assumed	,495	,486	,677	38	,503	,10000	,14779	-,19919	,39919
Cognitive Aspects not assumed			,677	37,95	,503	,10000	,14779	-,19919	,39919
				0					

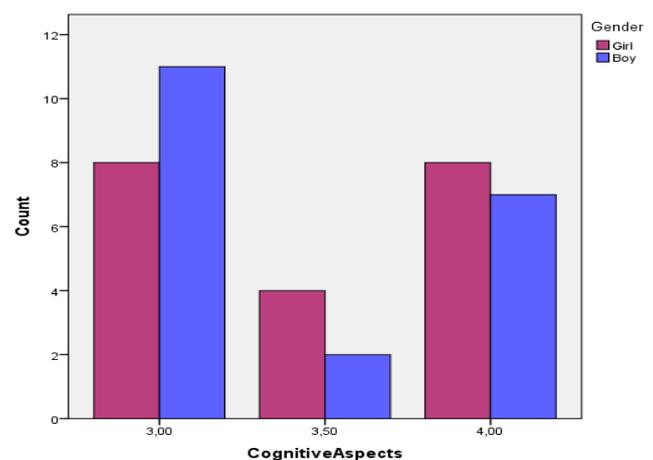


Fig 1. Comparison diagram of cognitive ability of boys and girls

Figure 1 above is a diagram of the explanation of data on the ratio of the number of children divided into gender differences in cognitive abilities. This is seen from the results

of children's learning on cognitive aspects for one semester. The data is formed in Likert scale then loaded according to the diagram in Figure 1.

TABLE II. ANALYSE CHILDREN ABILITY  
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.670 <sup>a</sup>	.449	.404	.39107

a. Predictors: (Constant), Deconstruction Ability, Differentiation Ability, Organize Ability

In accordance with the results in Table II that the regression value (R) between the five-year-old child's gender with the three aspects of analytical ability has a relationship value of 67, 67 or 67% and described the presentation of the influence of the independent variable to the dependent variable called dnegan coefficient of determination which is the result of regression landing. From the output obtained coefficient of determination of R Square equal to 449 or 44,9% containing meaning that influence of independent variable (Trust) to dependent variable equal to 44,9% while the rest influenced by other variable not discussed in this research.

TABLE III. ANOVA ABILITY TO CHILDREN ANALYZE  
ANOVA<sup>a</sup>

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4.494	3	1.498	9.796	.000 <sup>b</sup>
	Residual	5.506	36	.153		
	Total	10.000	39			

a. Dependent Variable: Gender

b. Predictors: (Constant), Deconstruction Ability, Differentiation Ability, Organize Ability

Table III explains whether there is a significant influence between the dependent variable and the independent variable. From the output it is seen that F arithmetic is worth 9.79 with significance level of, 000 <.05, the regression model can be used to predict the independent variable.

TABLE 4. COEFFICIENTS ABILITY TO CHILDREN ANALYZE  
Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	5.535	.782		7,080	,000
Differentiation Ability	,045	,166	,038	,274	,786
Organize Ability	-,642	,197	-,453	-3,265	,002
Deconstruction Ability	-,541	,189	-,386	-2,864	,007

In Table IV above, in column B at Constant value is 5.535. With regression equation:

$$Y = a + bX \text{ or } 5.535 + bX \quad (1)$$

The constant of 5.535 states that if there is no Trust value at the output then the value of participation is the value of the output of the constant.

#### IV. RESULTS AND DISCUSSION

This section presents the results obtained and following by discussion.

##### A. Result

The cognitive abilities between girls and boys have significant differences. The results of a simple multi-level regression model using the size of the results of all domains, where the term intercept represents the mean effect size for girls and the coefficients on the variables for boys measured the difference in effect size for males compared with women on the cognitive abilities of children who then reviewed the ability to analyse it by looking at three aspects. The results showed a statistically significant effect size difference (.01 Mean) in favour of women. The magnitude of gender differences in the impact of learning outcomes, however, differs substantially throughout the specific product domain graphically. Gender differences seem to have little greater impact on cognitive outcomes and analytical abilities on the achievement of girls than for boys' outcomes. The gender differences in these results are statistically significant, but again, they are small and we interpret them as not substantively meaningful. Since we cannot reject the hypothesis on the ability to analyse and gender impacts on cognitive outcomes and achievements are similar, we combine these two sets of results in subsequent analyses. So although there is a significant difference but the great influence between the analysis ability of five-year-old children with the existence of gender differences did not happen very large influence.

##### B. Discussion

This analysis for early childhood education programs is the first to see and study whether boys and girls have different cognitive abilities and analytical skills. This question is important from the science of development and gender equality perspective. For cognitive and achievement outcomes, both sexes differ in ability by about one-tenth of the mean value, in all these outcomes. Among the few studies that incorporate the behavior and outcomes of mental health programs generally do not affect these outcomes for both boys or girls. However, although similar programs affect the achievement and cognitive skills as well as the ability to analyse them.

Gender differences in the ability to analyse on cognitive and substantive achievement outcomes are small (0.01 averages), suggesting early benefits of girls in skills in analyzing and behavior as well as proximity to their classroom teachers did not make them substantially more able to learn from group-based and initiated by the children's learning activities that are common in preschool activities. As explained in our introduction, it is also conceptually important to consider how the ability to analyse children between boys and girls. In the process of learning outcomes, girls are more tidy in the process so that there is a subjective side in the assessment even though boys have not much different cognitive abilities. Although the same trials [23] have been carried out before producing men more tendency. Another explanation for this small difference is that although women may be more involved with cognitive aspects and analytical skills, they may also be more involved in enriching the interaction in the learning environment. In all other domains, if there is a gender difference, girls are more dominant. This suggests that a clear explanation for the improvement of other

school outcomes such as differential impact on the level of academic skills or reduction in problem behavior is unlikely to encourage children in the cognitive aspects of boys at other school levels.

#### V. CONCLUSION

In accordance with the data obtained and if the data has been done, it can be seen that there is a significant between learning results of cognitive aspects of girls and boys. Nevertheless, when statistical tests were performed by means of regression tests, there was no significant difference and influence between the ability to analyse between girls and boys. In this study did not discuss too much about what variables that cause no effect is too great between the ability to analyse boys with girls. Therefore, follow-up research is needed to complement the issues not covered in this study.

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