

Research Article

Evaluation of Learning through Work Practices Industry Program at University with the CIPP Model Approach

Rahmaniar¹, Muhammad Yahya², Mustari Lamada³

¹Department of Vocational Technology Education, Universitas Negeri Makassar, Makassar 90222, Indonesia

²Department of Automotive Engineering Education, Universitas Negeri Makassar, Makassar 90224, Indonesia

³Department of Informatics and Computer Engineering, Universitas Negeri Makassar, Makassar 90224, Indonesia

Contact email: rachmaniar211@gmail.com, m.yahya@unm.ac.id, mustariamada@unm.ac.id

Received: July 2, 2021; Accepted: August 8, 2021; Published: August 21, 2021

Abstract: Evaluation in a program is an important series that intends to evaluate the implementation of industrial practices. This study is an evaluation study with the CIPP evaluation model developed by Stufflebeam, analyzed quantitatively. Respondents in this study consisted of 5 Head of Department, 27 supervisors, 20 industrial supervisors, and 134 students who had carried out industrial practice class 2017. The results showed that 1) the context aspect had obtained categories according to the average value of 131.02. Significant in the context evaluation is that in the management of information systems supervisor respondents, the category is less following the percentage of 37.03 percent, so information systems need to be developed. 2) the input aspect in industrial practice management is in the category according to the average value of 57.08, which indicates the readiness of the management and students is appropriate, 3) the process aspect is in the category according to the average of 93.84. The category is not suitable for the role of supervisors who need improvement in student services and adequate guidance so that students can be directed, 4) product aspects with an average score of 85.30; this is shown by the changes that occur by students from personality, responsibility, and skill improvement.

Keywords: Context, Education, Input, Process, Product.

1. Introduction

The needs of diverse and increasingly dynamic communities have colored human activities both individually and in groups; education is considered the most valuable investment in improving the quality of human resources for the development of a nation [1], [2]. People believe that education is an effective way to make it happen. The primary purpose of education for the general public is to bring together the needs of everyone with their fulfillment and prepare themselves to be able to live life [3].

The implementation of education must be in the process of cultivating and empowering learners that last throughout life by giving transparency, the building will,

and developing the creativity of learners in the learning process through the development of reading, writing, and counting culture for all citizens through increasing this role is expected to bring a positive impact to the quality of educational services [4], [5].

Education serves as a labour supplier and is required to produce graduates needed by the community and the world of work. Therefore educational institutions are also responsible for the quality of graduates, including in terms of obtaining a job after graduation [6]. In line with Prosser's theory that vocational education should pay attention to market demand to prepare graduates that suit the needs of the natural world of work.

The implementation of industrial practices is applied to vocational high schools and universities; implementing

This Article Citation: Rahmaniar, M. Yahya, M. Lamada, "Evaluation of Learning through Work Practices Industry Program at University with the CIPP Model Approach," *Int. J. Environ. Eng. Educ.*, vol. 3, no. 2, pp. 59-68, 2021.

industrial practices prepares students to have confidence, work readiness, and a strong mentality in facing the industrial world. Cooperation with other parties such as the industrial and business world is necessary to support student work readiness. Industrial Practice is expected to provide knowledge to students about the actual working conditions [7]. The implementation of this activity is training students to improve skills in terms of knowledge, skills, discipline attitudes, and analyzing problems in the industrial world. Thus guidance from the business world and industry is needed because it is expected that there will be a transfer of knowledge and skills so that students will be better prepared to enter the world of work [8].

The relationship between the world of education and an industry that is often called link and match still solves the problem. Various efforts to maintain relevance between education and industry are not appropriate if it is only meant to transfer specific technologies and skills used by the industrial world to educational institutions [9]. Link and match should be interpreted as an effort of educational institutions in preparing a workforce that could think, communicate, interact socially, and work in groups.

An educational institution is an institution or forum for the ongoing teaching and learning process that is carried out to change individuals' behavior in a better direction through interaction with the surrounding environment, which fosters people and leads to a better future. Education is considered the most valuable investment in improving the quality of human resources for the development of a nation. Education is also a forum that can be the primary support in increasing the value of knowledge while producing a potential generation [9].

According to a political and economic risk consultant (PERC) survey, the quality of education in Indonesia ranks 12th out of 12 countries in Asia. That position is below Vietnam. The World Economic Forum Sweden reported that Indonesia has low competitiveness and only ranked 37 out of 57 globally surveyed [10]. The low quality of Indonesian education was also shown by Research and Development Agency (BALITBANG) data in 2003, that out of 146,052 elementary schools in Indonesia, only eight schools received world recognition in the category of The Primary Years Program (PYP). Of the 20,918 junior high schools in Indonesia, only eight received world recognition in The Middle Years Program (MYP) category. Dari 8,036 high schools turned out to be only seven schools that gained world recognition in the category of The Diploma Program. One of the causes of our country's lag in education is the lack of adequate evaluation of the current education system. Evaluation becomes one of the essential factors to measure the success rate of an institution in running an educational program.

Evaluation is one of the critical series in the planning and implementation cycle of a program. Without evaluation cannot be ascertained the achievement of the program objectives. On the contrary, by evaluating the level of achievement of the objectives of a program can be known. The description of the success rate of a program has a significant effect on the decisions and strategic steps to be taken [11].

The world of education knows several evaluation methods conducted to measure the extent of achievement and success of an industrial practice program, to measure the success of a program one of which can use the CIPP model (Context, input, process, and product). A program evaluation consists of at least three dimensions, namely input, process, and output, with the CIPP evaluation model has four aspects that include three dimensions of the program: context, input, process, and product.

Stufflebeam developed this CIPP model at Ohio State University. CIPP stands for Context evaluation, Input evaluation, process evaluation, product evaluation. Context, input, process, and product, commonly abbreviated as CIPP, is an evaluation model that looks at the program evaluated as a system [12]. If the evaluator team has determined the CIPP model as the model used to evaluate the assigned program, it should be analyzed based on its aspects.

Efforts to increase student competence can be made in several ways, one of which is real work done in laboratories, internships (industrial practices), and human resources in the teaching and learning process activities; of course, students must follow the development and always try to catch up and be supported by competent educators in their fields. Human Resources is one of the key factors in financial information; teachers must create qualified Human Resources, be competent, have skills, and be highly competitive in global competition [13], [14].

The development of science and technology and the demands of globalization have resulted in intense competition in providing superior human resources. Human resources must continuously improve knowledge, skills, attitudes, and high competence for educators to maintain competitiveness.

The main problem that occurs in the world of education in Indonesia today is the low quality of education as evidenced by data from UNESCO in 2012 reported that Indonesia is ranked 64th out of 120 based on the assessment of the Education Development Index (EDI) and the lack of relevance between the quality of educational outcomes and the demands of skilled workers with enough to meet the needs of the workforce in industry or open new jobs. Providing good quality education is the key to creating a quality generation. Observing the higher unemployment rate of college

graduates is a hard slap for universities to improve education quality further.

2. Literature Review

2.1. Evaluation Program

Evaluation is an English "evaluation" interpreted as an assessment or assessment, Curtis et al. [15]. Evaluation or assessment means the action to determine the value of something. In a broad sense, evaluation is a process of planning, acquiring, and providing much-needed information to make alternative decisions. Evaluation is an activity carried out about the process to determine the value of a thing. The evaluation considers things or symptoms by considering various value judgment factors [16], [17]. Evaluation, according to Stufflebeam [18], who said, that evaluation is a process that determines the extent to which educational goals can be achieved. He also cites the opinions of Lee and Cronbach [19], Stufflebeam [20], Alkin [21], and Malcolm Provus [22], [23], the originator of discrepancy evaluation, which defines evaluation as what differences exist by a standard to know if there is a difference.

Evaluation is the identification, clarification, and application of defensible criteria to determine an evaluation object's value (worth or merit) concerning those criteria [24], [25]. This means that evaluation is the identification, clarification, and application of criteria to determine the value of an evaluation object (value/benefit) related to the criteria. While the evaluation of the program, as cited by Brinkerhoff [26], is a systematic investigative activity about a valuable and valuable object. Gronlund & Linn states that evaluation is the systematic process of collecting, analyzing, and interpreting information to determine the extent to which pupils are achieving instructional objectives [27]. It means a systematic process of collecting, analyzing, and interpreting data or information to determine the level of achievement of the objectives of lessons received by learners.

Evaluation of the program is a series of activities that are carried out deliberately and carefully to know the level of implementation or success of a program by knowing the effectiveness of each aspect, both to the current program and the program that has passed [28].

Some of the above understandings can be concluded that what is meant by evaluation is the identification of a valuable and valuable object that is done to determine the extent to which the learning objectives are achieved to know what differences exist in a standard to know if there is a difference. Evaluation is carried out to control the quality of education to interested parties, including students, institutions, and educational programs. Evaluation is part of the educational curriculum, and there

is an evaluation to know the purpose of the planned education whether the teaching and learning activities are appropriate. While in its implementation that conducts evaluation is an educator.

While the program is a series of activities as a form of policy implementation, the program is generally defined as a "plan" that will be carried out/carried out by a person or an organization to achieve the goal. However, suppose the program is associated with the evaluation of the program. In that case, the program is defined as a unit or unity of activities that is the realization or implementation of a policy, takes place in an ongoing process, and occurs in an organization involving a group of people.

2.2. Evaluation Objectives

Program evaluation has several objectives; evaluation objectives can be categorized into two, namely: to improve the quality of the process and to determine whether the program is continued what is not. In more detail, the evaluation of the learning program is (a) to determine whether a program achieves its objectives; (b) to identify strengths and weaknesses in the learning process; (c) to determine whether the program is appropriate; (d) to determine the amount of the program's cost/benefit ratio; (e) to determine who should participate in future programs; (f) to identify who benefits to the maximum and who is the minimum; (g) to determine whether the program is appropriate.

Another opinion suggests that the purpose of the evaluation is to assess: (1) the suitability or discrepancy between the needs and the program; (2) goodness or weaknesses in terms of strategies, equipment, resources used to realize the set objectives; (3) the accuracy or inaccuracy of the implementation of the program in order to achieve the stipulated objectives; (4) the achievement of the objectives of the program that has been implemented when compared to the specified program objectives [29]. From various opinions on the purpose of evaluation, all lead to one definition of the purpose of the evaluation is to obtain accurate and objective data or information about the implementation of the program, where the information can be about the impact or results achieved, the process, efficiency or utilization of resources and the results of the evaluation can be used to decide whether the program is stopped, modified, repaired, or continued.

2.3. CIPP Model Evaluation

An evaluation model is an evaluation design developed by experts, usually named the same as the author or the evaluation stage. According to Caudle [30], although there are differences of opinion about evaluation models, the intentions presented remain the same in data collection activities related to objects that are evaluated as material

for decision making in determining the follow-up of a program. Evaluation in a program is undoubtedly needed to assess whether the program is following the standards or not following the standards that have been set before. In evaluating a program, there are program evaluation models developed by experts that can evaluate a program.

Stufflebeam first introduced CIPP (Context, Input, Process, and Product) model evaluation. Context evaluation is intended to assess needs, problems, assets, and opportunities to help policymakers set goals and priorities and help other groups of users to know their goals, opportunities, and results. CIPP (Context, Input, Process, and Product) model is an evaluation model in which evaluation is done as a system. CIPP model evaluation is a concept offered by Stufflebeam that the critical purpose of the evaluation is not to prove but to improve [31].

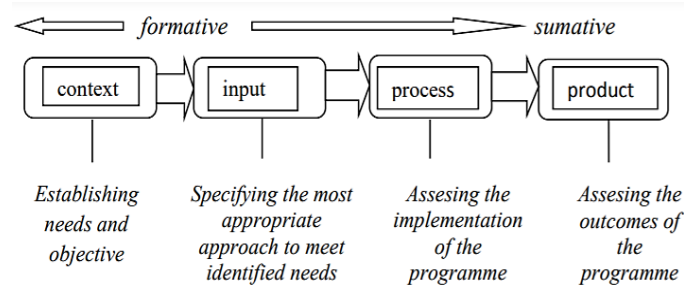


Figure 1. CIPP as a system.

This CIPP model was chosen by researchers based on how CIPP model evaluation works which considers evaluation as a system, and the accuracy of the use of evaluation models for processing programs such as student skills development. Another reason is that the researchers will evaluate all aspects of the implementation of program industry practice. This is following the CIPP model that focuses on evaluating aspects of the program to be evaluated.

a. Context Evaluation

Many context evaluation formulations are expressed by evaluation experts, among them Sax [32]. He explained that context evaluation is: Context evaluation is the delineation and specification of a project's environment, its unmet needs, the population and sample of individuals to be served, and the project objectives. Context evaluation provides a rationale for justifying a particular type of program intervention. The essence of the quote above is an evaluation activity to gather the information that will indicate the purpose, defining the appropriate environment.

In line with Sax [32], Stufflebeam & Shinkfield [20] further explains that context evaluation: To assess the

object's overall status, to identify its deficiencies, to identify the strengths at hand that could be used to remedy the deficiencies, to diagnose problems whose solution would improve the well-being of the object, and, in general, to characterize the program's environment. A Context evaluation is also aimed at examining whether existing goals and priorities are attuned to the needs of whoever is supposed to be served. The essence of the above excerpt seeks to evaluate the object that identifies deficiencies, strengths, diagnoses problems, provides solutions, tests whether goals and priorities are tailored to planned needs.

b. Input Evaluation

According to Stufflebeam & Shinkfield [33], the primary orientation of input evaluation is to determine how the program objectives are achieved. Input evaluation can help manage decisions, determine existing sources, what alternatives are taken, what plans and strategies to achieve goals, how procedures work to achieve them. Aspects of input evaluation include (1) human resources, (2) supporting facilities and equipment, (3) funds/budgets, and (4) various procedures and rules required.

Input Evaluation includes personal analysis related to the use of available resources and alternative strategies that must be considered to achieve a program. Identify and assess the capabilities system, alternative strategy design procedures for strategy implementation, financing, and scheduling of football achievement coaching programs. Evaluation of input is helpful to guide the selection of program strategies in specifying procedural design.

c. Process Evaluation

According to Stufflebeam & Shinkfield [33], the essence of process evaluation is: checking the implementation of a plan/program. The goal is to provide feedback for managers and staff on how the program activities are running on schedule, and use the resources available efficiently, provide guidance to modify the plan to fit as needed, periodically evaluate how much involved in the program activities can accept and carry out their roles or duties. Stufflebeam & Shinkfield [33] explains that the evaluation process emphasizes three purposes (1) do detect or predict in procedural design or its implementation during the implementation stage, (2) to provide information for programmed decisions, and (3) to maintain a record of the procedure as it occurs.

Process evaluation is used to detect or predict the design of procedures or implementation plans during the implementation stage, provide information for program decisions, and record or archive procedures that have occurred. The evaluation process includes collecting

assessment data that has been determined and applied in program implementation.

d. Product Evaluation

Stufflebeam & Shinkfield [33] explains that the purpose of Product Evaluation is: to measure, interpret, and determine the achievement of the results of a program, ensuring how much the program has met the needs of a group of programs served. Whereas according to Sax [32], the evaluation function of the results is "... to make decisions regarding continuation, termination, or modification of the program". So, the results evaluation function is helpful to make decisions related to the continuation, end, and modification of the program, what results have been achieved, and what is done after the program runs.

Based on some of the opinions above, it can be known that product evaluation is an assessment conducted to measure success in achieving a set goal. The resulting data will significantly determine whether the program is forwarded, modified, or terminated. The current CIPP model is enhanced with one aspect of "O," short for the outcome, thus becoming a CIPPO model. In this study, that was researched only to the aspect of the product.

From the explanation of the CIPP Model above, it is necessary to know the advantages and disadvantages of the CIPP model, as for the advantages and disadvantages of the CIPP model as follows:

- CIPP Model Advantages

The advantage of the CIPP model is that it has holistic proximity in evaluation, aiming to provide a very detailed and extensive message to a project, starting from its context until the implementation process. CIPP also has the potential to move in the area of formative and summative evaluation. So, it is just as good in helping improvements during the program and providing final information.

- CIPP Model Weaknesses

The weakness in the CIPP model is that it attaches too much importance to how the process should be rather than the reality in the field to create a top-down impression with the managerial nature in its approach, tending to focus on its approach, CIPP also focuses on rational management rather than recognizing the complexity of empirical reality.

3. Research Methods

3.1. Research Approach

The research approach used is descriptive quantitative research; the design of program evaluation activities in this discussion uses the CIPP model with a descriptive

quantitative evaluation research design. Evaluation is a procedure to examine the appropriateness of the program in achieving the objectives. Research evaluation of this program aims to describe the suitability of the implementation of industrial work practices in terms of context, input, process, and product.

3.2. Research Variables

A research variable is an attribute, trait, or value of a person, object, or activity that has a specific variation set by the researcher to be studied and concluded. The variables in this study are CIPP evaluation model consisting of:

- Context evaluation will collect and analyze Establishing needs and objectives (setting needs and objectives) data, including a) objectives of industrial practices, b) objectives of industrial practices, c) relevance of industrial practices d) management of industrial practice information systems.
- Input evaluation determines the most appropriate approach to meet the identified needs, including a) preparation of management of industrial practices, b) readiness of students to conduct industrial practices, c) availability of supply materials.
- Process evaluation includes: a) the role of students, b) the role of supervisors, c) the role of supervisors in the industry, d) obstacles to the implementation of industrial practices.
- Product evaluation includes: a) student personality development, b) student skills development, c) student work readiness, d) student innovative experience.

CIPP evaluation model is expected to provide an overview of the appropriateness and obtain accurate information about industrial practice activities conducted by presenting the evaluation results of industrial practices.

3.3. Samples and Population

The population is a generalized area consisting of objects/subjects with specific qualities and characteristics that researchers apply to be studied and then draw conclusions. The chosen population is closely related to the problem to be examined. The population and samples in this study were the head of the Department of 5 Leaders, students as many as 203 students, 36 supervisors, and approximately 20 agencies.

The sampling technique is a sampling technique; if the population is large and researchers are unlikely to study everything in the population, the sample is determined using a simple random sampling technique. The determination of the number of samples taken using Slovin Formula is as follows:

$$n = 1 + \frac{N}{1 + N(e)^2} \quad (1)$$

Information:

- n : Number of Samples
- N : Total Population
- e : Presentation error level (5%)

The results of calculations with the Slovin formula obtained the number of samples of 134 students as respondents.

3.4. Data Analysis

The data analysis technique is the most decisive step of a study because data analysis serves to conclude the results of research, aims to provide an overview of the results of a program by applying the concept of the theory developed against the things evaluated. In this study, evaluation was used to determine the process of implementing student industry practices. The data of questionnaires, interviews, and documentation are analyzed quantitatively descriptively. Quantitative data is obtained from context indicators, inputs, processes, and evaluated products.

The data from the questionnaire is analyzed descriptively quantitatively. The collected data is analyzed by presenting data in the form of a frequency distribution of each variable. Central tendency sizes (mean, mode, medium) and disperse sizes include standard deviations. The acquisition of data sourced from questionnaires is classified based on conformity, as in table 1 below. The corresponding category is measured by paying attention to the ideal mean and standard deviation values.

Table 1. Division of Suitability Category for the Implementation of Industrial Practices.

No.	Score Range	Category
1	> (Mi+1.5 SD) to (Mi +3 SD)	Very Suitable
2	> (Mi) to (Mi + 1.5 SD)	Suitable
3	> (Mi – 1.5 SD) to (Mi)	Less Suitable
4	(Mi – 3 SD) to (Mi – 1.5 SD)	Not Suitable

The table above describes the calculation of decision making with four categories that are very appropriate categories that if the value above the ideal average is added 1.5 times the standard deviation up to the ideal average plus three times the standard deviation, in the category according to if the value above the ideal average up to 1.5 times the standard deviation, the category is less appropriate when the value above the ideal average is reduced by 1.5 times the standard deviation to the ideal average less than the standard deviation. The category

does not match the ideal average of less than 3 to less than 1.5. With the calculations done, it will find the score and the category obtained.

4. Result and Discussions

The implementation of industrial practices that have been implemented based on observations made and can be explained that the implementation of industrial practices applied has been neatly arranged and carried out in a structured manner. The department has prepared the needs of students before debriefing to administration to companies and government offices. Students will be directed to complete the Industrial Practice Information System data, which follows the debriefing and completes the administration to be sent to the company. At the time of the implementation of industrial practices, students perform independently.

The research results will be analyzed and then described the implementation of industry practices and the results of CIPP evaluation, namely aspects of context, input, process, and product aspects.

4.1. Context Aspects

The indicator of industrial practice goals obtained a very suitable category for student respondents with a percentage of 88.89 percent, department leaders with a percentage of 80 percent, supervisors with a percentage of 88.89 percent and industrial supervisors with a percentage of 70 percent, industrial practice target indicators obtained a very suitable category for respondents students with a percentage of 68.66 percent and supervisors with a percentage of 66.63 percent, the indicator of the relevance of industrial practice obtained a very suitable category for industrial supervisor respondents with a percentage of 60 percent and a suitable category for student respondents with a percentage of 47.27 percent, department leaders with a percentage 60%, supervising lecturers with a percentage of 48.15%, indicators of information system management obtained a very suitable category for student respondents with a percentage of 61.90%, departmental leaders with a percentage of 60%, but on the side of supervisors the category was less in accordance with a percentage of 37.03 percent.

Aspects of the context carried out in this study will collect and analyze establishing needs and objectives (setting needs and objectives) data including a) the purpose of industrial practice; b) targets of industry practice; c) relevance of industrial practice, and d) management of industrial practice information systems. The results of the context evaluation study on all respondents were then calculated in general to find out the level of categories from context aspects that triggered

on the average calculation of each respondent that has been done with the average description below:

Table 2. Recapitulation of the Average Value Aspect Context

No.	Respondents	Average	Percent
1	Students	45.73	34.90%
2	Head of Department	33.00	25.19%
3	Supervisor	35.04	26.74%
4	Industry Advisor	17.25	13.17%
Total		131.02	100.00%

Context analysis carried out obtained an average value of 45.73 for student respondents, respondents from department heads obtained an average of 33.00, supervisory respondents received an average of 35.04, and industrial supervisor respondents obtained an average of 17.25 so that the final value of the four respondents was 131.05 which in the decision-making table obtained the appropriate category.

Table 3. Frequency Distribution Aspects of Context

No.	Score Range	Category
1	> 133.25 – 164.00	Very Suitable
2	> 102.50 – 133.25	Suitable
3	> 71.75 – 102.50	Less Suitable
4	41.00 – 71.75	Not Suitable

The supervisor on the management indicator is in the wrong category, where this happens because the lecturer does not know the application of the information system. Various inputs from the lecturer are the need for a lecturer account to get information about the student guidance, view and download the administration of industrial practices related to supervisors such as supervisors, industrial practice invitations, and control students through daily journals (logbooks) filled out by students. The existence of an information system greatly helps student respondents and department heads because industrial practice correspondence in the department can print correspondence in real-time.

4.2. Input Aspects

In general, the results of the input aspect test are in the very appropriate and appropriate category where in preparation for the management of the industrial practice, the category is very suitable for student respondents, the category is following the percentage of 50.75%, and the category is suitable for respondents from the department leadership with a percentage of 80%, lecturer respondents supervisor with a percentage of 59.26%, the indicator of

student readiness was in the very appropriate category with the percentage of 67.91%, the indicator of absorption of the debriefing material was in the category of very appropriate with the percentage of 44.77%. With the percentage obtained from each indicator, it can be explained that the implementation of industrial practices has gone well, is more structured, prepares student administration before leaving for industrial practice, such as providing an observation cover letter, during the process of implementing industrial practices such as daily logbooks and attendance.

Based on the input evaluation aspect discussion, determine the most appropriate approach to meet the identified needs: a) preparation of industrial practice management, b) student readiness to carry out the industrial practice, c) absorption of debriefing materials. The results of the evaluation research obtained from the student respondents, department heads, supervisors, and industry supervisors showed the average results as follows:

Table 4. Recapitulation of the Average Value Aspect Input

No.	Respondents	Average	Percent
1	Students	31.01	54.33%
2	Head of Department	12.00	21.02%
3	Supervisor	14.07	24.65%
Total		57.08	100.00%

The input analysis obtained an average value of 31.01 for student respondents, respondents from department heads obtained an average of 12.00, and supervisor respondents obtained an average of 14.07, which in the decision-making table obtained the category corresponding.

Table 5. Frequency Distribution Aspects of Input

No.	Score Range	Category
1	> 72.00 – 90.00	Very Suitable
2	> 54.00 – 72.00	Suitable
3	> 36.00 – 54.00	Less Suitable
4	18.00 – 36.00	Not Suitable

The implementation of the ongoing evaluation received positive responses from all respondents and obtained some constructive suggestions, namely the need for increased collaboration with the industry so that the location of industrial practice offered by the department will accept students who want to carry out industrial practice because of some experience from the industry. students who get the refusal to carry out the industrial practice.

Implementation of debriefing on industrial practices involving industry parties to provide an overview of the industry. Students who want to carry out industrial practice must first take part in debriefing so that students get a general overview of the world of work, but this is still considered lacking in students because the explanation given at the time of debriefing is limited so that suggestions obtained from students need to add a description of each company or agency involved. offered so that students have an overview of the company, agency or office offered.

4.3. Process Aspects

The indicator of the role of students in student respondents obtained a category that was very appropriate with the percentage of 49.25%, the indicator of the role of supervisors obtained a category that was less suitable for student respondents with a percentage of 28.36%, respondents from the departmental leadership were with a percentage of 60%. The category was suitable for the respondents of supervisors with a percentage of 55.56% and industrial supervisor respondents with a percentage of 45%. The industrial supervisor indicator obtained a very suitable category for student respondents with a percentage of 44.26% and the appropriate category for industrial supervisor respondents with a respondent of 66.67%, the role of the department leadership was at the category is not following the percentage of 40%, and the indicator of barriers to industrial practice in student respondents obtains the category according to the percentage of 42.86%. In general, the evaluation process is in the appropriate category and specifically for the department leader's role, and the supervisor's role is in the less appropriate category.

Aspects of process evaluation that are evaluated by indicators include: a) the role of students, b) the role of supervisors, c) the role of supervisors in industry, d) barriers to the implementation of industrial practice. The results of research on the process of all respondents are then calculated in general to determine the level of conformity of the evaluation based on the aspects of the process carried out in the study program. Below are the results of the average calculation of each respondent.

Table 6. Recapitulation of the Average Value Aspect Process

No.	Respondents	Average	Percent
1	Students	41.86	44.61%
2	Head of Department	19.60	20.89%
3	Supervisor	11.93	12.71%
4	Industry Advisor	20.45	21.79%
Total		93.84	100.00%

Process analysis obtained an average score of 41.86 for student respondents, respondents for departmental leadership received an average of 19.60, supervisory respondents received an average of 11.93, and industrial supervisors obtained an average of 20.45, which in the decision-making table obtains the appropriate category.

Table 7. Frequency Distribution Aspects of Process

No.	Score Range	Category
1	> 110.50 – 136.00	Very Suitable
2	> 85.00 – 110.50	Suitable
3	> 59.50 – 85.00	Less Suitable
4	34.00 – 59.50	Not Suitable

Implementing industrial practice on the role of supervisors is still lacking and not optimal in mentoring; students who carry out industrial practices feel they get less attention from their supervisors, the role of supervisors that students feel only during industrial practice seminars and still has difficulty contacting supervisors. However, this is not done by all supervisors because supervisors pay attention to students, follow developments in the implementation of industrial practices and even escort and follow the withdrawal process.

The role of the department leadership is considered inappropriate because the department has not maximized the determination of conditional courses in terms of implementing the industrial practice, elective courses that students must pass, pretests can be done when students want to register for debriefing so that students can find out primary students who will carry out industrial practice and can be adapted to the location of the student's industrial practice.

In the obstacles encountered during the implementation of industrial practices, students always try to solve the challenges given even though they have to drain their energy and mind; the obstacle that has been faced by one of the students is that students are assigned to create a system, but in the process, it is related to the subject, while students have not received the material because students practice industry earlier. However, students can overcome this by collaborating and studying learning materials while guiding industry supervisors.

4.4. Product Aspects

Personality development of students with a percentage above 40%, skill indicators get a percentage above 49.25%, student work-readiness indicators get a percentage at 48.15%, and innovative student experiences with a percentage above 29.63% which means there is a more

remarkable improvement. Creative, more confident, improved skills, and more ready to work, FGDs conducted with students revealed that self-confidence increased in work.

Product evaluation (evaluation of results) includes: a) student personality development, b) student skills development, c) student work readiness, d) student innovative experience. Based on the four evaluation indicators, the implementation of the Industrial Practice program can be described in the table below:

Table 8. Recapitulation of the Average Value Aspect Product

No.	Respondents	Average	Percent
1	Students	20.37	23.88%
2	Head of Department	21.20	24.85%
3	Supervisor	18.93	22.19%
4	Industry Advisor	24.80	29.07%
Total		85.30	100.00%

The product analysis obtained an average value of 20.37 for student respondents, respondents for majors obtained an average of 21.20, supervisory respondents received an average of 18.93, and industrial supervisors received an average of 24, 80 in the decision-making table obtains a very appropriate category.

Table 9. Frequency Distribution Aspects of Product

No.	Score Range	Category
1	> 84,5 – 104	Very Suitable
2	> 65 – 84,5	Suitable
3	> 45,5 – 65	Less Suitable
4	26 – 45,5	Not Suitable

After implementing the industrial practice, students gain much experience, recognize their potential, and understand their abilities so that their work readiness can be explored to prepare better to face the world of work. With the implementation of industrial practice, students gain a lot of experience, knowledge, and ways to interact with many people and enthusiastically assist in formulating concepts developed by industrial practice students. Industry supervisors do not limit students to explore ideas for a better future.

The percentage that is in the very appropriate category is not immediately felt by all students who carry out industrial practice because some groups do not have the opportunity to get to know the world of work better because the industry limits the work given to students who carry out industrial practices, of course for specific reasons. Students expressed that the knowledge gained during

lectures was not used because students were more involved in small office administration matters such as recording letter numbers.

One of the industry parties stated that some students who carry out industrial practices already have a basis and can be developed so that it is easier to direct during the implementation of industrial practices. However, some students carry out industrial practices, which students have that do not follow the industrial practice. Hopefully, the placement of industrial practice students in the future will be more adjusted to the concentration of students so that the objectives of implementing industrial practice are achieved, and students can explore their potential more deeply.

5. Conclusion

The evaluation results use the CIPP model were in the context aspect obtained the category by the average value of 131.02, in the input aspect obtained the category following the average value of 57.08, the input aspect obtained the category following the average value of 93.84, and the product aspect obtained an average value of 85.3. As the results obtained, the implementation of industrial practices can be concluded that the implementation of industrial practices has been carried out correctly and structured but needs improvement or development in the industrial practice information system, increasing the role of guidance lecturers and increasing cooperation with industry.

Acknowledgments

Thanks to the Universitas Negeri Makassar, Postgraduate Program, Advisory Lecturers, and Examiners for suggestions and input into this research so that it can be completed on time.

References

- [1] D. Gillies, "Human capital, education, and sustainability," *Sisyphus—Journal Educ.*, vol. 2, no. 3, pp. 78–99, 2014.
- [2] T. Kellaghan and V. Greaney, *Using assessment to improve the quality of education*. Unesco, International Institute for Educational Planning, 2001.
- [3] T. W. Schultz, "Investment in human capital," *Am. Econ. Rev.*, vol. 51, no. 1, pp. 1–17, 1961.
- [4] M. Rieckmann, "Learning to transform the world: Key competencies in Education for Sustainable Development," *Issues trends Educ. Sustain. Dev.*, vol. 39, pp. 39–59, 2018.
- [5] P. L. Maki, *Assessing for learning: Building a sustainable commitment across the institution*. Stylus Publishing, LLC, 2012.
- [6] S. Pavlin, "The role of higher education in supporting graduates' early labour market careers," *Int. J. Manpow.*, 2014.

- [7] R. A. Noe and A. D. Kodwani, *Employee training and development*, 7e. McGraw-Hill Education, 2018.
- [8] C. Patrick, D. Peach, C. Pocknee, F. Webb, M. Fletcher, and G. Pretto, *The WIL (Work Integrated Learning) report: A national scoping study*. Queensland University of Technology, 2008.
- [9] S. Dietze *et al.*, "Interlinking educational resources and the web of data: A survey of challenges and approaches," *Program*, 2013.
- [10] M. Porter, A. Warner, and J. Sachs, *Global Competitiveness Report 2000*. McGraw-Hill, 2000.
- [11] P. H. Rossi, M. W. Lipsey, and G. T. Henry, *Evaluation: A systematic approach*. Sage publications, 2018.
- [12] D. L. Stufflebeam and G. Zhang, *The CIPP evaluation model: How to evaluate for improvement and accountability*. Guilford Publications, 2017.
- [13] R. R. Sims, *Organizational success through effective human resources management*. Greenwood publishing group, 2002.
- [14] T. K. Bikson and S. A. Law, "Global Preparedness and Human Resources: College and Corporate Perspectives.," 1994.
- [15] D. B. Curtis, J. J. Floyd, and J. L. Winsor, *Business and professional communication*. Harpercollins College Division, 1992.
- [16] R. M. Thorndike, G. K. Cunningham, R. L. Thorndike, and E. P. Hagen, *Measurement and evaluation in psychology and education*. Macmillan Publishing Co, Inc, 1991.
- [17] R. Kiely and P. Rea-Dickins, *Program evaluation in language education*. Springer, 2005.
- [18] D. L. Stufflebeam, "A depth study of the evaluation requirement," *Theory Pract.*, vol. 5, no. 3, pp. 121–133, 1966.
- [19] L. Ross and L. J. Cronbach, "Handbook of evaluation research," *Educ. Res.*, vol. 5, no. 10, pp. 9–19, 1976.
- [20] D. L. Stufflebeam, G. F. Madaus, and T. Kellaghan, *Evaluation models: Viewpoints on educational and human services evaluation*, vol. 49. Springer Science & Business Media, 2006.
- [21] M. C. Alkin, *Evaluation roots: A wider perspective of theorists' views and influences*. Sage Publications, 2012.
- [22] M. M. Provus, "The Discrepancy Evaluation Model: An Approach to Local Program Improvement and Development.," 1969.
- [23] M. Provus, *Discrepancy evaluation: for educational program improvement and assessment*. McCutchan, 1971.
- [24] B. R. Worthen, J. R. Sanders, and J. L. Fitzpatrick, "Program evaluation," *Altern. approaches Pract. Guidel.*, vol. 2, 1997.
- [25] J. L. Fitzpatrick, "An introduction to context and its role in evaluation practice," *New Dir. Eval.*, vol. 2012, no. 135, pp. 7–24, 2012.
- [26] R. O. Brinkerhoff, D. M. Brethower, J. Nowakowski, and T. Hluchyj, *Program evaluation: A practitioner's guide for trainers and educators*, vol. 2. Springer Science & Business Media, 2012.
- [27] M. D. Miller, R. Linn, and N. Gronlund, "Measurement and evaluation in teaching." New York: Merrill Press Edu Inc, 2009.
- [28] L. B. Mohr, *Impact analysis for program evaluation*. Sage, 1995.
- [29] S. Isaac and W. Michael, "Handbook for research method in social sciences." San Diego, CA: EDITS, 1984.
- [30] S. L. Caudle, "Qualitative data analysis," *Handb. Pract. Progr. Eval.*, vol. 2, no. 1, pp. 417–438, 2004.
- [31] D. L. Stufflebeam, H. McKee, and B. McKee, "The CIPP model for evaluation: An update, a review of the model's development, a checklist to guide implementation," 2003.
- [32] G. Sax, *Principles of educational and psychological measurement and evaluation*. Wadsworth Publishing Company, 1997.
- [33] D. L. Stufflebeam and A. J. Shinkfield, *Systematic evaluation: A self-instructional guide to theory and practice*, vol. 8. Springer Science & Business Media, 2012.



© 2021 by the authors. Licensee by Three E Science Institute (International Journal of Environment, Engineering & Education).

This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution-ShareAlike 4.0 (CC BY SA) International License. (<http://creativecommons.org/licenses/by-sa/4.0/>).