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Is Class Placement Useful: An Empirical Study on Students' Grades after Class Placement

Linda

Secondary School Affiliated to Soochow University Jiangsu Suzhou 21500

ABSTRACT. *This essay is talking about whether it is useful to divide classes. This article first tells whether different schools in Suzhou are divided into classes and their situation, which is the result of my investigation and inquiry. And this essay also learned how they are divided into classes. Then this paper talks about whether these students feel good or bad, and whether they will have bad feelings because of the placement. Then the essay collected the placement data and their students' scores from two classes in a high school in Suzhou. In the three exams of two classes, the essay calculated their average values and plotted them into charts. By processing these data, the essay conducted T test. And then, the essay use "H0 (Null hypothesis): the way of class placement isn't efficient. H1 (Alternative hypothesis): the way of class placement is efficient. "to show what the essay prove. The essay made tables with the results of T test. Through these tables, we can intuitively see that placement is beneficial to students' grades. In the future, the essay can get more accurate results through more research data. These results can help senior high schools divide into classes, make them divide into classes more scientifically, and improve students' grades.*

KEYWORDS: *class placement, T test, mean, high school students*

How school divides students in different levels has arisen wide attention now. Class placement is dividing students by their score. Generally, high-score students are always in one class and low-score students in one class. Some people think it can help students study better. Many parents want their children to be in a high-level class, but is the method of class placement fair? When investigating students, some of them say their school divided class in different ways. When they first entered school, their school did this by the first mock exam in junior school. most students prefer class placement because it can separate students who study hard and those don't. On the same way, they would not be disturbed when studying. And if dividing students at the beginning, they will not feel the pain of parting with classmates and friends. This school divides students by the first mock exam in junior high school, because it is generally thought that this exam is more difficult than senior high school entrance examination and it is easy to know students' level clearly.

The essay will discuss the problem using the data in a high school in Suzhou. The essay firstly talks about different rules of class grouping. It secondly discusses the change of students' ranking and grades in a curve wrecker class and a general class. Thirdly, the essay uses T-test to argue if class grouping is good and fair. Finally, it shows the conclusion about the advantage and disadvantage of class grouping, reflection and prospect.

It is important for students and teachers to know if dividing students in different levels is good for study. This paragraph is about research for dividing students. The data that the essay uses below is from two class 1 and 2, grade 11, a high school in Suzhou. It is students' scores about 3 tests in one subject biology. I choose the data to represent their studying level because biology is an important and complex subject in Chinese high school. The data includes 3 exams in different time. This can easily show if two different level of class can have different score in the same difficulty exam. Does class 1 have better score or class 2?

$$\mu = \frac{n_1 + n_2 + \cdots n_n}{n}$$

Mean means the average number of the score in a class. Mean is made into table and line chart. The essay uses mean for 3 tests to compare. Mean for class 1 in 3 tests is 63.46, 61.14, 59.05. Mean for class 2 in 3 tests is 81.92, 66.93, 67.36. It is easy to see that class 1 is always lower than class 2 at least 5.79. the line of class 1 is regularly decreasing slowly. However, the line of class2 changes a lot, it drops a big leap then increase as slowly as it can. The essay does this because it shows the different scores in different class and compares 3 tests, which can clarify if they have progress or fall behind. Meanwhile it can clearly show that the difference between 2 classes.

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Table 1

	Test 1	**Test 2**	**Test 3**
Class 1	63.46	61.14	59.05
Class 2	81.92	66.93	67.36

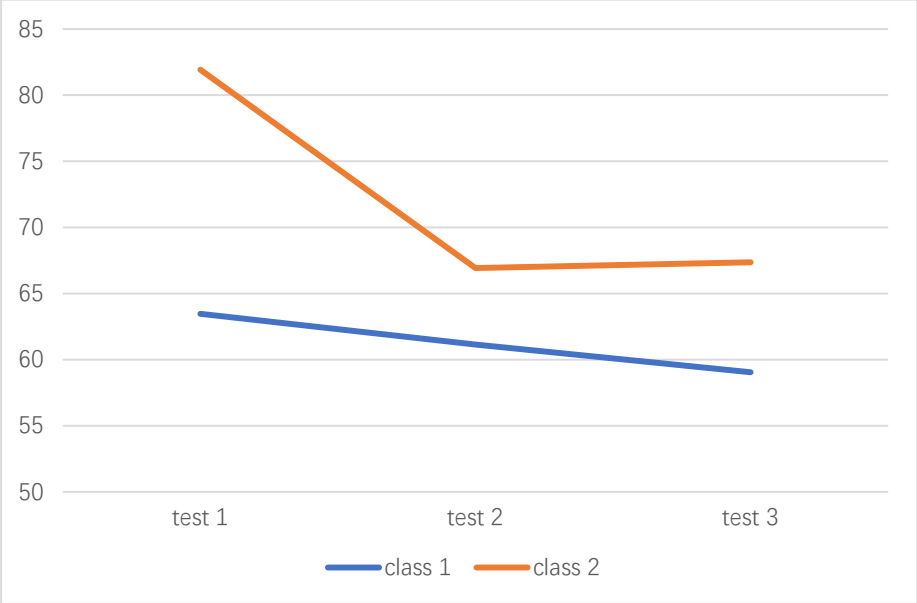

Figure 1: Mean of class 1 and class 2 in 3 tests

The essay deals with the data by t-test. There are two ways to compare by T test. One is in the different exam, according to student number ranking, the other is comparing the mean grade in two classes. The essay use method 1. It uses heteroscedasticity and isovariance to test the data. First, the table should be sorted by student numbers, the same people with scores in different exams is in the same line. Class 1 and class 2 students are paired in the order of their first test scores, from low to high. For example, the first one in class 1 and in class 2 in test 1 are paired

The T-test is a way of checking data by mantissa, for example if the P value is greater than 0.01, then we can draw the conclusion that we cannot reject H_0 at the level of 99%. The essay uses t-test to check whether the way of class placement is efficient.

H_0 (Null hypothesis): the way of class placement isn't efficient.

H_1 (Alternative hypothesis): the way of class placement is efficient.

First of all, the essay arranges the three test scores of two classes into a table, and then takes the student number ranking of the first semester of the 2019-2020 academic year of the high school in Suzhou as the standard. The other two exams are ordered according to the same student number, and then they are given t-test according to different classes. Group pair principle is student number.

The result of the test is 0.00016041610936084 in test 2, in percentage it is 0. 016%. 0.016% <0.05%, so we can reject H_0 at the level of 99.95%.

Table 2

	class1	**class2**
mean	61	70
variance	99	79
N	36	36
hypothetical mean	0	
df	69	
t Stat	-3.99353	
P(T<=t) one tail	8.02E-05	

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t one tail critical value	1.67	
P(T<=t) two tails	0.00016	
t two tails critical value	1.99	

The result is 0.00029 in test 3, in percentage, it is 0. 029%. 0.029%<0.05%

Table 3

	class1	**class2**
mean	60.97	68.25
variance	61.00	69.79
N	36.00	36.00
hypothetical mean	0.00	
df	70.00	
t Stat	-3.82	
P(T<=t) one tail	0.0001437	
t one tail critical value	1.67	
P(T<=t) two tails	0.0002875	
t two tails critical value	1.99	

Therefore, we can draw the conclusion that the class placement is efficient as the level of 99.95%.

In conclusion, the way of class placement is efficient, but there is still something can be improved. We will discuss these questions next time, like which kind of class division method is more reasonable and effective. Due to the shortage of research data and the urgency of time, this report is not perfect. More data can be collected to achieve a better comparison and research.

This study can help schools and parents in many aspects. For example, this research can help schools understand which class division method is most effective and take action. In the future, other schools can use T-test to test whether their class classification is reasonable, and understand the meaning of class classification. It can help poor students consolidate the foundation, help ordinary students expand, help top students improve.

To sum up, the way of class placement of the high school in Suzhou is efficient.

References

[1] Kosar, Tevfik, and Miron Livny. "Stork: making data placement a first class citizen in the grid." international conference on distributed computing systems (2004): 342-349.

[2] Breuer, M. A.. "A class of min-cut placement algorithms." design automation conference (1977): 142-148.

[3] Oconnor, Carla, and Sonia Deluca Fernandez. "Race, Class, and Disproportionality: Reevaluating the Relationship Between Poverty and Special Education Placement." Educational Researcher 35.6 (2006): 6-11.

[4] Kelly, Sean. "Do Increased Levels of Parental Involvement Account for Social Class Differences in Track Placement." Social Science Research 33.4 (2004): 626-659.

[5] Hu, Litze, and Peter M. Bentler. "Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives." Structural Equation Modeling 6.1 (1999): 1-55.

[6] Hoerl, Arthur E., and Robert W. Kennard. "Ridge regression: biased estimation for nonorthogonal problems." Technometrics 42.1 (2000): 80-86.

[7] Moriasi, D. N., et al. "MODEL EVALUATION GUIDELINES FOR SYSTEMATIC QUANTIFICATION OF ACCURACY IN WATERSHED SIMULATIONS." Transactions of the ASABE 50.3 (2007): 885-900.

[8] Fielding, Alan H., and John Bell. "A review of methods for the assessment of prediction errors in conservation presence/absence models." Environmental Conservation 24.1 (1997): 38-49.

[9] Wang, Zhou, and A. C. Bovik. "A universal image quality index." IEEE Signal Processing Letters 9.3 (2002): 81-84.

[10] Fisher, R. A.. "XV.—The Correlation between Relatives on the Supposition of Mendelian Inheritance.." Transactions of the Royal Society of Edinburgh 52.02 (1919): 399-433.