

Analysis of Determinants of Students' Learning Success in Senior High School as a Basic Development of Specialization Program at Junior High School

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Abstract—This study aims to analyze the determinants of the success of senior high school students' learning, which later will be used for the development of demand programs in junior high schools. The determining factors of success referred to in this study are the aspects of academic talent that is measured by using the IST (intelligent structure test) instrument. The scores of the national exam are used as indicators of the success of students' learning in high school. The method of this study is a survey design involving eight high schools in Bandung City. The samples covered 859 students consisting of 573 of science program, 248 of social studies program, and 38 of language program. The talent scores of the language program shows good predictive power with $r = 0.506$ and are significant at 99% confidence level. The talent scores of sciences have a very little predictive power ($r = 0.078$, and not significant). The talent scores of social studies have sufficient predictive power ($r = 0.335$, significant at $p < 0.05$). The implications and recommendations of this study are also discussed as the results.

Keywords—school success; interest; talent; guidance and counseling

I. INTRODUCTION

In mid-2014 Indonesia implemented a new curriculum which was named 2013 Curriculum (K-13). This curriculum is a curriculum still applied by the government to replace Curriculum-2006 which has been valid for approximately 6 years. curriculum 2013 entered the trial period in 2013 by making several schools become pilot schools.

The implementation of the newly Curriculum 2013 at the junior and senior high school levels has the same impact on two aspects, namely the learning process and on the model and potential students' development [1]. The learning process of the 2013 Curriculum requires a scientific approach. On the other hand, in the development of students' potential, which is carried out through guidance and counseling activities (in the form of specialization/selection of majors) must begin to be implemented from the beginning (Semester 1). Originally, the implementation in high school was implemented in the third

semester. This means that when they apply to high school, they are required to choose a specialization program.

The main objective of the curriculum changes is to improve the quality of education, which has been far below expectations. Indeed, the current era of globalization demands excellent human resources, who are ready to compete, both physically and mentally [1]. Such human resources will only be born from quality education products [2]. To meet these demands, the Law Number 20 of 2003 on the National Education System and some of its derivatives already requires and leads to the realization of quality national education.

The spirit of internal curriculum change occurs because the curriculum used has not provided opportunities for students to develop optimally, resulting from learning models that have not developed the potential of students. The existing curriculums (2004 and 2006) had not been able to answer internal and external challenges. Teachers who have been trained have narrow thinking. Therefore, the 2013 curriculum strives to develop changes in the mindset of the implementers of education, especially teachers (the Regulation of the Minister of Education and Culture Number 57, 58, 59, and 60 of 2014).

The 2013 Curriculum, in terms of service and potential development of students at the senior high school level, reveals new terms and new procedures. The term *penjurusan* (major) is replaced by the term *peminatan* (specialization), with the hope of facilitating the development of students' potentials. The majoring activities that were carried out in semester 3 must now begin in semester 1, once the incoming students must have chosen a major. This brings big and heavy consequences for both the implementers (guidance and counseling teachers) and the students (risk of failure). In the previous curriculum, the guidance and counseling teachers have a long time to understand students before making a decision to choose a major but it is no longer exist in the new curriculum. Another consequence happens to the guidance and counseling teachers at the junior high school level. The teacher in junior high school level must guide students to choose specialization (in

high school or vocational high school), in addition to choose the school they are going to go.

The community's expectations on their children studying at school are that the children can achieve success by their program selection. The problem is that the teachers at the junior high school level are not used to helping students to make informed choices: what program do students have to be directed; what aspects need to be considered in making this choice; are the students' achievement during junior high school enough to provide a basis in making these choices; what talents support their success at school; is it enough only to pay attention to their desires that are not yet clear? These things need to be observed and understood. Therefore, this study focuses on what things are predicted to be a "predictor" for their success in high school.

II. METHODOLOGY

The final goal of this study is to find predictive validity from the current formula of specialization program in high school towards students' excellence in their class (which is termed the learning success). This is done by assessing/comparing the profile of students' psychological aspects (talents, personality, and interests) that are classified as successful. The measurement of the successful student is determined based on the position (ranking) of students in class. The position or ranking is set normatively 25-33.3% of the number of students in the class for each group/program based on the number of National Examination scores [3].

Operationally the data obtained through documentation studies covers (1) quantitative data in the form of aptitude test scores covering nine aspects of talent revealed by IST (Intelligence Structure Test); (2) the data of national exam results; and (3) the score of learning achievement of each specialization program. Furthermore, the data was analyzed and described to assess the predictive power of variable characteristics in the population. The number of samples of this study is 859 students consisting of 573 of science program, 248 of social studies program, and 38 of language program from 8 high schools in Bandung City.

III. RESULTS AND DISCUSSION

The results of the correlation test between the score of the national examination (UN) and the score of average achievement of the main lesson for the Language Program (n = 38 people) reveals $r = 0.825$, significant at $p < 0.01$. The correlation number according to Guilford's size is considered a high correlation. A high correlation number indicates a high relationship between the two correlated variables. In the Natural Sciences Program (IPA), the results of the correlation of the UN score and the achievement score for the first semester of Grade XI resulted the correlation index $r = 0.376$, with $n = 631$, significant at $p < 0.01$. This correlation index is included the medium correlation category.

For the Social Studies Program, the results show $r = 0.414$ with $n = 303$ and are significant at $p < 0.01$. This correlation index is included moderate or sufficient. This means that the Social Studies Program's achievement index obtained from an

average of several fields of study provides a pretty good forecast for the success of achievement in the eleventh grade of high school.

The analysis or description of the predictive power of talent towards achievement is described in predictions of each program as follows.

A. Predictions for Language Program

The overall predictions stated in the correlation can be seen in the following table.

TABLE I. THE MATRIX CORRELATION BETWEEN SUB-ASPECTS OF TALENT AND ACHIEVEMENT OF POTENTIAL AND LANGUAGE

	SE	WA	AN	GE	ME	LANG	UN	ACH
SE	1.00							
WA	.159	1.00						
AN	.058	.173	1.00					
GE	.316	.211	.307	1.00				
ME	.193	.309	.417	.543	1.00			
LANG	.477	.583	.434	.629	.574	1.00		
UN	.253	.157	.293	.306	.216	.188	1.00	
ACH	.388	.358	.378	.343	.275	.506**	.825	1.00

Correlation is significant at the 0.05 level (1-tailed).

Based on the table, it can be seen that there are several sub-tests that have a quite good correlation with learning achievement. The first five sub-tests (SE, WA, AN, GE, ME) individually have a correlation with achievement for between 0.275 to 0.388, which is significant at a 90 to 95% confidence level. Then the LPPB have tested and predicted the five sub-tests as basic talents for success in Language. In this study, it was proven that the five aspects combined have a good predictive power with $r = 0.506$ and significant at 99% confidence level. Thus, the formula model provided by the LPPB has proven good predictive power. According to experts, many things can predict learning achievement. Murphy proposes the attribute psychologist. Murphy states that the psychological aspects alone are not enough, but more importantly the quality of the instrument reveals the psychological aspects [4].

B. Predictions for Natural Sciences Program

Some aspects of talent that are predicted to have good carrying capacity for achievement in the Sciences Program are GE, RA, ZR, FA, and WU. The calculation results can be seen in the following table.

TABLE II. THE MATRIX CORRELATION BETWEEN SUB-ASPECTS OF TALENT AND ACHIEVEMENT OF POTENTIAL AND SCIENCE

	GES	RA	ZR	FA	WU	IPA	UN	ACH
GES	1	.241**	.245**	.179**	.096*	.481**	.060	-.038
RA	.241**	1	.499**	.264**	.267*	.625**	.305**	.108**
ZR	.245**	.499**	1	.314**	.273*	.691**	.186**	.118**
FA	.179**	.264**	.314**	1	.331*	.625**	.040	.063

Table 2. Cont.

WU	.096*	.267**	.273**	.331**	1	.617**	.065	.023
IPA	.481**	.625**	.691**	.625**	.617*	1	.217**	.078
UN	.060	.305**	.186**	.040	.065	.217**	1	.376**
ACH	-.038	.108**	.118**	.063	.023	.078	.376**	1
	.344	.007	.003	.113	.568	.050	.000	
	.631	.631	.631	.631	.631	.631	.631	.631

From the table above, it can be seen that the correlation numbers of GE, RA, ZR, FA, and WU (individually) to the learning achievement of the Sciences Program are very small (all of them are under 0.2), even though there are numbers that show significant correlations. This means that the talent scores of Grades XI cannot predict the natural sciences learning achievements in semester 1. In other words, the predictive power of talent towards achievement for the field of natural sciences is very small.

Other conditions, if scores of the GE, RA, ZR, FA and WU aspects are combined, which is a formula that has been made by the LPPB, the correlation is small ($r = 0.078$, and not significant). This means, both individually and collectively, the achievement scores for the natural sciences learning cannot be predicted significantly by the talent scores of the natural sciences.

Some experts argue that intelligence and talent are factors often referred as predictors. However, many studies related to them fail to predict success. This is related to the validity and reliability of an instrument. Considering the condition of schools nowadays, there is often a leak of instrument. Some irresponsible teachers deliberately divulge answer keys to students. As a result, a valid and reliable test is unable to predict well since the instrument has a disability, has been circulated (leakage), improper administration, inadequate testing, and the influence of the test participants themselves.

Murphy explains that seven groups/types/categories cause inconsistency scores of a test. They are (1) Lasting and general characteristics of the individual; (2) Lasting but specific characteristic of the individual; (3) Temporary but general characteristics of the individual (factors affecting performance on many or all tests at a particular time; (4) Temporary and specific characteristics of the individual; (5) Systematic or change factors affect the administration of the test or the appraisal of test performance; and (6) Variance not otherwise accounted for (chance) [4].

C. Predictions for Social Studies Program

To see or test the predictive power of talents predicted to support the field of social studies, the following table provides some information.

TABLE III. THE MATRIX CORRELATION BETWEEN SUB-ASPECTS OF TALENT AND ACHIEVEMENT OF POTENTIAL AND SOCIAL

	SE	WA	AN	ME	RA	SOC	UN	ACH
SE	1	.138*	.170**	.211**	.167**	.510**	.119*	.160**
WA	.138*	1	.227**	.312**	.249**	.538**	.031	.197**
AN	.170**	.227**	1	.215**	.266**	.592**	.134*	.270**
ME	.211**	.312**	.215**	1	.295**	.650**	.202**	.213**
RA	.167**	.249**	.266**	.295**	1	.541**	.050	.098
IPS	.510**	.538**	.592**	.650**	.541**	1	.210**	.335**
UN	.119*	.031	.134*	.202**	.050	.210**	1	.414**
ACH	.160**	.197**	.270**	.213**	.098	.335**	.414**	1
	.005	.001	.000	.000	.089	.000	.000	
	303	303	303	303	303	303	303	303

The table above shows that the number of correlations obtained from the aspects of talent related to social studies (rationally presumably is a prerequisite to get good performance in the field of social studies), namely SE, WA, AN, ME, and RA have a low correlation rate (between 0.2 to 0.3). However, almost all of them are of minimal significance at $p < 0.05$ and $p < 0.01$ (except the RA). If the aspect is formulated (as the LPPB's), it turns out that it has a greater correlation value, namely $r = 0.335$, significant at $p < 0.01$. This means that the aspects of talent are considered good predictive power.

IV. CONCLUSION

The 2013 Curriculum, in terms of service and potential development of students at the senior high school level, reveals new terms and new procedures. The term penjurusan (major) is replaced by the term peminatan (specialization), with the hope of facilitating the development of students' potentials. The majoring activities that were carried out in semester 3 must now begin in semester 1, once the incoming students must have chosen a major. This brings big and heavy consequences for both the implementers (guidance and counseling teachers) and the students (risk of failure). In the previous curriculum, the guidance and counseling teachers have a long time to understand students before making a decision to choose a major but it is no longer exist in the new curriculum. Another consequence happens to the guidance and counseling teachers at the junior high school level. The teacher in junior high school level must guide students to choose specialization (in high school or vocational high school), in addition to choose the school they are going to go.

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