

The Influence Of Skill Aspect On Vocational Education Graduates For Improving Job Achievement In The Era Industry 4.0.

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Abstract – The lack of skill aspects or skills possessed by new workers even though the workforce comes from vocational education graduates is a very strategic issue. Therefore it is necessary to conduct a study on the influence of the aspects of skills to increase employment in vocational education graduates. The purpose of this study was to examine the influence of the competency aspects of skills to improve performance and work. The skill aspects in this study include Technical Skills (X1), Critical thinking skills (X2), Creative thinking skills (X3), Communication Skills (X4), Collaboration Skills (X5) which affect Job Achievement (Y). The method used in this study is the Literacy Research Method (Research Literacy) which is carried out with the Quantitative Survey Method. The results showed that the aspects of skills were important and had a very linear effect in increasing job achievement while working.

Keywords – Technical Skills, Critical thinking skills, Creative thinking skills, Communication Skills, Collaboration Skills, Job Achievement.

I. INTRODUCTION

The quality of human resources is one of the most important determinants in achieving the success of a development program. HR problems cannot be separated from labor problems. The quality of the workforce is very dependent on the quality of human resources. Therefore, the quality of human resources must get a top priority to be improved and developed to get a good quality workforce. Increasing the capabilities and skills of human resources for the young generation of prospective workers is the responsibility of the world of education, both formal and non-formal education. Education is an integral part that cannot be separated from the process of preparing qualified, resilient, and skilled human resources. In other words, through education, qualified prospective workers will be obtained so that they are more productive.

The quality of graduates can reflect the extent to which the performance of a vocational education institution in providing instruction to students. In other words, the performance of a vocational education institution which is shown by the quality of graduates can be shaped through the achievements of the students. Achievement is defined as the result of efforts to develop talent continuously (Dahlan, 2008). The learning outcome is the student's learning achievement which can be measured from the student's score after working on the questions given by the teacher when the evaluation is carried out. The success of learning in school will be realized from the success of student learning. The success of students in learning can be influenced by factors from within the individual and from outside the individual (Ahmadi, 2004). According to the learning achievement achieved by a person is the result of the interaction of various factors that influence it both from within (internal factors) and from outside (external factors) of the individual. Factors from within the individual, including physical and psychological factors, including student interest.

Based on BPS data (5 May 2020), the total workforce in February 2020 was 137.91 million people, up 1.73 million people compared to February 2019. In the past year, unemployment has increased by 60 thousand people, in contrast to TPT (Open Unemployment Rate) which fell to 4.99 percent in February 2020. Judging from the level of education, the TPT for Vocational High Schools (SMK) is still the highest among other education levels, at 8.49 percent.

Vocational education as part of the national education system plays a very strategic role in the creation of a skilled workforce. Employers hope that new employees will have more knowledge, more skills, and will be more intrinsically motivated (Bailey et al, 2004). However, the existing conditions indicate a lack of skills possessed by most of the new workers even though these workers are graduates of vocational education. Skills traditionally often refer to the technical abilities a candidate has. Facing the industrial revolution 4.0 is certainly not an easy thing, so preparing things related to this is a must. Most Vocational High Schools still prioritize increasing hard skills, while soft skills still show a lack of effort to improve soft skills. This can be seen from the lack of adaptability, communication, leadership, management, decision making, problem-solving, conflict resolution, cooperation, positivity and self-confidence, ethics, being able to work under pressure, and so on.

However, in reality, the existing vocational education shows that there are still shortcomings. Most students also have deficiencies in English skills where not all students can hear and speak English well and according to the correct grammar. Also, related to skills, the majority of students who lacked courage in expressing opinions also showed deficiencies.

Table 1. Identification of Problems, Solutions, and Expectations for Competence or Skills on Job Achievement

No.	Problem	Solution	Hope
1. 2. 3. 4. 5.	Lack of competency skills include: - <i>Technical skill</i> - <i>Critical thinking skill</i> - <i>Creative thinking skill</i> - <i>Communication skill</i> - <i>Collaboration skill</i>	The need to increase skill competencies through learning in schools.	The realization of job achievements through increasing skill competencies.
Causal relationship: if skill competence is improved, job achievements will be realized			

The novelty in this research is to discuss several indicators of skills which include technical skills, critical thinking skills, creative thinking skills, communication skills, and collaboration skills concerning increasing job achievement whereas based on the results of data collection research that has been done, it shows that previous research has not yet reviewed it. skill indicators in detail and thoroughly but only cover part of the skill indicators.

II. LITERATURE REVIEW

Aspect of Skills

Learning soft skills is very important to be given to students as a provision for them to enter the world of work and industry, especially for vocational schools that produce graduates who are ready to use in the world of work because of the demands of the world of the workplace more emphasis on soft skills abilities. According to Elfendri et al (2011) soft skills are skills and life skills, both for alone, in groups, or society, as well as with the Creator. Having soft skills makes a person's presence even more felt in society. Communication skills, emotional skills, language skills, group skills, ethical and moral skills, courtesy, and spiritual skills.

The concept of soft skills is the development of a concept that has been known as emotional intelligence. Soft skills are defined as abilities beyond technical and academic abilities, which prioritize intra and interpersonal skills. The term skilled is usually used to describe a person's varying levels of ability. Skills are the ability to operate jobs easily and carefully (Widiastuti, and Rohmah, 2010). According to Bambang Wahyudi (2002) skills are skills or expertise to do a job that is only obtained in practice.

According to Soemarjadi, skills are behaviors that are acquired through the stages of learning, skills come from coarse or uncoordinated movements through gradual training of irregular movements that gradually turn into smoother movements, through the process of coordinating discrimination (difference) and integration (combination) to obtain a skill that is needed for a specific purpose (Soemarjadi, 1992). According to Davis Gordon, skill is the ability to operate work easily and accurately (Gordon, 1999). Skill can be measured using several indicators which refer to several studies consisting of:

- a. *Technical skill*
- b. *Critical thinking skill*
- c. *Creative thinking skill*
- d. *Communication skill*
- e. *Collaboration skill*

Job Achievement

Achievement is a result that has been achieved by someone in carrying out activities. According to Maghfiroh, the achievement is a task-oriented behavior that allows individual achievements to be evaluated according to internal and external criteria, involving individuals to be competent with others (Maghfiroh, 2011). In the context of educational psychology, Iksan (2012) states that achievement is defined as a specific level of a specific skill or ability that a person has, such as arithmetic and reading skills. The term achievement generally does not stand alone but is associated with several terms such as academic, achievement level, and achievement motivation.

According to Wingkel (1997), the achievement is evidence of the effort that has been achieved. According to Syah (2007), stated that achievement is a level of one's success in achieving the goals that have been set in a program. In contrast to A. Tabrani (1994), who argues that achievement is an individual's actual ability from one activity or effort. Meanwhile, Sardiman (2001), stated that achievement is a real ability that is the result of the interaction between various factors that influence both inside and outside the individual in learning. Achievement is measured by examinations that assess important procedural knowledge such as skills, and declarative knowledge such as facts that students have learned. Academic achievement is a measurable index that describes the domain (Kpolovie et al, 2014):

- a. Cognitive
- b. Affective
- c. Psychomotor

Relevant Previous Research

Based on research by Robbin (2006), technical skills are skills that are obtained through learning in engineering, such as using computers, repairing cellphones, and so on. Furthermore, based on and referring to research conducted by Zubaidah (2019) Critical Thinking Skills are important skills for students to have to be able to solve problems.

Furthermore, according to Arnyana's research (2018), Creative Thinking Skills are skills in developing creative ideas in students. Meanwhile, in the research of Alfikalia and Maharini (2009), it can be explained that communication skills are a person's skills in expressing thoughts, ideas, and information. Furthermore, based on research by Sunbanu et al (2019), explains that collaboration skills are the ability to work together to do something together with one goal. This indicates that the Skill aspect which consists of Technical skills, Critical thinking skills, Creative thinking skills, communication skills, and Collaboration skills has a significant effect on a personnel's Job Achievement.

III. METHODOLOGY

This study uses two approaches, namely (1) Literacy Research Approach which are then complemented by (2) Quantitative Approach through Survey Methods. As the unit of analysis is one of the Vocational Higher Education institutions in Indonesia. The survey method according to Sharon Lohr (2009) is as follows: "Survey design means the procedure used to select units from the population for inclusion in the sample. Designing a survey is the most important stage of a survey since design deficiencies cannot always be compensated for when editing and analyzing the data". Furthermore, according to Marguerite Lodico, Spaulding, and Voegtler (2010), Descriptive survey research, approaches share the following common characteristics: (a) Identify a Research Topic; (b) Conduct a Review of the Literature; (c) Develop Research Questions; (d) Develop the Survey.

In this study, the test used analysis techniques with a constellation model between variables, consisting of 6 variables, namely; variable X is called the independent variable (exogenous), namely Technical Skill (X1), Critical thinking skill (X2), Creative thinking skill (X3), Communication Skill (X4), Collaboration Skill (X5) and variable Y, called the dependent variable (endogenous) namely Job Achievement (Y).

The constellation of the research problem model that shows the model of the relationship between exogenous variables (X1-6) and endogenous variables (Y) is described as follows:

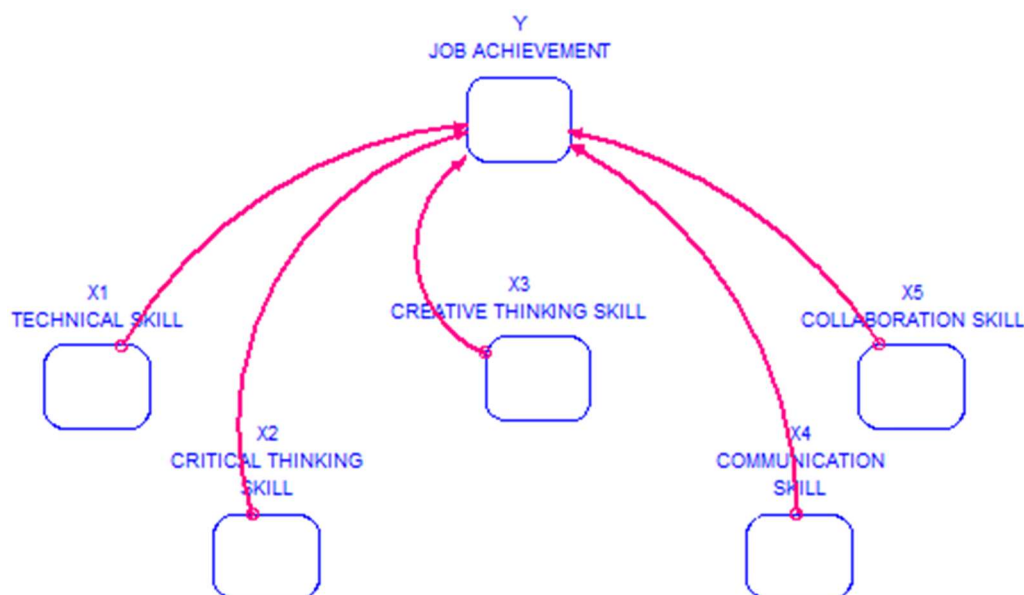


Figure 1. Research Model Constellation

In this study, the population who became research respondents were personnel from vocational education graduates in a higher education institution. Primary data is obtained directly from respondents in the form of responses to items of research instrument items. Sampling for this study was the Stratified Random Sampling method, Joseph F. Hair (2010). Data collection in this study was carried out by distributing questionnaires which were designed in a model such as the Linkert scale form. In this scale, the statements submitted are equipped with five alternative answers and their weight for each alternative. For the Linkert scale the details are: Always = 5, Often = 4, Sometimes = 3, Rarely = 2, and Never = 1.

The questionnaire as a research instrument was made based on a theoretical framework that was confirmed in the form of a conceptual definition and an operational definition which was then presented in the form of a research instrument grid. The grid is then described in statement items then tested on respondents using validity and reliability testing before being used for research.

IV. RESULT AND DISCUSSION

Literation Research Approach

According to Slamet (2003), the factors that influence learning achievement can be classified into two groups, namely internal factors that come from students and external factors that come from outside the students. Internal factors consist of intelligence or intelligence which can be obtained from knowledge, attention, talent, interest, motivation, maturity, readiness, and fatigue. Meanwhile, external factors consist of the school and community environment.

Djamarah (2006) explains that the factors that influence the level of student learning outcomes are factors that come from students, namely physiological factors consisting of physiological conditions and five senses, psychological factors consisting of interests, intelligence, talents, motivation, and cognitive abilities. . Meanwhile, factors that come from outside the students are environmental factors consisting of the natural environment and the socio-cultural environment, instrumental factors consisting of curriculum, programs, facilities and facilities, and teachers. Environmental factors will affect how moral and how we behave.

Academic performance depends on different reasons. Various classifications have been carried out and within one of these classifications, individual differences and school-related factors are considered as the two general categories affecting academic achievement. In general, the results of the study indicate that the ability to solve problems, make decisions, and communicate effectively as well as student academic achievement is desirable. Also, in this study, it was found that there was a significant relationship between problem-solving skills, decision making, and effective communication with academic achievement. This means that when students are at a higher Life Skills level, their academic achievement will increase. In general, the results of research on the relationship between skills and academic achievement show that skills are a factor that affects academic achievement (Abdi and Davoudi, 2015).

Concerning the special skills, a leader must-have. Yuki (1994) states that technical skills are knowledge of methods, processes, procedures, and techniques for carrying out a special activity, and the ability to use relevant tools for these activities. Yuki further

explained that technical skills include knowledge of methods, processes, procedures, and techniques for carrying out specific activities of organizational units. Similar opinions were shared by Stoner, Freeman, and Gilbert Jr. (1995) stated that technical skills are the human ability to use procedures, techniques, and knowledge regarding specific fields (Adrianto, 2011).

4C Skills (Critical Thinking Skills, Creative Thinking Skills, Communication Skills, Collaboration Skills) are competencies that the nation must master to be able to compete in 21st-century life skills. Achievements can be done with learning innovations that are tailored to problems or project-based learning, encouraging collaboration, communication training, metacognition empowerment, designing learning that is relevant to the real world, and student-centered (Sipayung et al, 2018).

Critical Thinking Skills are fundamental skills in solving problems. This skill is important for students to find the source of the problem and how to find and find the right solution to the problem at hand. Critical thinking skills can be instilled in various disciplines. Teachers play an important role in designing and developing learning programs that are more focused on empowering these skills (Zubaidah, 2019). King et al in Redhana (2014) define critical thinking skills as skills for conducting various analyzes, assessments, evaluations, reconstructions, decision-making that lead to rational and logical actions.

Creative thinking skills (Creative Thinking Skills) are the ability to create new ideas or ideas that are different from existing ones. Creativity is the ability to develop (create) new ideas and ways that are different from before. Meanwhile, creativity is a person's ability to create new things, both in the form of ideas and real works (Arnyana, 2018). Pehkonen (1997) views creative thinking as a combination of logical thinking and divergent thinking that is based on intuition but is still conscious. Siltan (2017) identifies several factors that affect a person's creative thinking skills, namely motivation, personality, insight, metacognition.

Arnyana (2018) explains that communication skills are skills to convey new thoughts, ideas, ideas, knowledge, and information to others through oral, written, symbols, pictures, graphics, or numbers. These skills include listening skills, obtaining information, and conveying ideas in front of a crowd. According to Alfikalia and Maharani (2009), communication skills are important at the tertiary level. Students are required to be able to convey their thoughts so that others can understand them, face other parties' objections to what they want to convey, to face criticism from other parties against what they say. This is the same as what students need in Vocational Education where communication skills have an important role in education, making it easier for students to convey thoughts, ideas, and ideas to others orally, in writing, pictures, or numbers. This is as expressed by Noviyanti (2011) [31] where the high communication skills of students in issuing ideas, discussing and solving problems have an impact on increasing student learning achievement. Having communication skills, students can dig deeper knowledge about the material being tutorial.

Collaboration skills are skills to work together effectively and show respect to diverse team members, train fluency, and willingness to make decisions needed to achieve common goals (Greenstein, in Redhana, 2014). Sunbanu et al (2019) explains that collaboration skills are the ability to work together to do something together with one goal. If more children have the opportunity to do something together, the faster the children will learn. The importance of collaboration skills in enhancing these competencies is demonstrated through the emphasis on effective collaboration and deciding something together to achieve common goals.

Skills must be possessed by students so that activities or jobs that are responsible at work can be completed properly following predetermined conditions. With good skills, it will be able to help increase job achievement in vocational education. This is as stated by Maringan et al. (2016) in their research on the effect of skills on achievement, which proves that skills are part of the variables that affect achievement. Skills have a significant positive effect on achievement.

Quantitative Approach

The main result of the quantitative approach of this research is the test of significance and linearity which is intended to see whether the resulting regression equation has a good or unbiased model so that it can be used to predict a dependent variable more precisely. Tests are carried out using analysis of variance which results in the value of F as a parameter. For significance testing, it is said to be significant if the value of F count > F table, on the other hand, the regression equation is said to be insignificant if F count < F table. Meanwhile, for the linearity test, the regression equation is said to be linear if the value of F count < F table and vice versa, the regression equation is said to be nonlinear if the value of F count > F table (Sipayung, 2018). The calculations can be seen in Table 2. Summary of Significance and Linearity Tests.

Table 2. Summary of Significance and Linearity Tests

Variable	Equation	Linearity Test		Conclusion
		F	count	
			F table $\alpha=0.01$	
Y on X_1	$Y=42,177+0.394X_1$	31,135 1,4909	6,96 2,00	Significant and Linear
Y on X_2	$Y=51,699+0,652X_2$	60,657	6,96	Significant and Linear

		0,8175	2,00	
Y on X ₃	Y=57,688+0,639X ₃	41,864 1,4737	6,96 2,02	Significant and Linear
Y on X ₄	Y=71,586+0,332X ₁	46,56 1,0734	6,96 2,00	Significant and Linear
Y on X ₅	Y=49,516+0,516X ₂	51,682 1,9255	6,96 2,00	Significant and Linear

After the data is processed and through various required tests, the next stage is testing the causality model through path analysis. If the value of t is greater than the t table or less than $\alpha = 0.05$, the path between variables is significant, conversely, if the value of t is smaller than the t table or greater than $\alpha = 0.05$, the path between variables is not significant. The test uses the SPSS version 20 program. See Table 3. Matrix of Correlation Coefficients and Pathways between Variables.

Table 3. Matrix of Correlation Coefficients and Path Coefficients Between Variables

Note: t table $(0.05 / 2; 95) = 2,000$

Variable	r (coefficient of correlation)	P (coefficient of the path)	t _{count}	t _{table}	Result
Y – X ₁	0,424	0.266	4,394	2,000	Significant path
Y – X ₂	0,628	0.362	4,719	2,000	Significant path
Y – X ₃	0,632	0.366	3,176	2,000	Significant path
Y – X ₄	0,531	0.396	4,490	2,000	Significant path
Y – X ₅	0,505	0.354	4,012	2,000	Significant path

Furthermore, an analysis is carried out in the form of a summary of hypothesis tests that describe the value of the influence of Technical Skills (X₁), Critical thinking skills (X₂), Creative thinking skills (X₃), Communication Skills (X₄), Collaboration Skills (X₅) on the Job Achievement variable (Y), as shown in Table 4. The summary of the Hypothesis Test for the Influence of the Skill Variables is as follows:

Table 4. Summary of Hypothesis Tests on the Effect of Variable Skills

No	Hypothesis	Statistic Test	Result
1	Technical Skill (X ₁) has a direct effect on Job Achievement (Y)	H ₀ : $p_{y1} \leq 0$ H ₁ : $p_{y1} > 0$	Has a direct effect
2	Critical Thinking Skill (X ₂) has a direct effect on Job Achievement (Y)	H ₀ : $p_{y2} \leq 0$ H ₁ : $p_{y2} > 0$	Has a direct effect
3	Creative Thinking Skill (X ₃) has a direct effect on Job Achievement (Y)	H ₀ : $p_{y3} \leq 0$ H ₁ : $p_{y3} > 0$	Has a direct effect
4	Communication Skill (X ₄) has a direct effect on Job Achievement (Y)	H ₀ : $p_{y4} \leq 0$ H ₁ : $p_{y4} > 0$	Has a direct effect
5	Collaboration Skill (X ₅) has a direct effect on Job Achievement (Y)	H ₀ : $p_{y5} \leq 0$ H ₁ : $p_{y5} > 0$	Has a direct effect

The results of this study prove that skill competency or skills contribute positively and have a direct effect on increasing job achievement. The results of quantitative calculations in Tables 2, 3, and 4 above can be analyzed that soft skills (critical thinking skills, creative thinking skills, communication skills, and collaboration skills) are more significant than hard skills (technical skills), which can be seen from the value of the equation, the value of the coefficient of correlation (r) and the value of the hypothesis. This is also reinforced by the results of the author's research that has been done on "The influence of skills, knowledge, attitude, and morality on job achievement" in aviation vocational school graduates (Sudarmaji, 2020).

Based on empirical experience in the field, it can also be stated that soft skills (critical thinking skills, creative thinking skills, communication skills, and collaboration skills) play a much more important role than hard skills (technical skills) in the development of a person's career in an institution or company. It is strengthened by the results of research by NACE (National Association of Colleges and Employers) in 2015 which states that generally, labor users need work expertise in the form of 80% soft skills and 20% hard skills (Kadek, 2012). Improving work performance in each field of work has a different focus and emphasis on the fulfillment of each skill indicator (Bandono, 2020). For example, the marketing section emphasizes communication skills and high

collaboration skills; the production section emphasizes high technical skills and creative thinking skills; the laboratory section emphasizes critical thinking skills and creative thinking skills. Therefore, how much influence each skill indicator has on job achievement needs further study.

V. CONCLUSION

Based on the results of the research that has been done, it can be concluded that with a high value of influence on the aspect of skills on the achievement of personnel performance, there is a need for a learning system in Vocational Education that is more innovative and adaptive by prioritizing hard skills and soft skills, namely Technical skills, Critical thinking skills, Creative thinking skills, communication skills, collaboration skills to improve the competence of graduates so that they will increase learning achievement which leads to increased job achievement when entering the world of work.

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