CONTROL OF THE LEARNING PROCESS AT DISTRICT 5 JULY ELEMENTARY SCHOOL, BIREUEN

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Abstrak. The focus of this article is on a process and outcome analysis of teaching at the District 5 JuliElementary School in the city of Bireuen. The point is to figure out if the end result of a process matches the initial expectations, or if the process is still progressing toward meeting those standards or performing as expected. The educational process is a procedure whose implementation and results must be monitored in order to provide outcomes that are in keeping with the desired goals and standards of quality. For this reason, it's intriguing to ponder how debating the legitimacy of an event based on ostensibly objective data, how to make crucial data easily digestible for those who need to see it, and how to analyze data accurately with appropriate statistics will give us a schematic of a process's workings that's both detailed and accessible. However, the data used are authentic data, such as the results of the National Exam taken by students at 5 JuliElementary School, bireuen district from 2013/2014 to 2017/2018 in four subject areas (mathematics, Indonesian, English, and Natural Science).

KataKunci:*control analysi, learning process, state elementary school*

Introduction

Multivariate analysis is a common research tool in studies with several independent variables. Choosing the appropriate multivariate analysis technique requires consideration of the research's aims, the assumptions behind the technique(s) under consideration, and the measurement scale(s) to be used during data collection in order to yield accurate and reliable results. Multivariate statistical analysis is a branch of statistical science that measures the strength of associations between groups of variables to draw conclusions about those groups as a whole. Scholars benefit greatly from multivariate analysis in their quest to find answers to broad, complex, or deterministic problems. (Wustqa et al., 2018). Multivariate analysis is a statistical method for analyzing data with more than one independent variable. Because multivariate data analysis requires more complicated calculations than single-variate analysis, using a statistical software package will simplify the process.The main purpose of multivariate analysis is to discover and comprehend the underlying structures of the data. (Djauhari, MA., Sagadapan,R., and Lee, S.L (2016). Newly discovered variables through multivariate analysis may be small in number, but the insights gained into the nature of variation gained from these variables for the first time are invaluable.(Aulele et al., 2017)Multivariate regression analysis is a

statistical method for explaining the existence of a correlation or relationship between two or more independent variables.

The focus of this article is a process and outcome analysis of teaching at the at the District 5 Juli Elementary School in the city of Bireuen   regency of Indonesian. This analysis's purpose is to determine whether the final product of a given process matches initial expectations, whether the process is currently being carried out in accordance with expected standards, and whether those expectations have been met or not. original artwork for the manufactured goods. To ensure that the educational process is effective and produces results that meet expectations, it is necessary to monitor both the process and the outcomes. In this case, it seems obvious that discussing real-world events in relation to data that can be differentiated, keeping in mind the importance of specific pieces of information, and then summarizing the results of the analysis using appropriate statistical methods will aid in providing a complete picture of the procedure being described. It will make use of authentic Bireuen data from the years 2013/2014 to 2017/2018 across four disciplinary domains: mathematics, Indonesian, English, and natural sciences.

The main question this article seeks to answer is how to use multivariate statistical methods to establish connections between different types of pedagogical content areas. How do we regulate the ongoing learning process? The purpose of this report is to analyze the connections and correlations between the many subject areas tested on the National Assessment of Educational Progress.Inform relevant parties about the outcomes of a multivariate statistical analysis of the teaching and learning processes at the National Basic Education School on July 5.

Discussion

The authentic data nilai Ujian Nasional students from elementary school Negeri 5 Juli from the academic years 2013/2014 - 2017/2018 with the subjects of mathematics, Indonesian, English, and natural science, and a total student body of 110, were used as a sample for this article's analysis. This section analyzes national standardized test scores at the elementary school level in the subjects of Indonesian, English, mathematics, and environmental studies. The following are derived from the individual mean calculation results.

Table 1: Corelation and Covarians Matrix

Subject	Indonesian	Engglish	Mathemathics	science
Jlh	1733	1747	1752	1713
Mean	82.524	83.190	83.429	81.571
Var	14.362	9.762	7.457	8.957
Range	12.000	11.000	10.000	11.000

This analysis assumes normally distributed data and that all instruction is carried out by teachers of equal ability. The highest mean scores can be found on the mathematics curriculum, at 83,429, and the lowest on the Science curriculum, at 81,571. This indicates

that students perform best on mathematicsbased learning assessments and worst on science-based assessments. Here we provide the results of a cross-cultural comparison of mathematics textbooks in order to better understand the connections between different disciplines.

Table 2: Korelasian and Kosovarians Matrix

Indonesian	1	0.801923	0.788907	0.8187
Engglish	0.801922788	1	0.962756	0.955602
Mathematics	0.788907241	0.962756	1	0.941275
Science	0.818699537	0.955602	0.941275	1
	Indonesian	Engglish	Mathematics	Science

The highest correlation is found between the engglish and mathematics learning outcomes, with a value of 0.962756, and the lowest between the indonesian and Mathematics learning outcomes, with a value of 0.788907241. These results suggest that the strongest pedagogical connection exists between English and Mathematics, whereas the weakest link is seen between indonesian and Mathematics. However, when looking at the correlation coefficient as a whole, the numbers point to a positive correlation. This demonstrates that students generally exhibit desirable behaviors in all spheres of education.This is in accordance with the research results of Hasratuddin's (2018) which shows that high mathematical abilities will affect students' English skills.Below are displayed results of a matrix correlation analysis to help you determine which subjects best predict others.

Table 3: Korealisation Inversions

Indonesian	3.0761571	-0.5605776	-0.18229	-1.81118
Engglish	-0.5605776	19.4414702	-10.7002	-8.04751
Mathematics	-0.1822869	-10.7002239	14.73981	-3.49982
Science	-1.8111769	-8.0475144	-3.49982	13.46733
	Indonesian	Engglish	Mathematics	Science

Each diagonal element in the inverse correlation matrix is proportionally related to the corespondence variable explained by regression. This is made clear by the fact that each diagonal is equal to $\frac{1}{1-R^2}$ where R is the multivariate correlation coefficient between other variables. The highest percentage, as calculated above, is for the subject of mathematics 94.85% ($\frac{14.73981-1}{14.73981}$)) while the lowest is for the subject of Indonesian language study (67.49%)($\frac{3.0761571-1}{3.0761571}$). This suggests that Math is the subject most reliably predicted by other disciplines, while Indonesian language studyis the least reliable predictor of any academic field.

Analytical results for predicting test scores using regressive analysis$\hat{Y} = EY + cov(Y,X).var(X)^{-1}(x - EX)$.

⇨ Largest predicted value from each Indonesian language value to each Mathematica value:$\hat{Y}_{MAT} = 3{,}652 + 0{,}568X_{IN}$

⇨ The magnitude of the predictive value assigned to each English-language numeric by the mathematical values is as follows:$\hat{Y}_{MAT} = 1{,}343 + 0{,}841X_{ENG}$

⇨ Each value of natural science and mathematics is accompanied by a significant predictive value.$\hat{Y}_{MAT} = 1{,}337 + 0{,}859X_{Science}$

⇨ Each value of Indonesian language, English, and the Science of Natural Knowledge confers a larger predictive value upon the value of mathematics. $\hat{Y}_{MAT} = 1{,}224 + 0{,}009X_{IN} + 0{,}634X_{ENG} + 0{,}217X_{Science}$

Study of Instructional Process Control Analysis

This discussion makes use of data collected from the National Assessment of Educational Progress at the national elementary school level between the academic years 2013–2014 and 2017–2018 for the subjects of Indonesian Languange, English, mathematics, and science. The first step in any process-control analysis is to determine the value of the covarians' matrix of determinates, using the information obtained in the previous step.

Table 4: Kovarians and UCL Height Determinants

| Tahun	MDK0	UCL2	UCL3
2013/2014	17.94513	73.75357	92.24166
2014/2015	28.09671	73.75357	92.24166
2015/2016	10.72374	73.75357	92.24166
2016/2017	1.222907	73.75357	92.24166
2017/2018	38.93975	73.75357	92.24166
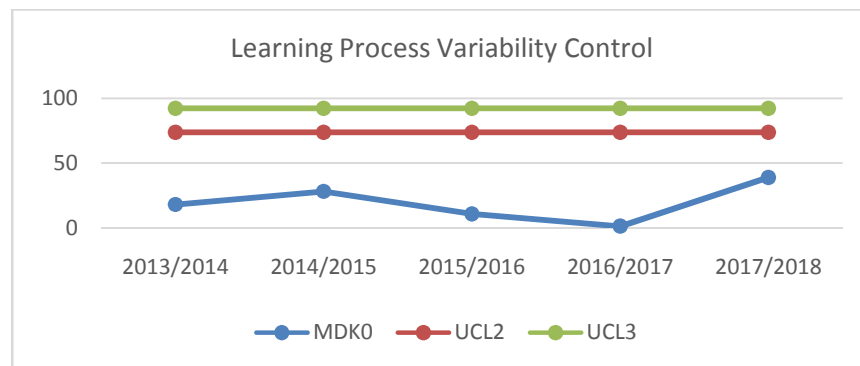
Slot 1. Learning Process Variability Control

Table 5: T^2 Means and UCL 95% Confidence Intervals for Upcoming Subsamples

Tahun	T^2	UCL2	UCL3
2013/2014	16.809	368.7679	461.2083
2014/2015	63.226	368.7679	461.2083
2015/2016	14.823	368.7679	461.2083
2016/2017	28.522	368.7679	461.2083

2017/2018	77.653	368.7679	461.2083
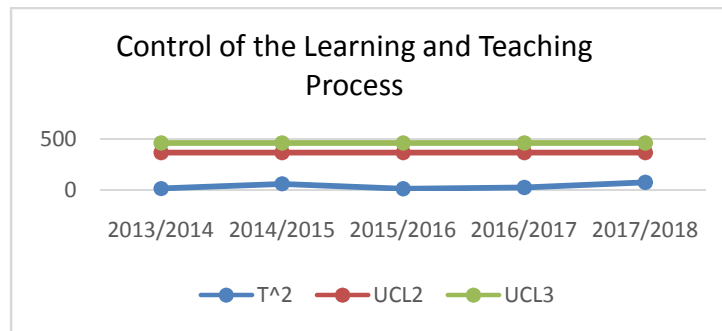
Slot 2: Capacity-Based Learning and Teaching Process Control

Both the variance control limits (MDcov) and the probability balance limit (T^2) lie below their respective confidence intervals (UCL(2) and UCL(3). as seen in the accompanying table and graph. From the graph above, it can be concluded that the learning process that took place at the District 5 Juli Elementary School in the city of Bireuen for the 2013/2014 school year to 2017/2018 went smoothly as expected.

Conclusion

The results of analysis of data on national exam scores for 5 years, namely from 2013/2014 – 2017/2018 show that the learning process is carried out in accordance with what has been planned. This is shown by the variability graph where the determinant value of the covariance matrix does not exceed the Uper Control Limit. This can be seen as evidence that the educational process over the past five years has been going swimmingly, in line with the educational abilities that have been developed.

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