The Influence of Industrial Work Practice Experience-Career Information on Student Competence with Work Motivation as an Intervening Variable in Bachelor of Electrical Engineering Education Graduates

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Sections Info	ABSTRACT
	Objective: This research aims to analyze (1) the direct influence of industrial work practice experience on work motivation, (2) the direct influence of industrial work practice experience on competency, (3) the indirect influence of industrial work practice experience on work readiness through work motivation; (4) the direct influence of career information on work motivation; (5) the direct influence of career information on competency; (6) indirect influence of career information on competence through work motivation; and (7) the direct influence of work motivation on the competency of undergraduate Electrical Engineering Education students at the Faculty of Engineering. **Method:** The quantitative approach used in this research is the path analysis model. The population in this study were all undergraduate students of Electrical Engineering Education at the Faculty of Engineering, with a total population of 194 graduate students. **Results:** This research concluded that (1) industrial work practice experience has a direct effect on work motivation by 16%; (2) industrial work practice experience has a direct effect on competency by 16.81%; (3) industrial work practice experience has an indirect effect on competence through work motivation of 1.25%; (4) career information has a direct effect on work motivation by 7.29%; and (5) career information has a direct effect on competency by 4.41%. **Novelty:** Internship experience has a direct influence on work motivation and competence. This means that the Department of Electrical Engineering is expected to properly monitor and evaluate the implementation of students' industrial work practices in industry. Monitoring can be done through monitoring instruments, which must be filled in by internal supervisors and external supervisors, with the hope of increasing the effectiveness of implementing industrial work practices. Apart from that, the industry is expected to be able to optimize the role of students during industrial work practices so that they gain knowledge and experience that influences work motivation and competence.

INTRODUCTION

Universities, as higher education institutions that produce graduates by the competencies of existing study programs, their existence, progress, and sustainability are primarily determined by the absorption of their alums by the world of work. Higher education study programs also cannot be separated from the support of their graduates and stakeholders as graduate users (Ismail et al., 2021; Muluk et al., 2019; Purwanti, 2021; Sewandono et al., 2023; Veidemane, 2022). Higher education study programs must collect data on the absorption of their alums, both those who have just graduated and those who have graduated a long time ago (Frache et al., 2019). Higher education

study programs must also be able to establish good cooperation with stakeholders. Stakeholders as users. Know more about the competencies needed in employment for college graduates. Stakeholder input will become feedback for improvements related to graduate competencies.

Tracer Study is an effective medium used to track the absorption of university alums in the world of work. Apart from that, Tracer Study can be used to trace the whereabouts and condition of alums one year and two years after graduation. Tracer Study also has a vital role in gathering various information as material for the evaluation and development of higher education (Hermawan, 2021; Kartowagiran, 2021). Thus, the results of the Tracer Study can be an illustration of the existence of a higher education study program. Tracer Study data is used as a basis for improving the curriculum, increasing the quality of teachers, as well as adjusting and improving the learning system (Cuadra et al., 2019; Kalaw, 2019; Khasanah, 2019). This Tracer Study must be carried out periodically every year to overcome the gap between graduates and the needs of graduate users. Tracer Study is a form of study program performance assessment by the National Accreditation Board for Higher Education and the preparation of a Self-Evaluation report as a basis for organizational consolidation and development of academic activity programs. One of the points of self-evaluation and filling out the accreditation form is regarding the whereabouts of graduates after leaving college. Therefore, tracer study research is fundamental to support the accreditation of study programs, both national and international accreditation, in order to obtain maximum results, as well as provide a basis for improving the provision of better education.

To understand the true scope and conditions of what will be done in the business and industrial world, students in the Electrical Engineering Education Study Program are allowed to practice in the world of work, called industrial work practice. Industrial work practices as part of the education system and curriculum in higher education. Currently, the industrial world has opened itself widely for students to carry out industrial work practices. Industrial work practice experience can increase students' insight, knowledge, and abilities (Maryanti et al., 2020; Mian et al., 2020; Oke & Fernandes, 2020). In some cases, sometimes some students do not actively ask their supervisors, so the knowledge obtained still needs to be more optimal. Another problem that often arises is that most students carry out industrial practices that are outside their field of competence, so that students will have difficulties.

Work motivation is one of the factors that determines a person's performance. The size of the influence of motivation on a person's performance depends on how much intensity of motivation is given. So, work motivation towards learning objects can have a significant influence on student learning outcomes. Career information consists of facts about jobs, positions, or careers. It aims to help individuals gain insight, understanding, and insight into the world of work and aspects of the world of work. Students' understanding of career information can motivate students to work in specific fields according to competency, opportunities, and work readiness (Hasan & Pardjono, 2019; Hermanto et al., 2019; Setyadi et al., 2021; Tentama & Riskiyana, 2020).

Several things cause low competence among teenagers, namely the lack of job information, the efforts made to find work, and the need for more mature career planning, resulting in many teenagers graduating from higher education who are not accommodated in the world (Buabeng-Andoh, 2019). Work. Meanwhile, the industrial world requires a workforce that is mature and ready to work. In this research, we will

look for the direct influence of career information on work motivation and its indirect influence on student competence.

RESEARCH METHOD

The research method used is a survey method (explanatory survey method). A survey is a method that provides structured questions to a sample of the population and is designed to obtain information from respondents (Agus et al., 2020). The survey is research carried out on a group of objects within a specific time to assess the condition or implementation of a program, and the research results are used to prepare a plan to improve the program. This method is used to draw generalizations from observations that are not in-depth, but generalizations can be more accurate if a representative sample is used. The path analysis model is used to analyze the pattern of relationships between variables to determine the direct or indirect influence of a set of independent variables (exogenous) on the variables, namely internship experience (X1), career information (X2), work motivation (Z), and student competency (Y). For greater clarity, the research forms a scheme as in Figure 1.
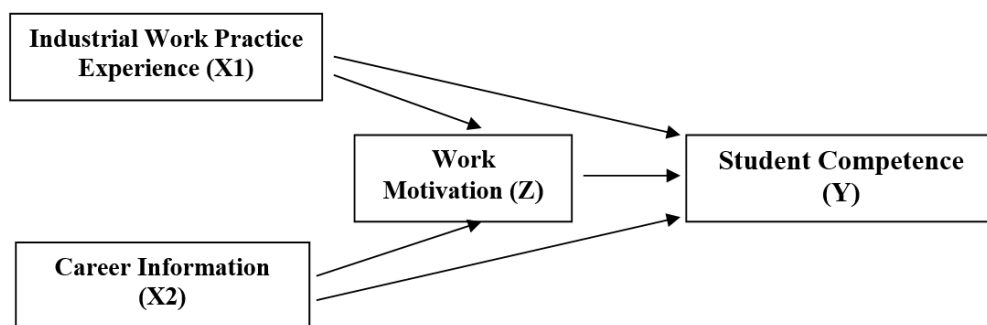

Figure 1. Relationship between variables.

RESULTS AND DISCUSSION

Results

Data analysis in this research uses Structural Equation Modeling (SEM) techniques using LISREL software. In general, SEM analysis can be carried out in the following stages.

Model Feasibility Test

Buabeng-Andoh (2019) and Misbah et al. (2022) state that testing a model contains two things. First, test the model's suitability as a whole (overall model fit test), and second, individually test the significance (test of significance) of the model parameter estimation results. The first test is closely related to the issue of generalization, namely the extent to which the results of the model parameter estimates can be applied to the population. Meanwhile, the second test is related to testing the proposed research hypothesis.

In LISREL, the first test uses the Goodness of Fit Test (GFT) measure. Research on the overall degree of suitability of an SEM can only be carried out indirectly, as with other multivariate techniques. Several measures of the degree of fit can be used to support each other, including 1) Absolute fit measures (absolute fit measures) Determine the degree of prediction of the overall model (structural and measurement models) to the covariance correlation matrix; 2) Incremental fit measures (incremental fit measures)

Compare the proposed model with the basic model which is often referred to as the null model or independence model; 3) Parsimonious fit measures (parsimonious fit measures) Relate the model to the number of estimated coefficients that are needed to achieve fit at that level. By the principle of parsimony, parsimony means obtaining the highest possible degree of fit for each degree of freedom. The results of the goodness of fit test are as in Table 1.

Table 1. Overview of goodness of fit.

Goodness of Fit Indeks	Output	Cut off Value	Information
Chi-Square	84.920	162.00	Good Fit
Prob	0.451	> 0.050	Larger (Significant)
RMSEA	0.008	0.050-0.080	Smaller (Significant)
GFI	0.940	0.800 – 0.900	Good Fit
AGFI	0.910	0.800 – 0.900	Good Fit
NFI	0.980	> 0.900	Good Fit
NNFI	1.000	> 0.900	Good Fit
CFI	1.000	> 0.900	Good Fit
IFI	1.000	> 0.900	Good Fit
PNFI	0.780	0.600 – 1.000 (approach 1)	Good Fit

Based on Table 1, all goodness of fit values are good by the cut of value. Thus, the empirical data used is by the conceptual framework.

Chi-Square=84.92, df=84, P-value=0.45125, RMSEA=0.008
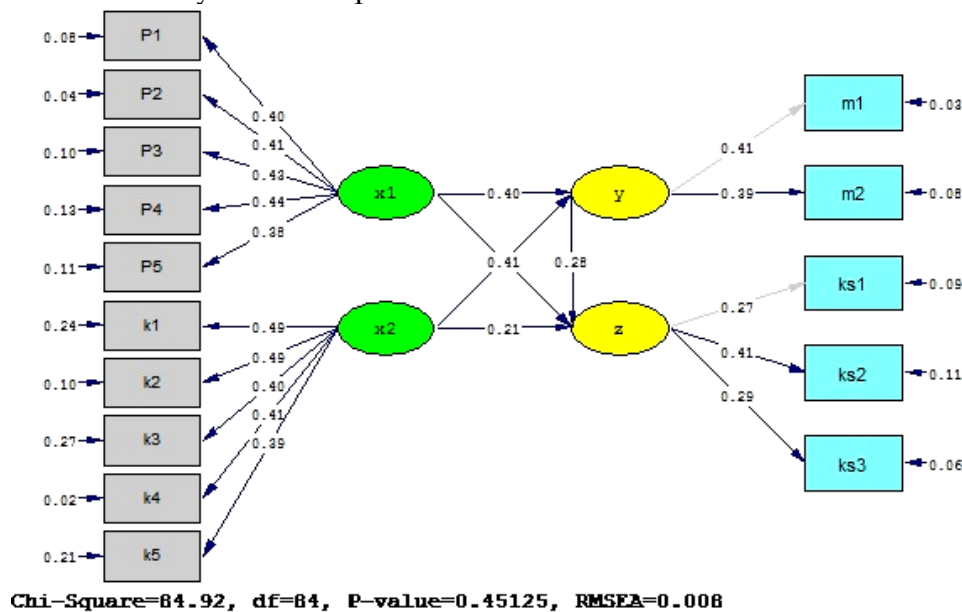
Figure 2. LISREL structural analysis model.

Hypothesis test

Hypothesis testing is done on structural equation coefficients by specifying a certain significance level. In this research, α = 0.050 is used, so the critical ratio of the structural equation must be ≥ 1.960. The results of hypothesis testing are as in Table 2.

Table 2. Hypothesis testing.

Hypothesis	Influence of Variables	Coefficient	Influence	t-Value	Information
H1	Industrial work practice experience → Work Motivation	0.400	0.160	4.230	Accepted
H2	Industrial work practice experience → student competence	0.410	0.168	4.130	Accepted
H3	Carrier Information → Work Motivation	0.270	0.0729	2.890	Accepted
H4	Carrier Information → student competence	0.210	0.0441	2.400	Accepted
H5	Work Motivation → student competence	0.280	0.0784	3.130	Accepted

Discussion

The Influence of Practical Experience on Work Motivation of students in the Electrical Engineering Education study program, Faculty of Engineering, State University of Surabaya

Based on the analysis results, it was found that there was an influence between industrial work practice experience and the work motivation of graduate students of the Electrical Engineering Education study program, Faculty of Engineering, Surabaya State University. This shows that the majority of students who have gained practical experience working in industry when carrying out industrial work practices can find out what the job demands and working climate in industry are like in real life. This experience can motivate students after graduating to work immediately. So, practical industrial work experience has a direct influence on the work motivation of students in the Electrical Engineering Education study program at the Faculty of Engineering, State University of Surabaya.

The results of this research are strengthened by the opinion of Herwina et al. (2019), Hidayatulloh & Afista (2021), Priyono et al. (2021), and Rohaeni et al. (2021), who state that experience is divided into 2, namely: (1) direct experience obtained through direct participation and action, (2) substitute experience obtained through direct observation, through pictures, through graphics, through words, and symbols. So, industrial work practice experience (prakerin) is an experience that students directly experience through direct participation and observation in the world of work.

The Influence of Practical Experience on the Competence of Students in the Electrical Engineering Education Study Program, Faculty of Engineering, State University of Surabaya

Based on the analysis results, it was found that there was an influence between internship experience and the work readiness of graduates of the Electrical Engineering Education study program, Faculty of Engineering, Surabaya State University. This shows that competency in student knowledge, skills, and attitudes during industrial work practice can increase student competency when entering the world of work (Buabeng-Andoh, 2019; Misbah et al., 2022). Graduates or alums as prospective workers will have competence if students have abilities that include certain aspects of knowledge, skills, and attitudes according to their field of expertise in the Electrical Engineering Education study program, Faculty of Engineering, State University of Surabaya.

Aspects of knowledge can be developed by providing theory according to the field of expertise. Aspects of skills can be developed through positive stimulation according to their field of expertise, including experience gained during industrial work practice in industry (Cotet et al., 2020; Omar et al., 2020; Sima, 2020). Meanwhile, the attitude aspect can be developed through students' attitudes during practice in class and when working in industry.

The Influence of Prakerin Experience on Student Competence through Work Motivation of students in the Electrical Engineering Education study program, Faculty of Engineering, State University of Surabaya

Based on the results of the analysis, it was found that there was an influence of industrial work practical experience on student competency through work motivation of graduates of the Electrical Engineering Education study program, Faculty of Engineering, Surabaya State University. This shows that students' direct experience in industry during industrial practice provides students with new knowledge to get to know the actual conditions in the workplace (McGunagle & Zizka, 2020). If students encounter pleasant and favorable conditions, this can motivate them to work after graduating from college.

Indicators of industrial work practices include (1) suitability of the scope of work, (2) Industry participation, (3) efficiency and effectiveness of industrial work, (4) social skills, and (5) work quality. The experience gained will influence students' knowledge, skills, and attitudes. The results of this research are in line with the opinion of (Misbah et al., 2022) that a person's motivation can come from oneself (intrinsic) and from outside oneself (extrinsic). The work environment in industry can be an extrinsic factor for students to be motivated to enter the world of work.

The Influence of Career Information on Work Motivation in the Electrical Engineering Education study program, Faculty of Engineering, Surabaya State University.

Based on the results of the analysis, it was found that there was a direct influence of career information on the work motivation of graduates of the Electrical Engineering Education study program, Faculty of Engineering, Surabaya State University. This shows that knowledge about job opportunities and career prospects can also motivate students to work. Students who have adequate information about careers can consider plans after graduating from college. The correct and accurate information obtained by students can motivate students to work according to their area of expertise.

Herwina et al. (2019), Hidayatulloh & Afista (2021), Priyono et al. (2021), and Rohaeni et al. (2021) suggest that the indicators used to identify career information are: (1) self-understanding; (2) goals that are by your talents, interests, and abilities; (3) information about further education or further studies; (4) information about the world of work; and (5) information about admission requirements or procedures.

The Influence of Career Information on Student Competence in the Electrical Engineering Education Study Program, Faculty of Engineering, Surabaya State University

Based on the analysis results, it was found that there was an influence between career information and work readiness of graduates of the Electrical Engineering Education study program, Faculty of Engineering, Surabaya State University.

This shows that if students have information about jobs and positions that suit their skills, they can increase their readiness to enter the world of work. Work readiness was developed by Buabeng-Andoh (2019) and Misbah et al. (2022) with indicators consisting of a) mastery of knowledge, b) mastery of skills, and c) psychology and attitudes. In implementing career information services, the material or career information provided to students contains the following: 1) Self-understanding, including talents, interests, values, and so on. 2) Dreams that match your talents, interests, and abilities. 3) Information about further education or further studies. 4) Information about the world of work (types of work). 5) Information about admission requirements or procedures (Darmayanti et al., 2021; Kurniawan et al., 2019; Majid, 2019; Mujayana, 2020; Mukminin et al., 2019).

CONCLUSION
Fundamental Finding: This study concluded that (1) industrial work practice experience has a direct effect on student work motivation; (2) industrial work practice experience has a direct effect on student competence; (3) experience of industrial work practices has an indirect effect on competence through student work motivation; (4) career information has a direct effect on student work motivation; and (5) career information has a direct effect on student competence. **Implication**: Increase student awareness of the importance of industrial work practice experience, which can influence student work competency and motivation so that students will be serious about carrying out industrial work practice while in industry. **Limitation:** The population in this study was limited to the Electrical Engineering Education Study Program, Faculty of Engineering, Surabaya State University. **Future Research:** There needs to be further research by adding other variables such as learning motivation, critical thinking skills

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