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Evaluation of Students Industrial Practices Implementation and Work Readiness in Computer and Network Engineering Expertise Program at Blitar Vocational High School

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ABSTRACT

The purpose of this study was to evaluate the implementation of industrial practices and student work readiness using the Context, Input, Process, Product (CIPP) model. The method used is the Mix Method. The context variable evaluates the needs of students in carrying out industrial practices, the input variable evaluates the readiness of students in carrying out prakerin, the process variable evaluates the implementation of students in carrying out industrial practices, the product variable evaluates the results of industrial practices. In the work readiness variable, the thing that is evaluated is the students' work readiness after carrying out industrial practice activities. Data collection techniques used are observation, interviews, questionnaires, and documentation. From the results of the research conducted, from the variables of the implementation of industrial practices (context, input, process, and product) and work readiness, a percentage of > 50% is obtained which can be categorized as "good".

I. INTRODUCTION

Dual System Education is a form of providing vocational skills education that combines systematically and synchronously with education programs in vocational high schools with mastery of skills acquired through working directly on actual jobs at partner institutions, directed at achieving a certain level of professional expertise [1]. There are characteristics of Dual System Education, namely there is a relationship between parties from the world of work or business and industrial world and education, namely schools [2]. There are several important things that must be considered in the implementation of this PSG, namely the competency standards they have, education and training standards, assessment, certification and institutions. Dual system education is an effort by educational institutions to carry out learning activities in the school environment and outside school. Before it was known as prakerin, this industrial work practice was known as the dual system education which is a form of implementation of the concept of Link and Match education. Dual system education consists of a combination of sub-systems of education in schools and sub-systems of education in the world of work/industry. The process of implementing this internship education puts more emphasis on learning while working activities that are packaged in a real way so that students can be directly involved in industrial interactions.

Specificity in learning in vocational schools is not only with the learning of skill competencies that are able to equip students to be ready to work in the business and industrial world but with the relevance of vocational schools with business and industrial world in order to achieve the goal of creating quality vocational graduates that are in accordance with the needs of business and industrial world. This is based on the government's policy regarding the link and match of business and industrial

world with the implementation of education in Vocational High School so that both parties understand each other what I am needed by business and industrial world and what is developing rapidly in the fields of technology and science.

The Industrial Job Training Program is the right solution to increase the relevance between Vocational High School and business and industrial world. Industrial practice activities in dual system education are real practical activities carried out by students on production work on the production line. This industrial practice program has the characteristic that students carrying out industrial work practices are treated like other workers [3]. Readiness, which includes the ability to place oneself in a situation which will become a movement or series of movements [4]. This ability includes both physical and spiritual. For example, the starting position of the running race. Readiness is preceding to respond or react and readiness is the willingness to respond or react. This willingness arises from within a person and is also related to maturity, because maturity means readiness to carry out skills [5].

Work readiness is the overall condition of a person who makes him ready to respond or answer in a certain way to a situation [5]. In addition, work readiness is influenced by several factors, including skills or expertise in the field experienced, mastery of knowledge about the field occupied, and also one's motivation [6]. All of these factors work together to form one's work readiness.

Students must have the readiness of two elements, namely physical elements and psychological elements, to be able to carry out learning activities well. The work readiness of vocational students is also based on mastery of educational materials and vocational training for each student [7].

Based on some of the opinions of the experts above, the writer can conclude that job readiness is readiness which includes all elements of physical, mental, skill and knowledge in students according to the skills or areas of competence that are occupied at school plus the interests and motivation that they have in themselves.

II. METHOD

This research includes descriptive research to evaluate the implementation of internship and to map the work readiness of students majoring in Computer and Network Engineering at State Vocational High School 1 Blitar and Vocational High School Islam 1 Blitar. This study uses a combination of qualitative and quantitative methods (Mix Method). The research uses the Context, Input, Process, Product (CIPP) evaluation model to evaluate the implementation of internships.

This study uses population research so that all the data is taken all. In this study, the population used was 164 students, so that the sample used was the total sample or equal to the total population. The population in this study were class XII students majoring in Computer and Network Engineering at State Vocational High School 1 Blitar who had already done internships. The total population is 69 students, in class XII Computer and Network Engineering 1 as many as 37 students, in class XII Computer and Network Engineering 2 as many as 33 students. Meanwhile, at Vocational High School Islam Blitar, the population is 94 students, in class XII Computer and Network Engineering 1 as many as 32 students, in class XII Computer and Network Engineering 2 as many as 33 students, in class XII Computer and Network Engineering 3 as many as 29 students.

Data collection methods used in the form of observation, interviews, documentation, and using a questionnaire [8]. The questionnaire used for research is a closed questionnaire. So that respondents can only answer questions that have been provided by the researcher. Questionnaires are used to obtain data related to (1) contextual aspects which include prakerin objectives, curriculum used, and opportunity needs. (2) input aspects include prakerin learning materials, teacher and student qualifications, as well as facilities and infrastructure. (3) the process aspect which includes the time of prakerin implementation and guidance in implementing prakerin. (4) product aspects which include the results of prakerin and assessment in the implementation of prakerin. (5) work readiness which includes basic skills, self-management skills, team work skills.

In this study, it is expected that the results are valid and reliable [9]. Therefore, this research needs instrument testing. The questionnaire test was carried out on 32 students majoring in Computer and Network Engineering at Vocational High School Islam 1 Blitar with a significant level of error used, namely 5% with an r_table of 0.361 with the number of questionnaire items being 65. If r_count is greater than or equal to r_table at a significant level of 5%, then the statement item is valid. However, if r_count is smaller than r_table, then the statement item is invalid [10]. By using SPSS 23.0 for windows software, there are 12 statement items which are declared invalid because r_count is smaller than r_table.

III. RESULT AND DISCUSSION

The research data was obtained from distributing questionnaires to students, supervisors, industrial supervisors and conducting interviews with several supervisors and industrial supervisors. Questionnaires were distributed to 2 vocational schools, namely State Vocational High School 1 Blitar and Vocational High School Islam 1 Blitar. The number of questionnaires distributed at State Vocational High School 1 Blitar class XII was 69 consisting of 2 classes majoring in Computer and Network Engineering. The number of questionnaires distributed at Vocational High School Islam 1 Blitar class XII was 94, consisting of 3 classes majoring in Computer and Network Engineering. A total of 1 questionnaire for the supervising teacher at State Vocational High School 1 Blitar and 1 supervising teacher who conducted interviews. A total of 2 questionnaires for supervising teachers at Vocational High School Islam 1 Blitar and 2 supervising teachers conducted interviews. A total of 10 questionnaires for industry supervisors and 10 industrial supervisors conducted interviews according to the criteria from [7].

Implementation of the Computer and Networking Expertise Program Prakerin in terms of Context

It is known that the student context has the highest score = 16; lowest score = 8; mean = 13.5; and standard deviation =

1.51. the context of the supervising teacher had the highest score = 45; lowest score = 43; mean = 44; and standard deviation = 1.2. and the context of industry guidance has the highest score = 46; lowest score = 31; mean = 42; and standard deviation = 5. Next, the categorization is carried out as in Table 1.

TABLE I. CATEGORIZATION OF STUDENT CONTEXT

Interval Class	Freq.	Relative Percentage	Categories
X > 14	32	24.4 %	Very Good
12 ≤ X ≤ 14	88	67.2 %	Good
10 ≤ X ≤ < 12	9	6.87 %	Not Enough
X < 10	2	1.53 %	Not Good
Total	131	100%	

Based on the table above, it can be stated that the student context variables, namely 24.4% are in the very good category, 67.2% are in the good category, 6.87% are in the poor category, 1.53% are in the bad category. It can be concluded that the context variables with indicators of prakerin objectives and the need for opportunities for prakerin implementation are in the good category with a percentage of 67.2%.

The results of the research on the implementation of Computer and Network Engineering 's expertise in prakerin in terms of context consist of prakerin objectives, and the need for opportunities in the implementation of prakerin. After conducting an evaluation for State Vocational High School 1 Blitar and Vocational High School Islam 1 Blitar in terms of context, the responses that were in the class interval 12 to 14 were the most, namely 88 of 131 respondents. It can be revealed that the most responses are in the "good" category with a percentage of 67.2%. The mean value obtained is 13.5 indicating a good category in meeting the needs of students in the implementation of internships based on the criteria of previous research [11].

The results of the indicator analysis show that the highest average value is the indicator of the need for internship opportunities. This can be interpreted that student majoring in Computer and Network Engineering at State Vocational High School 1 Blitar and Vocational High School Islam 1 Blitar have a good opportunity to be accepted for work after carrying out prakerin activities which are compulsory school programs every year, especially at Vocational High Schools. In addition, the need for internship opportunities also opens up opportunities for schools to be able to establish good cooperation with many business and industrial world which is a place for internships for students at State Vocational High School 1 Blitar and Vocational High School Islam 1 Blitar.

While the lowest average is on the indicator of the prakerin objective. In the statement item number two regarding the implementation of the knowledge gained at school to business and industrial world according to students it is not appropriate or not good. It can be interpreted that the material obtained at school is insufficient or not suitable for business and industrial world. Students still feel that there is no connection between the work given in the industry and the practical/theoretical knowledge learned at school. This means that students during internships do work that is not in accordance with the majors taken, namely Computer and Networking and have to learn a lot with new practices according to industry needs.

Implementation of Computer and Networking Expertise Program Prakerin in terms of Input

It is known that the student input has the highest score = 39; lowest score = 20; mean = 31; and standard deviation = 3.7. The supervising teacher input has the highest score = 52; lowest score = 46; mean = 50; and standard deviation = 3.2. and industry supervisor input has the highest score = 39; lowest score = 26; mean = 33; and standard deviation = 3.9. Next, the categorization is carried out as in Table 2.

TABLE II. CATEGORIZATION OF STUDENT INPUT

Interval Class	Freq.	Relative Percentage	Categories
X > 34.25	18	14	Very Good
29.5 ≤ X ≤ 34.25	80	61	Good
24.75 ≤ X ≤ < 29.5	26	20	Not Enough
X < 24.75	7	5	Not Good
Total	131	100%	

Based on the table above, it can be stated that the student input variables, namely 14% are in the very good category, 61% are in the good category, 20% are in the poor category, 5% are in the bad category. It can be concluded that the input variables with indicators of prakerin learning materials, student qualifications, and infrastructure are in the good category with a percentage of 61%.

The results of the research on the implementation of Computer and Network Engineering 's expertise in prakerin in terms of input consist of prakerin learning materials, student qualifications, facilities and infrastructure. After conducting an evaluation for State Vocational High School 1 Blitar and Vocational High School Islam 1 Blitar in terms of input, the responses that were in the class interval 29.5 to 34.25 were the most, namely 80 out of 131 respondents. It can be revealed that the most responses are in the "good" category with a percentage of 61%. The mean value obtained is 31 indicating a good category in students' readiness in implementing prakerin.

The results of the indicator analysis show that the highest average score is the student qualification indicator. This means that students of the Computer and Network Engineering expertise program at State Vocational High School 1 Blitar and Vocational High School Islam 1 Blitar already have good qualifications. In addition, students also have competency readiness, learn from various sources according to competence as additional learning, work discipline while at the internship place, and perform tasks well during the internship period. With these qualifications students can build a good image for the school and also for themselves.

While the lowest average value is on the indicator of prakerin learning material. This can be interpreted that the provision of material at school is deemed not to be in accordance with business and industrial world. For this matter,

the school should provide more material to students, provide deepening to students about prakerin, such as providing prakerin debriefing, providing theory and practice as needed in most industries. Regarding prakerin, Schools provide prakerin debriefing which contains a real picture of the work and attitudes that must be carried out during prakerin [12].

Implementation of the Computer and Networking Expertise Program Prakerin in terms of Process

It is known that the student process has the highest score = 12; lowest score = 5; mean = 8.9; and standard deviation = 1.4. Process supervising teacher has the highest score = 22; lowest score = 20; mean = 21; and standard deviation = 1. and process guidance industry has the highest score = 18; lowest score = 11; mean = 15; and standard deviation = 2.2. Next, the categorization is carried out as in Table 3.

TABLE III. CATEGORIZATION OF STUDENT PROCESS

Interval Class	Freq.	Relative Percentage	Categories
X > 10.25	16	12	Very Good
8.5 ≤ X ≤ 10.25	94	72	Good
6.75 ≤ X ≤ < 8.5	19	15	Not Enough
X < 6.75	2	1.5	Not Good
Total	131	100%	

Based on the table above, it can be stated that the student process variables, namely 12% are in the very good category, 72% are in the good category, 15% are in the poor category, 1.5% are in the bad category. It can be concluded that the process variables with indicators of internship implementation time and guidance are in the good category with a percentage of 72%.

The results of the research on the implementation of Computer and Network Engineering 's expertise in prakerin in terms of the process consist of the time of prakerin implementation and guidance. After conducting an evaluation for State Vocational High School 1 Blitar and Vocational High School Islam 1 Blitar in terms of process, the responses that were in the class interval 8.5 to 10.25 were the most, namely 94 out of 131 respondents. It can be said that most of the responses are in the "good" category with a percentage of 72%. The mean value obtained is 8.9 indicating a good category in the implementation of prakerin.

The results of the indicator analysis show that the highest average score is on the indicator of the time of guidance, especially on item number 15 regarding the working hours of prakerin students determined by the business and industrial world. This can be interpreted that the determination of the working hours of prakerin from the two schools, namely State Vocational High School 1 Blitar and Vocational High School Islam 1 Blitar is determined by the business and industrial world. That way the school does not determine working hours for students who are doing internship, the school is only responsible for providing briefing to students, sending students to the internship place, conducting routine guidance and picking up students who have finished doing internships. The length of time for internship is not only determined by the school but also by the industry, there are several industries that extend the internship period for students.

While the lowest average score is on the guidance indicator, especially item number 17 regarding students doing mentoring every week. This can be interpreted that student who do internships do not consult their prakerin progress every week to their supervisors. From the guidance indicators, especially on item number 17 regarding students doing guidance every week, 66 of 131 respondents did not agree, so that the guidance indicators, especially item number 17, were categorized as poor.

Implementation of Computer and Networking Expertise Program Prakerin in terms of Product

It is known that the student's product has the highest score = 20; lowest score = 11; mean = 16; and standard deviation = 1.9. The supervising teacher's product has the highest score = 18; lowest score = 17; mean = 17.5; and standard deviation = 0.6. and the industry guidance product has the highest score = 12; lowest score = 9; mean = 11.6; and standard deviation = 21.43. then do the categorization as in Table 4.

TABLE IV. CATEGORIZATION OF STUDENT PRODUCT

Interval Class	Freq.	Relative Percentage	Categories
X > 17.75	20	15	Very Good
15.5 ≤ X ≤ 17.75	76	58	Good
13.25 ≤ X ≤ < 15.25	28	21	Not Enough
X < 13.25	7	5.3	Not Good
Total	131	100%	

Based on the table above, it can be stated that the student product variables, namely 15% are in the very good category, 58% are in the good category, 21% are in the poor category, 5.3% are in the bad category. It can be concluded that the process variables with indicators of internship results and guidance are in the good category with a percentage of 58%.

Based on the results of the research on the implementation of Computer and Network Engineering 's expertise in prakerin, in terms of products, it consists of the results of internships and assessments. After conducting an evaluation for State Vocational High School 1 Blitar and Vocational High School Islam 1 Blitar in terms of product, the responses that were in the class interval 15.5 to 17.75 were the most, namely 76 out of 131 respondents. It can be revealed that the most responses are in the "good" category with a percentage of 58%. The mean value obtained is 16 indicating a good category in the results of the prakerin implementation.

The results of the indicator analysis show that the highest average is in the prakerin result indicators, especially in item number 18 regarding schools requiring students to make prakerin activity reports. This means that every student who does internship is required to make a report on the results of internship activities. The results of internship activities can be in the form of student internship reports carried out while in the industry. In addition to making reports on the results of prakerin

students are also required to record daily activities carried out while in industrial premises.

While the lowest average score is found in the assessment indicators, especially item number 22 regarding students taking prakerin test results at school. This can be interpreted that not all students take industrial results exams at school. There were some students who stated that if the internship results were not tested, they only submitted a report on the internship results in soft and hard copies. In the statement item number 22 there are 33 respondents from 131 students who think that the prakerin test results at school are not done well. For this reason, it is better for the school to enforce mandatory regulations to carry out student prakerin test results at school. This is to find out whether students really understand all the activities they do while in the internship place.

Work Readiness of Computer and Network Engineering Expertise Program Students

Based on the results of research conducted on students of the Computer and Network Engineering expertise program at State Vocational High School 1 Blitar and Vocational High School Islam 1 Blitar on the work readiness variable there are several components, namely (1) basic skills, (2) self-management skills, (3) team work skills, (4) level of task difficulty, (5) degree of stability, belief/expectation and (6) broad area of behavior. of these components will be discussed one by one from the class interval, category, and percentage.

IV. CONCLUSION

Based on the results of the research and discussion that have been presented in chapters 4 and 5, several things that can be concluded related to the evaluation of the prakerin implementation and job readiness of students in the Computer and Network Engineering expertise program at State Vocational High School 1 Blitar and Vocational High School Islam 1 Blitar are:

1. The context or student needs in the implementation of internships in computer and network engineering expertise programs at State Vocational High School 1 Blitar and Vocational High School Islam 1 Blitar are at a percentage of 67.2% stated "good", the context of supervising teachers is at a percentage of 67% said "good", the context of industrial supervisors is at 70% percentage stated "very good"
2. The input or implementation of student prakerin in the implementation of the computer engineering and network engineering expertise program at State Vocational High School 1 Blitar and Vocational High School Islam 1 Blitar is at a percentage of 61% stated "good", supervisor teacher input is at a percentage of 67% stated "very good", industrial supervisor input is at a percentage of 40% declared "very good"
3. The process or implementation of student internships in the implementation of computer and network engineering expertise programs at State Vocational High School 1 Blitar and Vocational High School Islam 1 Blitar is at a percentage of 72% declared "good", the process for supervising teachers regarding the implementation of prkaerin received different answers from the three supervising teachers, namely each each in the category of "very good", "good", "not good", the industrial supervisory process is at a percentage of 60% declared "good"
4. Product or student prakerin results in the implementation of computer engineering and network engineering expertise programs at State Vocational High School 1 Blitar and Vocational High School Islam 1 Blitar are at a percentage of 58% stated "good", product supervisors are at a percentage of 67% declared "very good", industrial supervisor input is at a percentage of 40% stated "very good" and 40% stated "not good"
5. The work readiness of students in the computer and network engineering expertise program at State Vocational High School 1 Blitar and Vocational High School Islam 1 Blitar is at a percentage of 51% declared "good". However, it is necessary to improve on the information management section which is still not good.

References

[1] D. Datadiwa and J. Widodo, "Analisis Faktor-Faktor Yang Mempengaruhi Kesiapan Kerja Siswa Smk Negeri 1 Warureja Tahun 2014," *Econ. Educ. Anal. J.*, vol. 4, no. 1, pp. 31–37, 2015.

[2] S. Efendi, E. Sutadji, and A. Mukhadis, "Pencapaian Kompetensi Prakerin Ditinjau Dari Persepsi Siswa Tentang Kualifikasi Tempat, Pembimbingan, Dan Umpan Balik Pada Keahlian Teknik Mesin Smk," *Teknol. dan Kejuru.*, vol. 35, no. 2, pp. 115–124, 2012.

[3] S. Edi, S. Suharno, and I. Widiastuti, "Pengembangan Standar Pelaksanaan Praktik Kerja Industri (Prakerin) Siswa Smk Program Keahlian Teknik Pemesinan Di Wilayah Surakarta," *J. Ilm. Pendidik. Tek. dan Kejuru.*, vol. 10, no. 1, p. 22, 2017, doi: 10.20961/jiptek.v10i1.14972.

[4] Dimyati and Mudjiono, *Belajar dan Pembelajaran*. Jakarta: Rineka Cipta, 2009.

[5] Slameto, *Belajar dan Faktor-Faktor yang Mempengaruhinya*. Jakarta: Rineka Cipta, 2010.

[6] R. Fatchurrohman, "Pengaruh Motivasi Berprestasi Terhadap Kesiapan Belajar, Pelaksanaan Prakerin Dan Pencapaian Kompetensi Mata Pelajaran Produktif," *Innov. Vocat. Technol. Educ.*, vol. 7, no. 2, pp. 164–174, 2017, doi: 10.17509/invotec.v7i2.6292.

[7] R. Mu'ayati and M. Margunani, "Pengaruh Praktik Kerja Industri (Prakerin), Penguasaan Mata Diklat Produktif Akuntansi Dan Minat Kerja Siswa terhadap Kesiapan Menghadapi Dunia Kerja Siswa SMK Program Keahlian Akuntansi di SMK N 1 Salatiga Tahun Ajaran 2013/2014," *Econ. Educ. Anal. J.*, vol. 3, no. 2, pp. 327–335, 2013.

[8] P. Isbianti, "Peran Humas sebagai Upaya Menjalin Kerja Sama antara SMK dengan Dunia Usaha/Dunia Industri (DU/DI)," *J. Manaj. Pendidik. J. Ilm. Adm. Manajemen, dan Kepemimp. Pendidik.*, 2010.

[9] B. Ixtiarto and B. Sutrisno, "Kemitraan Sekolah Menengah Kejuruan Dengan Dunia Usaha Dan Dunia Industri," *J. Pendidik. Ilmu Sos.*, vol.

26, no. 1, pp. 57–96, 2016, [Online]. Available: https://journals.ums.ac.id/index.php/jpis/article/view/2130/1568.

[10] E. E. Muktiani, "Pengaruhpraktik Kerja Industri Dan Prestasi Akademik Mata Diklat Produktif Akuntansi Terhadap Kesiapan Kerja Siswa Kelas Xi Program Keahlian Akuntansi Smk Nasional Pati Tahun Pelajaran 2012/2013," *Econ. Educ. Anal. J.*, vol. 3, no. 1, pp. 166–172, 2014.

[11] E. N. Septiana, A. Fathoni, and M. M. Minarsih, "Pengaruh Magang Kerja, Minat dan Orientasi, Spesialisasi Keahlian Terhadap Kesiapan Kerja Siswa," *J. Manage.*, vol. 2, no. 2, 2016, [Online]. Available: https://jurnal.unpand.ac.id/index.php/MS/article/view/575.

[12] N. Wibowo, "Upaya Memperkecil Kesenjangan Kompetensi Lulusan," *J. Pendidik. Teknol. dan Kejuru.*, vol. 23, no. 1, pp. 45–50, 2015.