

Influence of New Student Admission Selection Test Results on Student Learning Achievement of Vocational Program Field Science Technology and Social Humaniora

Suprpto, Bambang Supriato, IGP Asto Buditjahjanto, Setya Chendra Wibawa
Faculty of Engineering, Universitas Negeri Surabaya, Indonesia

Abstract - The new student admissions selection test is the basis for determining prospective students' acceptance in higher education. The selection test for new students generally consists of a basic ability test (TKD) and a test of academic ability and potential (TKPA). This study aims to analyze the effect of the new student result of admissions selection test on student achievement in the Universitas Negeri Surabaya (Unesa) Vocational Program in the fields of Science and Technology (exact) and Social humaniora (non-exact). This research is ex post facto research. The data analyzed were the results of the new student admissions selection test and the academic achievement index scores of the Unesa Vocational Program students in the field of Science and Technology and Social Sciences class of 2019 and 2020. Figural, Verbal, Numeral, Mathematical, Indonesian, and English variables as independent variables. Achievement variable (GPA) as the dependent variable. Data analysis using SEM. The results of this study are as follows (1) Vocational Program entrance test refers to empirical data that determines the test components are figural, verbal, and numeral (2) In the Vocational Program in the field of Science and Technology class of 2019, the test variables for the selection of new students that have the most significant influence on learning achievement are Indonesian, English and Numeral. (3) In the Vocational Program in the field of Science and Technology batch 2020, the test variables for selecting new students that have the most significant influence on learning achievement are Figural, Verbal, and Mathematical. (4) In the 2019 Social humaniora Vocational Program, the variable for the new student selection test that has the most significant influence on learning achievement is Figural and Indonesian (5) In the Social humaniora Vocational Program class of 2020, the variable for the new student selection test that has the most significant influence on learning achievement is Figural, and English (6) In general, the test components related to student's IP are figural, verbal and numeral.

Index Terms - Selection Test, Learning Achievement, Science and Technology, Social.

INTRODUCTION

The test is also referred to as an assessment which is the process of gathering information and processing information about a thing and then returning to the concerned to find out the shortcomings and advantages so that it can be corrected again (Urbina, 2016). Tests have many types, including selection tests, placement tests, pre-post tests, diagnostic tests, formative tests, and summative tests. The test is also referred to as an assessment which is the process of gather and process information about a thing and then returning to the concerned to find out the shortcomings and advantages so that it can be corrected again (Urbina, 2016). Tests have many types, including selection tests, placement tests, pre-post tests, diagnostic tests, formative tests, and summative tests.

New student admission tests are included in this type of selection test. The selection test is a type of test that aims to select or select prospective participants who are eligible to enter and participate in a program (Suparji, 2020). This selection test contains questions from the material that measure prospective test-takers ability or competence by the standards determined by the program to be followed.

Clark, M., Rothstein, J., & Schanzenbach, D. W. (2009) explains that college entrance tests in America are SAT (Scholastic Assessment Test) and ACT (American College Test). The results of these tests can be a measure of student achievement. Sat assesses the math and verbal skills of prospective students in the first year of study. The ACT assesses the readiness of high school graduates in following lecture materials in four study areas, namely English, Mathematics, Reading, and Science Reasoning[1].

Cohn, Cohn, Balch, and Bradley Jr. (2004) revealed that including sat as a requirement is essential in predicting student success in college. Zwick, R. (2010) further explains that college entrance selection tests depend on the type of program. In addition to the main admission tests used in the U.S., namely the SAT and ACT used for college admissions, there are several selection tests for specialized programs. The Graduate Record Examinations (GRE), used for student admission tests at graduate school. The Medical College Admission Test (MCAT) is used for medical student admission selection tests. The Law School Admission Test (LSAT) for law school entrance tests. Graduate Management Admission Test (GMAT), which is used for admission to business school. Another required test is the English language test.

Katz & Brown (2019) explain that the test commonly used for college admission is a talent test. Traditionally, the application of talent testing depends on whether talent has been rated as something stable over time or whether it can be modified. The original

purpose of the college admissions test was to identify the students most capable of developing by studying at a college that matched their talents and interests.

The writing test, a new student admission selection test, becomes the basis for determining the acceptance of prospective students in college. This test serves to screen prospective first-year students who are eligible for college admission. New student admission selection tests generally consist of basic proficiency tests (TKD) and academic ability and potential tests (TKPA). TKD is divided into two, namely TKD Science technology and TKD Social humaniora. TKD Science technology tests mathematical, biological, chemical, and physical materials, while TKD Social humaniora tests sociology, history, geography, and economics. TKPA tests Basic, Indonesian, English, Verbal, Numerical, and Figural Mathematics materials (Sihombing, P and Setiyawan, A. 2015).

SBMPTN and SPMB are all selection pathways that use writing tests. This writing test can be a print-based writing exam (UTBC) and a computer-based writing exam (UTBK). This writing exam is designed to measure basic skills that can predict the success of prospective students in all study programs, namely higher-order thinking consisting of academic potential, mastery of primary fields of study, science and technology (Science technology), as well as social and humanities (Social humaniora) (Forum Tensor Indonesia, 2018). The area of arts and sports studies must also take a skills exam. However, currently, the writing test held is only a computer-based writing exam (UTBK).

Computer-based writing tests with multiple (objective) choices have an easier and faster advantage in the assessment process. One of the applications used in computer-based tests is the CAT application. This CAT application has benefited from the media aspect, design aspect, and evaluation aspect. CAT application also excels in the display element, namely the presentation of questions in CAT and the ease of getting test results (Putrawansyah, F. 2017).

UTBK's goal is to predict prospective students who can complete their studies in college well and on time. UTBK uses exam questions designed by academic rules about the development of tests to measure basic abilities and predict the success of prospective students in all study programs (LTMPT, 2021).

UTBK in 2021 consists of the Scholastic Potential Test (TPS) and Academic Competency Test (TKA) that corresponds to the exam group of each examinee. TPS measures cognitive ability, a general reasoning and comprehension ability essential for success in traditional schools, notably higher education. Reasoning skills develop through the process of learning and transfer from experiences in school and outside of school. TKA measures the knowledge and understanding of science taught in school and is needed for a person to pursue higher education. TKA also measures cognitive abilities directly related to the content of subjects studied in school. Emphasis tests on Higher Order Thinking Skills (HOTS). The result of this writing test is to get standardized scores as an overview of prospective students' ability to complete their studies (LTMPT, 2021) SPMB college entrance tests also use a writing test consisting of TKD and TKPA tests. This test is arranged in such a way as to filter and predict the ability of prospective students. The college entrance test must be prepared and unity (unidimensional) to measure ability (Widhiarso, W, 2019). The ability measured must be standard and evenly distributed to the ability measured so that there is no high tendency in specific abilities only and weak in other skills.

A good writing test should measure a participant's potential and predict participants' performance well when they are allowed to complete a program. (Young, Klieger, Bochenek, Li, & Cline, 2014). One way to determine a good writing test is to analyze student achievement after studying.

This writing test should also be able to measure the potential of the test taker. Tests that measure potential seek to identify how well individuals understand and use information from different sources to support their goals (Cook, 2009).

Based on the description above, it can be concluded that the college entrance writing test is used to measure prospective students' ability to attend lectures. This writing test becomes a standard or reference for prospective students in college. Good test results illustrate the power and readiness of prospective students to enter the study program in college and complete the program well and on time. This test can be done computer-based and print-based.

The result of this writing test is to get a standard score as an overview of the ability of prospective students to complete their studies. This writing test applies to all courses, where each study program has its characteristics. The hope is a good writing test result, showing the ability of students who are good in carrying out their lectures that are displayed with good learning achievement, but there are different conditions in the field. So it becomes a problem that deserves to be solved.

Learning outcomes are the output of the learning process. Learning is an activity carried out by learners in achieving learning goals. While learning outcomes are the abilities obtained by learners after receiving their learning experience (Sudjana, 2017).

Human behavior consists of several aspects. Learning outcomes will appear in the changes in these aspects, including knowledge, understanding, habits, skills, appreciation, emotional, social relationships, physical, ethics, and attitudes. Learning outcomes will be seen from changes in one or more of these aspects (Hamalik, 2011).

Learning outcomes can be known when the selection of learning results. The choice of learning outcomes is a process to collect information, hold considerations about the data, and make decisions based on concerns that have been made (Daryanto, 2009).

The teaching and learning process requires selection to determine the extent to which learners have achieved learning goals. Learning outcomes can be measured using a variety of instruments depending on what will be measured.

Learning outcomes have an essential role in the teaching and learning process. Assessment of learning outcomes can provide information on the extent of learners' success in learning. Furthermore, from this information, educators can improve and reconstitute further learning activities, both for the entire class and individuals.

Learning achievement is the result of learning activities accompanied by changes achieved by learners expressed in symbols, numbers, letters, or sentences as a measure of the success rate of learners with established standardization (Rosyid, M.Z., Mustajab., & Abdullah, A.R. 2019). Learning performance is the result obtained in the form of impressions that result in changes in learners as a result of learning activities. Learning achievement is the result of learning achieved by learners who numbers can express. Learning achievement can measure the extent of the achievement of learning goals. This learning achievement is usually recorded in the official documents of educational institutions (Sutiah 2020).

Two factors affect learning achievement, namely internal factors and external factors. Internal factors include physiological factors (health and state of the body) and psychological factors (interest, talent, intelligence, emotions, Callahan, and how to learn). External factors include the family environment, school, community, and nature (Rosyid, M.Z., Mustajab., & Abdullah, A.R. 2019). Sutiah (2020) added that factors that affect learning achievement from internal factors in the form of learning motivation, while external factors in the form of learning facilities, learning environments, teaching models. Anggresta, V. (2016) explained that learning achievement factors include teaching quality, learning independence, family environment, work ethic, learning concentration, and support.

Learning achievement can be influenced by the interests and talents of a person. Interests and talents can be assessed in self-selection tests such as landfill tests, psychotic, and so on. Therefore, college entrance often uses such tests. Munadi, S. (2009) stated that the study program entrance selection test has a relatively good predictive power. The college entrance selection test can be used to get qualified student candidates.

Based on the above agrarian, it can be concluded that learning achievement is a learning outcome stated in writing in the institution's official document as a measure of success rate against learning goals. Learning achievement is a result of the learning process that shows positive changes in both knowledge, skills, and attitudes of learners. Learning achievement is influenced by internal factors and external factors of learners.

Learning results during lectures can be shown by learning achievement in the form of achievement index (IP). There are two types of IP, namely semester IP (IPS) and Cumulative IP (GPA). IPS is an achievement index obtained Tuesday one semester of lectures. GPA is a cumulative achievement index of all semesters that students have passed. The full IP is 4.00, with all course grades earning an "A."

Surabaya State University (Unesa) is one of Surabaya's favorite public universities. Prospective students who wish to study at Unesa can choose the desired selection path from three selection lines, namely the National Selection of State Universities (SNMPTN), the Joint Selection of State Universities (SBMPTN) and the Selection of New Student Admissions (SPMB). SNMPTN has been owned since 2013 as a replacement for SNMPTN Invitation Line. SnmpTN is a national selection model based on the values of ballots and other achievements. SBMPTN is technically the same as the SNMPTN Writing Exam Track 2012. SbmptN is a national selection model based on the results of written tests and/or the results of skill tests (especially arts and sports study programs). SPMB is a self-selection organized by Unesa for the bachelor's / bachelor's program of applied level and transfer, as well as the third cycle. Of these three ports, only SNMPTN is without a write test, while SBMPTN and SPMB use a write test. Test.

Vocational education is one of the programs in Unesa. Vocational Education consists of educational programs (S1) that produce teachers in vocational schools and applied undergraduates (Strata 1 Applied / D4) to prepare graduates to work professionally. Vocational education has the characteristic that there is a more significant proportion of practicum than theory, so skills play an essential role there. Project-based learning and performance assessment (products and processes) become inseparable parts. During this time, vocational programmed entrance selection tests are still equated with undergraduate programs, and there are no practice tests.

Based on the background description of the above problem, a study is needed to analyze the influence between the new student admission selection tests on students' learning achievement of the Vocational Program unesa field science technology and social humaniora.

METHOD

This research is descriptive research with an ex post facto research approach. The data analyzed are documents of the results of new student admission selection tests and academic achievement index scores of Students of The Vocational Program Unesa again 2019 and 2020. The study program is grouped into two. Namely, the study program is Science technology and Social humaniora. For Science technology class of 2019, respondents amounted to 263 students, and the type of 2020 was as many as 132 students. The Social humaniora study program in 2019 amounted to 80 students, and the class of 2020 amounted to 37 students. The total number of respondents was 475 students. The research site is at Surabaya State University (Unesa). Data collection using literature and documentation methods.

The analysis was done with SEM. This analysis is directed to find out the influence between the selection test scores on student GPA. The selection test as an exogenous variable consists of figural (X1), verbal (X2), numeral (X3), mathematic (X4), Indonesian (X5), and English (X6). The endogenous variable is the GPA of Unesa vocational program students.

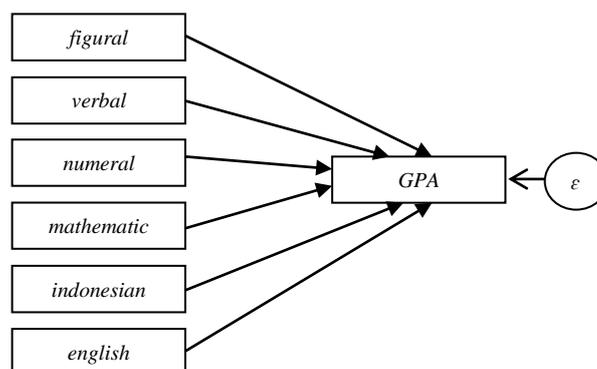


Figure 1. Data analysis model

III. RESULTS AND DISCUSSIONS

This research was conducted at the Vocational Program of Surabaya State University (Unesa). The research subjects are students of vocational programs in the class of 2019 and 2020 in science technology and social humaniora fields. Prodi data can be seen in Table 1.

Vocational program name in Unesa

No	Study Program	Field
1	D4 Graphics Desing	Social humaniora
2	D4 Sport Coaching	Social humaniora
3	D4 Culinary	Science technology
4	D4 Fashion Design	Science technology
5	D4 Electrical	Science technology
6	D4 Mecahanical	Science technology
7	D4 Civil	Science technology
8	D4 Transportation	Science technology
9	D4 State Administration	Social humaniora
10	D4 Informatic Management	Science technology

The profile of new students of vocational programs based on the entry test score and Achievement Index (IP) semester 1 of the respondents can be seen in Table II.

New Student Profile And IP

No	Komponen	Skor Rata-rata	
		Angkatan 2019	Angkatan 2020
1	Figural	9,11	10,00
2	Verbal	7,13	8,24
3	Numeral	5,61	6,22
4	Matemathic	3,70	3,25
5	Indonesian	8,09	7,13
6	English	5,13	4,11
	Total Skor	38,78	38,95
7	IP	3,31	3,42

Based on Table 2 components of college entrance tests related to IP, there are three, namely figural, verbal and numeral because the score of the three components between the class of 2020 is higher than the class of 2019, related to the average IP class of 2020 more elevated than the class of 2019. While the other three components of the test, namely mathematics, Indonesian, and English, the 2019 class score is higher than the 2020 class, but it is the opposite.

Data analysis using the STATA program with the SEM model. Table 3 and Figure 2 show the results of the study of selection test scores with the GPA of students of the Saitek field vocational program in the class of 2019.

As a result of the analysis of the relationship of the selection test with the learning achievement of students of the Saitek field

Standardized	OIM		z	P> z	[95% Conf. Interval]	
	Coef.	Std. Err.				
Structural						
gpal						
figural	.0104816	.0669327	0.16	0.876	-.1207042	.1416673
verbal	.0343083	.0665833	0.52	0.606	-.0961926	.1648091
numeral	.1320872	.0618372	2.14	0.033	.0108884	.2532859
mathematic	-.0679724	.0632353	-1.07	0.282	-.1919112	.0559664
indonesian	.2248735	.0632872	3.55	0.000	.1008328	.3489142
english	.1728964	.0649756	2.66	0.008	.0455466	.3002462
_cons	9.004189	.6806865	13.23	0.000	7.670068	10.33831
var(e.gpal)	.8762206	.0387085			.803545	.9554692

vocational program in the class of 2019

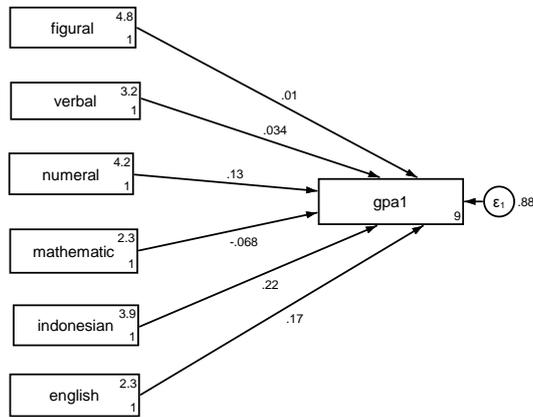


Figure 2. Model of the relationship of selection tests with the learning achievement of students of the Saitek 2019 vocational program

Based on Table 2 and Figure 2 in the Vocational Program in science technology field class of 2019, The variables of the new student selection test that have the greatest relationship to the learning achievement of students of the vocational program in the field of Science technology class 2019 are Indonesian, English and Numeral.

The results of data analysis using the STATA program with the SEM model in Table 3 and Figure 3 show the results of the analysis of selection test scores with the GPA of students of the Saitek field vocational program in the class of 2020.

The results of the analysis the relationship of selection tests with the learning achievement of students of the Science field

Standardized	Coef.	OIM Std. Err.	z	P> z	[95% Conf. Interval]	
Structural						
gpa						
figural	.2844575	.1192771	2.38	0.017	.0506787	.5182363
verbal	.1323297	.1245404	1.06	0.288	-.111765	.3764244
numeral	-.1069402	.1318321	-0.81	0.417	-.3653264	.151446
mathematic	-.0397665	.1234548	0.32	0.747	-.2022004	.2817334
indonesian	-.0791274	.1310696	-0.60	0.546	-.336019	.177643
english	-.033457	.1245595	-0.27	0.788	-.2775893	.2106752
_cons	14.16976	1.698922	8.34	0.000	10.83994	17.49959
var(e.gpa)	.9032236	.0690668			.7775108	1.049263

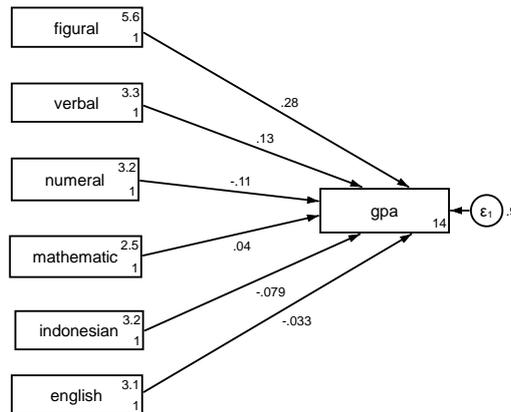


Figure 3. Model of the relationship of selection tests with the learning achievement of students of the Saitek 2020 field vocational program

Based on Table 3 and Figure 3 in the Vocational Program in science technology field class of 2020, The variables of the new student selection test that have the greatest influence on learning achievement are Figural, Verbal, and Mathematic.

The results of data analysis using the STATA program with the SEM model in Table 4 and Figure 4 showed the results of the analysis of selection test scores with the GPA of social humaniora vocational program students in the class of 2019.

The results of the analysis of the relationship of the selection test with the learning achievement of students of the Vocational

Standardized	Coef.	OIM Std. Err.	z	P> z	[95% Conf. Interval]	
Structural						
gpa1						
figural	-.2053781	.1028692	2.00	0.046	-.0037582	.4069979
verbal	.075913	.1015237	0.75	0.455	-.1230697	.2748958
numeral	.0452005	.0981045	0.46	0.645	-.1470808	.2374819
mathematic	-.0825211	.0988198	-0.84	0.404	-.2762044	.1111622
indonesian	.1112091	.1091257	1.02	0.308	-.1026734	.3250916
english	-.0177119	.0986534	-0.18	0.858	-.2110691	.1756452
_cons	13.17904	1.226641	10.74	0.000	10.77486	15.58321
var(e.gpa1)	.908212	.0529651			.8101154	1.018187

Program in the social humaniora class of 2019

Standardized	OIM		z	P> z	[95% Conf. Interval]	
	Coef.	Std. Err.				
Structural						
gpa1						
figural	.2053781	.1028692	2.00	0.046	-.0037582	.4069979
verbal	.075913	.1015237	0.75	0.455	-.1230697	.2748958
numeral	.0452005	.0981045	0.46	0.645	-.1470808	.2374819
mathematic	-.0825211	.0988198	-0.84	0.404	-.2762044	.1111622
indonesian	.1112091	.1091257	1.02	0.308	-.1026734	.3250916
english	-.0177119	.0986534	-0.18	0.858	-.2110691	.1756452
_cons	13.17904	1.226641	10.74	0.000	10.77486	15.58321
var (e.gpa1)						
	.908212	.0529651			.8101154	1.018187

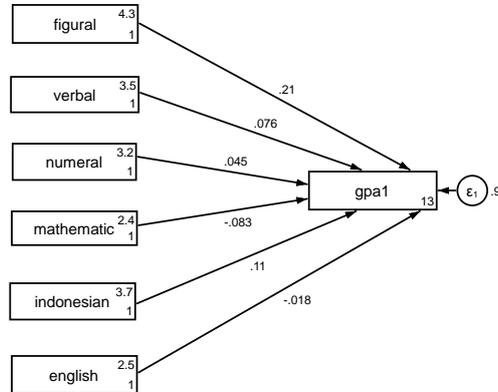


Figure 4. Model of the relationship of selection tests with the learning achievement of students of vocational programs in social humaniora 2019

Based on Table 4 and Figure 4 in the Vocational Program in the field of Social humaniora class of 2019, the variables of the new student selection test that have the greatest influence on learning achievement are Figural and Indonesian.

The results of data analysis using the STATA program with the SEM model in Table 5 and Figure 5 showed the results of the analysis of selection test scores with the GPA of social humaniora vocational program students in the class of 2020.

The results of the analysis of the relationship of the selection test with the learning achievement of students of the Vocational

Standardized	OIM		z	P> z	[95% Conf. Interval]	
	Coef.	Std. Err.				
Structural						
gpa						
figural	.3008644	.1603882	1.88	0.061	-.0134908	.6152196
verbal	.1067763	.1771535	0.60	0.547	-.2404382	.4539907
numeral	.1328159	.1594893	0.83	0.405	-.1797774	.4454092
mathematic	-.1266227	.1598225	-0.79	0.428	-.439869	.1866236
indonesian	-.1077029	.1975115	-0.55	0.586	-.4948183	.2794125
english	.1338146	.1653376	0.81	0.418	-.1902412	.4578704
_cons	11.15139	1.97108	5.66	0.000	7.288149	15.01464
var (e.gpa)						
	.8402793	.1018664			.6625721	1.065649

Program in the social humaniora field class of 2020

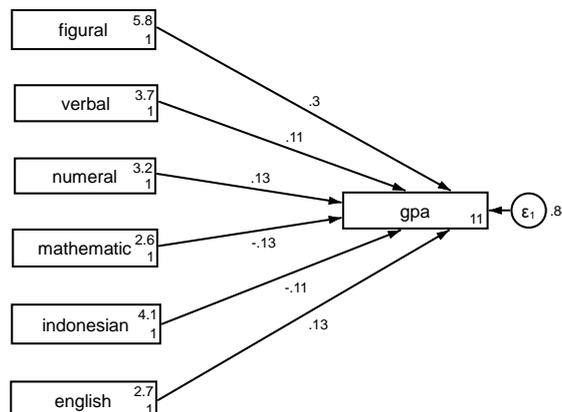


Figure 5. Model of the relationship of selection tests with the learning achievement of vocational program students in Social humaniora 2020

Based on Table 5 and Figure 5 in the Vocational Program of social humaniora field class of 2020 The variables of the new student selection test that have the greatest influence on learning achievement are Figural, and English.

In general, the components of tests related to student IP are figural, verbal, and numeral. This is by the empirical approach based on previously existing data.

These results show that learning achievement can be influenced by the interests and talents of a person. Interests and talents can be assessed from self-selection tests such as landfills, psychotics, and psychotic, before, college entrance selection often uses such tests. The results are in line with Munadi, S. (2009) which states that the study program entrance selection test has a fairly good predictive power so that the college entrance selection test can be used to get qualified student candidates.

Cook (2009) also explained that the new student admission selection writing test should be able to measure the potential of the test taker. Tests that measure the potential seek to identify how well individuals understand and use information from a variety of sources to support the goal of being able to conduct lectures well and gain satisfactory learning achievement.

The above analysis can be concluded that to compile the selection test must be made one unit and all are interconnected and influence each other. The test should assess something in the same direction and participants with appropriate interests.

The results are supported by Widhiarso's research, W (2019) which states that the college entrance test must be compiled and is a unity (unidimensional) to measure ability. The ability measured must be standard and evenly distributed to the ability measured, so that there is no high tendency in certain abilities only and weak in other abilities. Furthermore, Young, Klieger, Bochenek, Li, & Cline (2014) stated that a good writing test should be able to measure potential and predict participants' performance well when they are given a complete program. One way to determine a good writing test is to analyze student achievement after studying.

The low free variables in the model to explain the variables of learning achievement of students of the Unesa vocational program can be an input for the selection test builder. Vocational programs have different characteristics than undergraduate programs. During this time the entrance selection test of new students of undergraduate and vocational programs still uses the same writing test without a practice test. Furthermore, the results of the study recommend completing the selection test for the vocational program with a skills test. Vocational programs or applied scholars have more practical characteristics than theory so, it is very suitable for the existence of practice tests to complete the results of writing tests.

IV. CONCLUSION

Based on the results of research and discussion, it can be concluded as follows. (1) Vocational Program entrance test refers to empirical data that determines the components of the test are figural, verbal and numeral (2) In the Vocational Program of Saintfield class of 2019 The variables of the new student selection test that have the greatest influence on learning achievement are Indonesian, English and Numeral. (3) In the Vocational Program in the field of Science technology class 2020 The variables of the new student selection test that have the greatest influence on learning achievement are Figural, Verbal, and Mathematic. (4) In the Vocational Program in social humaniora class of 2019 The variables of new student selection tests that have the greatest influence on learning achievement are Figural and Indonesian (5) In the Vocational Program in the field of Social humaniora class of 2020 The variables of new student selection tests that have the greatest influence on learning achievement are Figural, and English (6) In general the components of tests related to student IP

SUGGESTION

Based on the conclusions above, it can be suggested some of the following. (1) For institutions to get a selection test that can find out the ability of prospective students in lectures, especially in the Vocational Unesa program, it is necessary to arrange a practice test to complete the writing test (2) For prospective students to take the test to enter a study program that is by their talents and abilities to get maximum learning achievement (3) For the next researcher to research by analyzing the results of new student selection tests according to each program, so that it gets better results.

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Place references in a separate References section; do not footnote references. Number the references sequentially by order of appearance, not alphabetically. Refer simply to the reference number, as [3] or [5]-[8]. Do not use "Ref. [3]" or "reference [3]" except at the beginning of sentence: "Reference [3] shows....." Provide up to three authors' names; replace the others by "*et al.*" Do not put figures or anything else except for author information after the references.

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- Use box numbers with square brackets [] within text. Do not use superscripts or subscripts. Do not use () for references, since these are used to refer to equations.

Use the following as the guide for references:

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