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Evaluation of Industrial Field Practice Program using the Tyler Model in The Informatics Engineering Education Department

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Abstract: This research aims to describe the evaluation implementation of industrial field practices in the informatics engineering education study program, Faculty of Teacher Training and Education, Universitas Putra Indonesia "YPTK" Padang. This research used an evaluation method with the Tyler Evaluation Model (Goal Oriented Model). Based on this method, data was collected through the following steps: 1). Identify the objectives of industrial field practice; 2) formulate indicators for the achievement goals that have been set; 3) formulate the data obtained with indicators. The main objective is divided into sub-component objectives, namely: sub-component of program objectives, sub-component of attitudes, and sub-component of achieving program objectives. All indicators included in the sub-components were analyzed using the mixed method technique (quantitative and qualitative) and obtained an average score of 84.4 %. It means that the implementation of industrial field practice in the informatics engineering education study program, Faculty of Teacher Training and Education, Universitas Putra Indonesia "YPTK" Padang, is in a good category. The impact of the implementation of industrial field practices can run smoothly in accordance with the program objectives.

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Introduction

The current era of the Industrial Revolution has brought humans in a much better direction in terms of life. The use of increasingly sophisticated technology in everyday life is something that is no longer strange nowadays (Fajar & Hartanto, 2019; Yunus, 2023). It has been supported through government policies from the past. According to Law Number 2 of 1989, the aim of National Education is directed at developing and improving Human Resources (HR), namely the development of Indonesian people as a whole, which includes insight into Science and Technology (IPTEK), having skills and being devoted to God Almighty (Gunawan et al., 2023; Sujana, 2019).

The Faculty of Teacher Training and Education, Universitas Putra Indonesia "YPTK" Padang, in an effort to prepare prospective staff who are professional, qualified, have reliable skills and are able to compete in the industrial world, programs a course that requires students to go directly into the industrial world. The course is called Industrial Field Practice (PLI) which is one of the courses that must be taken as one of the graduation requirements for students of the Informatics Engineering Education Study Program. The purpose of this activity is carried out as a form of theoretical application of knowledge that has been obtained during lectures, the implementation of which is carried out in this activity, then to gain work experience so that students know the industrial world and the work environment.

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PLI activities can also foster work discipline and professionalism at work so that they can get to know the world or work environment, which will be beneficial for students after completing their studies. Apart from that, it is also important for students to participate in industrial field practice, considering that the current need is not just for theoretical knowledge but also for activities that can add to the knowledge that has been learned previously during lecture activities(Pratiwi et al., 2022).

In its implementation, the first step that must be prepared is the preparation of a team of industrial field practice coordinators, preparation of administrative equipment, data collection on PLI participants, starting from the completeness of the minimum SKS requirements that must be met, submission of a proposal for PLI implementation and participation in debriefing/coaching for industrial field practice. After this activity, PLI participants whom the Company had previously accepted for PLI were sent, supervisors were appointed, and PLI activity reports were carried out.

In its implementation, the lecturer will monitor PLI participants and guide students in making PLI reports. At the end of PLI, students must register with the study program to carry out seminars related to PLI reports and PLI implementation. However, all of these implementations do not rule out the possibility of shortcomings; based on the results of interviews and observations conducted by researchers, it is known that the implementation of PLI sometimes experiences setbacks from the predetermined schedule. PLI also sometimes has little time, then several companies do not accept interns, and The PLI place/location that the majority of students choose is in the city of Padang, and evaluations of PLI implementation are rarely carried out.

Based on this information, researchers feel it is necessary to evaluate the PLI program in order to make an inventory of things that need to be done to improve and improve quality through regulations related to the implementation of this PLI program in order to achieve the goals set out in the program. Of course, evaluation research must refer to the evaluation model. Program evaluation is currently a gradual process with various steps that need to be taken to achieve the evaluation objectives (Aliyya, 2020). Program evaluations are carried out not only to determine the effectiveness and efficiency of training implementation but are also used to obtain information related to existing deficiencies so that later, the program can be improved and a decision can be made on whether it can be continued or not. Program evaluation can also be used to determine the impact of industrial field practice programs on students in the education environment; of course, it must be in line with national education goals and technological developments in the era of the Industrial Revolution (Arifin, 2019; Dungus, 2023).

The evaluation model used in this research is the Tyler model (goal-oriented model). This model emphasizes reviewing goals from the start of the activity and continues continuously (Fauzobihi et al., 2022; Novalinda et al., 2020). Goal-oriented evaluation aims to provide information that can be a basis for making decisions, forming policies, or designing future programs. This model emphasizes assessing the achievement of objectives as the main focus of program evaluation (Nurrohmawati et al., 2023). This research aims to describe the evaluation implementation of Industrial Field Practices in the Informatics Engineering Education study program, Faculty of Teacher Training and Education, University of Putra Indonesia YPTK Padang, using the Tyler model (Goal Oriented model).

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Research Method

This type of research was program evaluation research with mixed methods with quantitative and qualitative mixed design. Program evaluation is a process of providing information that can be used as a consideration to determine the goals to be achieved, design, implementation and impact to help make decisions, assist accountability and increase understanding of phenomena (Rizka et al., 2018; Ziliwu et al., 2022). The model used in evaluating this program was the Tyler model (*Goal Oriented model).* This model emphasizes assessing the achievement of objectives as the main focus of program evaluation (Arikunto, 2021; Muharika, 2019). The steps applied in this model were 1) recognizing the objectives of implementing PLI, 2) Formulating indicators for achieving the objectives that had been created, and 3) formulating the data obtained with indicators that had been formulated as supporting research instruments (Ambarita & Talimbung, 2022; Mukhadis, 2021; Pratiwi et al., 2022; Sukarni, 2020).

In this research, indicators of goal achievement are divided into three parts, namely: a) sub-components of PLI program goals, consisting of knowledge, skills and performance b) Attitude Sub-Component, consisting of discipline, cooperation, responsibility, activeness and communicativeness and c) Sub-Components of program achievement; consisting of mastery of Industrial Field Practice material, Industrial Field Practice reports and Industrial Field Practice assessments.

The subjects of this research consisted of 14 students, supervisors, and the head of the Informatics Engineering Education study program. In program evaluation techniques, data collected as research instruments include questionnaires, interviews, observations or observations, according to Sudjana (Kete, 2017; Lazwardi, 2017). The assessment of each component in this research is presented using a questionnaire as a research instrument. The data analysis technique in this research was carried out by calculating the presentation of answers to the questionnaire using the criteria in Table 1 (Sukarni, 2020).

Table 1. Program Evaluation Assessment Criteria

No	Value Weight Range (%)	Criteria
1	86-100	Very good
2	66-85	Good
3	56-65	Not good
4	0-55	Not good

Results and Discussion

The results of the analysis of the implementation of this industrial field practice with the elements of PLI implementation are divided into three sub-components, namely: a) goal sub-component, b) attitude sub-component, and c) program achievement sub-component. Data analysis carried out on the sub-component of program objectives as an element in implementing PLI is divided into three indicators, namely 1) knowledge, 2) skills, and 3) Performance. A description of the data for each indicator is presented in Table 2.

Table 2. Average Component Values of Program Objectives subcomponents

No	Indicator	Average score	Value Weight (%)	Criteria
1	Knowledge	4.4	88	Very good
2	Skills	4.5	90	Very good
3	Performance	4	80	Good
Overall Value		**4.3**	**86**	**Very good**

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Based on table 1, the average score for the sub-components of program objectives obtained an average score of 4.3 with a weighted score of 86% with very good criteria. It can be concluded that the program objectives are running very well in accordance with the expected PLI objectives. To complete the research data from the subcomponent of program objectives, interviews were conducted with industrial supervisors and the FKIP dean. An interview with an industrial supervisor stated that "PLI aims to increase experience, knowledge and skills for students related to the field they are working in; of course, they can implement the knowledge gained in lectures so that they can also make a good contribution during PLI to industry." The results of an interview with the dean of FKIP stated that "the aim of PLI, especially at FKIP, is not only to equip students with educational practices but through this program, it is also hoped that they will provide students with experience and work simulations, as well as being able to maintain their appearance while working, their attitude and professionalism can, of course, be useful for The company implements the knowledge gained in college." Based on data reduction, the aim of industrial work practice is so that students can increase and implement the knowledge, skills and performance as well as work experience gained in the industrial world.

Data analysis carried out on the Attitude Sub Component is divided into five indicators, namely; 1) discipline, 2) Cooperation, 3) responsibility, 4) activeness and 5) communicative. A description of the data for each indicator is presented in table 3.

Table 3. Average Component Values of Attitude subcomponents

No	Indicator	Average score	Value Weight (%)	Criteria
1	Discipline	3.9	78	Good
2	Cooperation	3.8	76	Good
3	Responsibility	4.3	86	Very good
4	Liveliness	3.9	78	Good
5	Communicative	4	80	Good
Overall Value		**3.98**	**79.6**	**Good**

Based on table 2, the average score obtained is 3.98 with a weighted value of 79.6% with good criteria. Thus, it can be concluded that the behavior that students have and implement during PLI is going well. The following are the reduction results from interviews exploring each indicator that was explored qualitatively which are presented in table 4.

Table 4. Interview results for attitude sub components

No	Indicator	Qualitative Data
1	Discipline	The discipline applied by students is well implemented by students and this is also reflected when students have implemented the PLI program
2	Cooperation	The collaboration carried out by students with existing systems in industry is good, it can be seen that students are often involved in official activities and events in the industry
3	Responsibility	The responsibilities carried out by students are very good in contributing to industry. It can be seen that students often get projects and can complete them well. With this dedication, students also receive rewards from their work and are even called back to work in industry.
4	Liveliness	Student activity in PLI is good and good, this is also reflected after the implementation of PLI
5	Communicative	The communication used by PLI students is good and communicative.

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Based on the data reduction in Table 4, ,in general, the behavior of students who receive character education in college is reflected well when implementing PLI or after implementing PLI. Data analysis on the sub-component of program achievement is divided into 3 factors that are; mastery of the material, preparation of Industrial Field Practice reports and assessment of Industrial Field Practices. A description of the data for each indicator can be presented in Table 5.

Table 5. Average component scores for program achievement subcomponents

No	Indicator	Average score	Value Weight (%)	Criteria
1	Mastery of PLI Material	4.4	88	Very good
2	PLI Report	4.2	84	Good
3	PLI Assessment	4.5	90	Very good
Overall Value		**4.37**	**87.4**	**Very good**

Based on table 5, the average score for the program achievement sub-components obtained an average score of 4.37 with an assessment weight of 87.4% in the very good category. It can be concluded that the objectives of the PLI program have been achieved in terms of mastering the material and adding reporting and displaying it in seminar forums. It means that the knowledge students gain from industry can also be applied to universities, especially in study programs. From the PLI implementation components, the results obtained are presented in Table 6.

Table 6. Average component scores for program achievement subcomponents

No	Indicator	Average score	Value Weight (%)	Criteria
1	Program Objectives	4.3	86	Very good
2	Attitude	3.98	79.6	Good
3	Program Achievements	4.37	87.4	Very good
Overall Value		**4.22**	**84.4**	**Good**

The research results show that the implementation of PLI is used to measure the extent to which the goals of the program have been achieved (*goal-oriented*). This evaluation activity can conclude the achievements of a program (Harjatmi et al., 2024). This evaluation can be said to be an assessment or assessment. Evaluation is a planned activity to determine the condition of an object using instruments, and the results are compared with benchmarks to obtain conclusions (Lenggogeni, 2020; Novalinda et al., 2020).

Evaluation denotes an action or a process to determine the value of something. If the program is not evaluated, it cannot be known how and how well the policies that have been issued can be implemented. Based on the results of the quantitative and qualitative data processing questionnaire, it can be concluded that industrial work practice aims to improve or add to students' knowledge, skills and work experience so that students can carry out their competencies in the industrial world in accordance with the needs of the industrial world (Arifin, 2019; Sowl et al ., 2022).

Thus, the Faculty of Teacher Training and Education, especially the Informatics Engineering Education study program, is trying to achieve the target to be achieved, namely producing human resources who are ready to face the era of the Industrial Revolution. In this research, the objectives of the industrial work practice of the Informatics Engineering Education study program have been achieved and are running well. The PLI that has been carried out can equip students with skills so that they can compete both as workers and as entrepreneurs (Apriliani, 2019; Ziliwu et al., 2022).

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Continuous and continuous provision of practical lessons will make students familiarize themselves and have professional abilities in facing the world of work after graduating from college. Previous findings also state that evaluation can be used to collect information that can be used to make decisions. Other findings also reveal that the information produced during evaluation becomes an alternative in making a decision (Haryana & Sunarto, 2021).

This research provides conceptual implications with the evaluation of industrial field practice programs with the implementation of Tyler's model (Goal Oriented model) with an assessment of indicators of program objectives, attitudes and program achievements can be one alternative to help determine the success of a program. Then, the practical implications of the implementation of the PLI program evaluation are part of the learning program that must be implemented by every student in the world of work as a tangible manifestation of the implementation of the vocational education system. The results of this evaluation can be used to improve industrial field practices in a better direction with the target of student knowledge, skills, and performance. In addition, it also makes a better attitude of discipline, cooperation, responsibility, activeness and communication of students in the implementation of the PLI program and program achievement activities can run well, both in terms of achieving material mastery, PLI reporting and good grades achieved by students.

Conclusion

The result research showed that ; (1) The implementation of industrial work practices for the subcomponent of program objectives received a very good score. (2) the implementation of industrial work practices for the behavioral subcomponent obtained good marks. (3) the goal achievement subcomponent obtained a very good score. In the implementation of industrial work practices, the industrial work implementation component received a very good score. It was concluded that the Tyler model (goal-oriented model) evaluation of the implementation of PLI in the Informatics Engineering Education study program, Faculty of Teacher Training and Education, Universitas Putra Indonesia, YPTK Padang, had been achieved in accordance with the expected objectives.

Recommendation

The results showed that the evaluation of the PLI program that had been carried out at the Faculty of Teacher Training and Education, especially in the Informatics Engineering Education study program at Universitas Putra Indonesia, YPTK Padang, had been achieved in accordance with the expected goals. Researchers suggest that things that need to be improved and must be part of the regulation are the implementation time of the PLI program which is considered too short. The implementation of PLI is expected to spread outside the city and also in the international arena. Lecturers should conduct monitoring in the middle and at the end of the implementation of PLI to industry so that the monitoring results can be material in decision-making when evaluating the PLI program. For the head of the study program as a coordinator in the implementation of PLI, the evaluation of this program must be carried out on an ongoing basis so as to produce the latest policies regarding good PLI implementation in the future.

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