

Analysis the Influence of 4C Skills in Improving Employability Skills and Learning Achievement of Vocational School

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ABSTRACT

Economic and technological advances in Indonesia require vocational school graduates to be able to work competently according to their fields. The Ministry of Education and Culture supports the 21st century learning model which refers to the 4C skills, namely Communication, Collaboration, Critical Thinking and Creative. Achievement in the learning process is used to measure the achievement of goals and the intelligence of students. To be able to enter and survive in the world of work, it is also necessary to prepare attitudes, character and skills in work or employability skills that start from the learning process. This study aims to analyze the influence of 4C skills in improving employability skills and learning outcomes. The approach used in this study is quantitative with the student population of the DPIB Expertise Program of SMK Negeri 3 Semarang. The sampling technique uses a total sampling of 72 respondents. This study uses multiple linear regression analysis techniques that have previously gone through analytical tests including (1) Normality Test, (2) Homogeneity Test, (3) Linearity Test. The results of the study showed that (1) there was an influence between learning achievement on 4C skills with a T value of 4.660, (2) there was an influence between employability skills on 4C skills with a T value of 9.520, and (3) there was a simultaneous effect between learning achievement and employability skills against 4C skills with an F value of 55.937. The simultaneous correlation of the three variables was 78.6% with a simultaneous influence value of 61.9%, the remaining value of 38.1% was influenced by other factors that were not studied by the researcher.

Keywords: Learning Achievement; Vocational; 4C; Employability Skills.

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INTRODUCTION

According to Law Number 20 of 2003 concerning the national education system, it explains that the purpose of establishing vocational schools is to prepare productive and professional workers who are able to work according to their expertise [1]. Meanwhile, BPS data states that vocational school graduates are the highest contributors to the open unemployment rate of 9.60% as of February 2023 [2]. The development of the current curriculum plays an important role in the education process in Indonesia to be able to answer the needs of the Business World and Industry [3][4]. Regulation of the Ministry of Education, Culture, Research and Technology number 56 of 2022 concerning guidelines for implementing the curriculum in the

context of learning recovery explains that the independent curriculum used is a synchronization of the needs of the world of work with the learning process [5]. In this case, the Ministry of Education, Culture, Research and Technology supports the 21st century learning model [6]. This learning refers to the 4C skills, namely training Communication, Collaboration, Critical Thinking and Creative [6]. With these skills, students are able to have good soft skills and hard skills to enter the Business World and Industry [7].

The need for 21st century skills reflects changes in the requirements of the world of work in the modern era which is increasingly connected and complex [8][9]. These skills are considered very important for individual success in the world of work [9]. In the learning process at school, it will certainly be related to very crucial learning achievements. This achievement is what the world of education uses to measure the achievement of learning objectives and measure the extent of knowledge and intelligence possessed by students [8]. In this study, the achievement in question is in the design elements of Phase F building modeling. The role of achievement in the learning process is a basic indicator that has a very large influence on the absorption of graduates in the world of work [10].

To be able to enter and survive in the world of work, not only learning achievements are prepared but also attitudes, behavior, character and skills in work or employability skills are important points [10]. Employability skills are basic skills in reflecting attitudes and character in work, these basic skills greatly influence graduates to be able to enter and survive in the world of work [11]. The urgency of this research is to create graduates who are ready to work, so that in the learning process there needs to be synchronization in schools with the world of work. With the implementation of 21st century learning, namely 4C skills, it is hoped that it will have an impact on increasing learning achievement and employability skills possessed by students.

METHOD

This study uses a quantitative method. The quantitative approach is used to determine the significance and direct influence of the three variables in this study [12]. The focus of the study is centered on survey data and student perceptions based on theory so that it is expected to obtain accurate data based on positivism. The data that has been obtained is processed using the help of the SPSS application with multiple linear regression analysis. The testing stages through the analysis requirement test are (1) normality test, (2) homogeneity test, and (3) linearity test. Data that has passed the analysis requirement test will be continued with a multiple linear regression analysis test [13][14]. Figure 1 is a form of design for thinking in research.

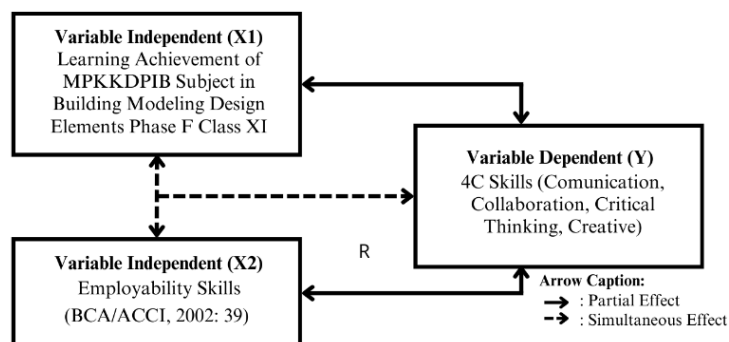


Figure 1. Research Design with Multiple Regression Analysis

This study used the subjects of Phase F Class XI students of DPIB Expertise Program of SMK Negeri 3 Semarang with a total of 72 students. The sampling technique used was total sampling so that the number of samples was the same as the population, namely 72 respondents divided into 2 classes with each class consisting of 36 students.

This study has one dependent variable and two independent variables. The dependent variable in this study is the 4C skills (Communication, Collaboration, Critical Thinking, Creative) taken from the Self-Efficacy the Exercise of Control theory [15]. While the independent variables consist of learning achievement and employability skills using the theory in the book *Employability Skills of SMK Graduates and Their Relevance to the Needs of the World of Work* which contains indicators BCA/ACCI, 2002 [16]. Data collection in this study used questionnaires, interviews, observations, and secondary data. The questionnaire was used to obtain answers from respondents regarding 4C skills and employability skills. The questionnaire given was in the form of an attitude question with 4 activity choices. The answers to these questions are actions taken by students during the learning process. While for the learning achievement variable, the researcher used learning outcome data which is hereinafter referred to as secondary data. The learning achievement used is the average of cognitive, affective, and psychomotor values. Table 1 is a questionnaire grid of 4C skills and employability skills.

Table 1. Grid and indicators 4C skills and employability skills

4C Skills	Employability skills	Indicators
Communication	Communication	Listening, understanding, and listening to speech/information
Collaboration	Teamwork	Showing responsibility and Respecting the abilities of others
	Self-management	Responsible for systematic planning and self-evaluation
Creative	Troubleshooting	Understand the problem and the solution
	Planning and organizing activities	Manage time, priorities, and create clear goals
	K3 Skills	Understand and implement OSH procedures
Critical Thinking	Initiatives and efforts	Adaptation to new issues
	Learn	Understand and accept new knowledge
	Using Technology	Knowing the benefits and maintaining the device 1

The indicator table is used as an instrument in collecting data distributed to respondents in the form of a questionnaire grouped based on the 4C skills and employability skills variables. The instrument has previously been tested for expert validity and declared valid. After the questionnaire data is obtained, it is continued with normality and reliability tests to obtain equivalent values for the questionnaire data. Furthermore, secondary and primary data are analyzed using multiple linear regression analysis.

RESULTS AND DISCUSSION

In this discussion, the data that has been obtained is analyzed according to the research rules and regulations. The data is processed using the SPSS application with multiple linear regression analysis. The testing stages have gone through the analysis requirement test in the form of (1) normality test with an asymp. Sig. (2-tailed) value of $0.200 > 0.05$ so that the data is declared normal, (2) homogeneity test with a Sig. based on Mean value of $0.279 > 0.05$ so that the data is declared homogeneous, and (3) linearity test with a Sig. Deviation from Linearity value of $0.282 > 0.05$ so that the data is declared linear. Data that has passed the analysis requirement test is then continued with a multiple linear regression analysis test [13]. The purpose of the analysis requirement test is to ensure that the data in the study is worthy of further analysis. Table 2, Table 3, Table 4 are the output results of multiple linear regression analysis of data using SPSS.

Multiple Linear Regression Test

Multiple regression analysis is a method to predict the increase or decrease of a dependent variable if two or more independent variables are the predictive factors. In this case, two independent variables are used, namely employability skills and learning achievement and one dependent variable, namely 4C skills. The equation formula used in multiple linear regression analysis is as follows:

$$Y = \alpha + b_1X_1 + b_2X_2 + e$$

Note:

- Y = Dependent variable
- α = Constanta
- b_1, b_2 = Regression coefficient
- X_1, X_2 = Independent variable
- e = Error

Table 2. Output Coefficients of Multiple Regression Analysis with SPSS

Coefficients ^a						
Type		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	103.978	17.883		5.814	.000
	EMPLOYABILITY SKILLS	.968	.102	1.149	9.520	.000
	LEARNING ACHIEVEMENT	1.183	.254	.562	4.660	.000

a. Dependent Variable: 4C

From the output table 3 a significance value of 0.000 was obtained. When compared to the maximum value of the requirement, which is 0.05, the significance value of $0.000 < 0.05$, it can be said that learning achievement has an influence on 4C skills, just as the variable employability skills also has an influence on 4C skills because it meets the same requirement criteria. It was also obtained that the calculated T value for the variable employability skills

was 9.520 and learning achievement was 4.660 while the table T was worth 1.997. Thus, from the analysis, the T values are calculated at 9.520 and 4.660 > the T table is 1.997, so the two independent variables each have a significant influence on the 4C skills.

Table 3. Anova Output Multiple Regression Analysis with SPSS

ANOVAa						
Type		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2160.987	2	1080.493	55.937	.000b
	Residual	1332.825	69	19.316		
	Total	3493.812	71			
a. Dependent Variable: 4C						
b. Predictors: (Constant), LEARNING ACHIEVEMENT, EMPLOYABILITY SKILLS						

Table 4 the Sig. Regression value was obtained at 0.000. When compared to the maximum value of the requirement, which is 0.05, the significance value of 0.000 < 0.05, it can be said that together (simultaneously) the variables of learning achievement and employability skills have an effect on the 4C skills. It was also obtained that the F value was calculated at 55.937 while the F of the table was 3,13. Thus, from the analysis, the F value is calculated at 55.937 > F table is 3.13 and it can be said that the alternative hypothesis is accepted.

Table 4. Output Model Summary of Multiple Regression Analysis with SPSS

Model Summary				
Type	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.786a	.619	.607	4.395
a. Predictors: (Constant), LEARNING ACHIEVEMENT, EMPLOYABILITY SKILLS				

From the Model Summary table, it is explained that the correlation/relationship (R) value is 0.786 or 78.6%. From the output above, there is also a determination coefficient (R Square) which explains the magnitude of the significance of the simultaneous influence between the independent variables (X1 and X2) on the dependent variable (Y), which is 0.619 or in other words the magnitude of the significance of the influence of the learning achievement variable and employability skills to the 4C skill variable is 61.9%, while the remaining 38.1% is influenced by other factors that are not researched by the researcher.

Discussions

From the results of the analysis and interviews conducted, the 4C skills (Critical Thinking, Creative, Collaboration, and Communication) play a very important role in improving student learning outcomes. Critical Thinking allows students to analyze, evaluate, and interpret information objectively. In the learning process, students not only accept the explanation of the material for granted but are also able to think in detail and carefully related to the material studied, which makes their understanding deeper. Students who are trained in critical thinking can identify problems, formulate solutions, and make more logical and quick decisions so that

they are able to improve the quality of their learning outcomes. Creativity plays a role in encouraging students to think innovatively and find solutions to the tasks given. Creativity makes learning more interesting and interactive where students look more active in the learning process. Projects that require creative thinking not only increase students' interest but also give them the opportunity to discover new understandings.

Collaboration allows students to work together with classmates to achieve common goals. Through group work, students learn to support each other and share knowledge so as to increase their understanding of the subject matter. Collaboration not only develops individual skills but also creates an effective and efficient learning environment where each student feels safe to contribute. Communication is used in conveying ideas and information clearly and effectively. Students have good communication skills seen in asking questions quickly and clarifying learning material that they do not yet understand. Good interaction between students and teachers and between other students can increase collaboration and create a more productive learning atmosphere. In addition, good communication skills also prepare students for challenges in a more professional world of work.

By integrating all aspects of the 4C skills in the learning process, education not only focuses on academic goals but also on the development of character and life skills that will equip students to face challenges in the business and industrial world (DUDI). These skills are an important basis for students to become competent, creative, and ready to contribute to the world of work. The relevance of 4C skills in the learning process is also able to improve the employability skills of vocational school students. These skills are very relevant to prepare students for the increasingly fierce world of work. Critical Thinking encourages students to analyze situations and make informed decisions based on available data and information so that they can solve problems in an effective way. This is especially important in a work environment where good decisions can affect project outcomes and team performance. Creativity serves to develop students' ability to think innovatively and find new solutions. In the world of work, creativity is often the key to overcoming challenges and creating different products or services.

Collaboration skills demand that students learn how to interact with their work groups, share ideas, and solve problems or existing work. This experience equips them with the interpersonal skills that are in high demand in the workplace, where collaboration is one of the key factors in the success of a project. In addition, Communication also plays an important role in facilitating effective interaction. Students who have good communication skills are able to convey ideas and information clearly both verbally and in writing. This skill is indispensable in the world of work where effective communication can speed up the work process and prevent misunderstandings. By integrating 4C skills in the learning process, vocational school students not only improve the academic field but also develop strong employability skills. So, they are better prepared to enter the world of work and compete effectively in various industrial fields.

CONCLUSION

This study reveals that 4C skills (Communication, Collaboration, Critical Thinking, and Creativity) play a very important role in improving learning outcomes and employability skills of vocational high school students. The results of the analysis show a significant simultaneous influence between learning achievement and employability skills on 4C skills with a simultaneous influence value of 61.9%. This indicates that the integration of 4C skills in the

learning process not only improves students' academic understanding but also prepares them to face the increasingly stringent demands of the world of work. Critical thinking skills enable students to analyze and evaluate information in depth, while creativity encourages innovation and problem solving. Collaboration and communication are able to help students work together and convey creative ideas effectively and efficiently. Thus, the development of 4C skills is very important in preparing students and graduates who are competent and ready to contribute to the world of work. Education in vocational high schools must focus not only on academic achievement, but also on the formation of character and relevant life skills. With this explanation, it is necessary to hold training for teachers so that they can apply teaching methods that support the development of 4C skills in the classroom.

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