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## PHOTOVOICE ANALYSIS OF INDUSTRIAL PRACTICE EXPERIENCE: A COLLABORATIVE AUTOETHNOGRAPHY STUDY

Venisa Oktavia Putri Prabandari<sup>1</sup>, Sri Sumarni<sup>2\*</sup>, Fajar Danur Isnantyo<sup>3</sup>

<sup>1,2,3</sup> Pendidikan Teknik Bangunan, Fakultas Keguruan dan Ilmu Pendidikan, Universitas Sebelas Maret

Kampus V JPTK Jalan Ahmad Yani No. 200, Dusun II, Pabelan, Kec. Kartasura, Kab. Sukoharjo, Jawa Tengah, 57161, Indonesia

<sup>1</sup>[venisa.prabandari@student.uns.ac.id](mailto:venisa.prabandari@student.uns.ac.id), <sup>2</sup>[srisumarni@staff.uns.ac.id](mailto:srisumarni@staff.uns.ac.id), <sup>3</sup>[isnantyo@staff.uns.ac.id](mailto:isnantyo@staff.uns.ac.id)

### Abstract

This study aims to examine the experience of implementing industrial practice with photovoice analysis through a collaborative autoethnography approach and reveal the factors that determine the success of industrial practice. This research is qualitative and uses a partial collaborative autoethnography approach. The source of research data is industrial practice activities. The sampling technique was carried out through purposive sampling. Data collection was carried out through critical autoethnography, observation, and Focus Group Discussion (FGD). The validity test technique used was FGD. Data analysis was carried out through content analysis. The results of this research include: first, the study of industrial practice learning experiences contained aspects of togetherness and cooperation (collaboration ability category); discussion (communication ability category); involvement, contribution, initiative, responsibility, and dedication (proactive category); implementation of knowledge, fast learning, self-development, obedience, and time management (adaptive category). Second, the factors determining the success of industrial practice include a supportive partner work environment, team solidarity, student competence, and student personality.

**Keywords:** Autoethnography, Learning Experience, Photovoice, Industrial Practice

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## Introduction

Article In the current era of global world development, the Indonesian state is expected to produce quality human resources (HR) along with the increasingly competitive world of work (Zebua, 2021). Therefore, human resources are required to be able to master 3 areas of ability, namely intellectual intelligence (Intelectual Quitient), emotional intelligence (Emotional Quotient) and spiritual intelligence (Spiritual Quotient). These three abilities can be obtained by a person through studies at educational institutions or training institutions (Zebua, 2021). Educational Institution for Education Personnel (LPTK) is an institution that aims to educate students to become educated graduates who are skilled and ready to enter the world of work. As a higher education institution, LPTK plays an important role in producing graduates who have high competitiveness with good job prospects. However, this expectation is inversely proportional to the reality. Data released by the Central Bureau of Statistics (BPS) in February 2023 regarding the Open Unemployment Rate according to the highest education completed shows that unemployment of college graduates in the last three years is higher than that of primary school graduates.

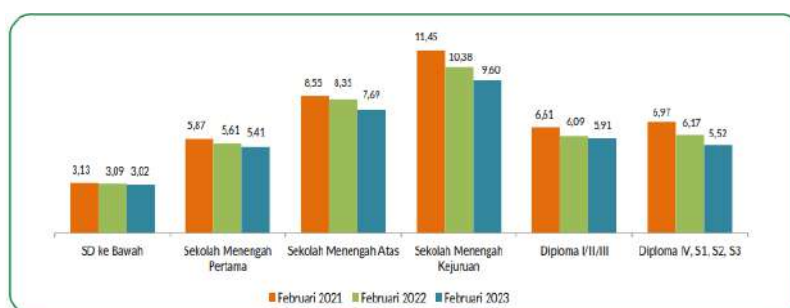


Figure 1. Unemployment data highest education completed Central Bureau of Statistics 2023

Based on Figure 1, it can be seen that the percentage of unemployed bachelor /master/doctoral graduates in February 2023 was at 5.91% and 5.52%. This figure is higher than the unemployment percentage of elementary school graduates and below, which is 3.02% (Badan Pusat Statistik, 2023). Judging from this fact, it is clear that diploma and bachelor graduates have not succeeded in reducing the unemployment rate in Indonesia instead they have contributed to the unemployment rate.

To overcome these problems, universities, especially vocational programmes, have designed a learning programme that is created and designed to improve students' mastery of skills and competencies both in theory and practice, namely the Program Kerja Praktik. Industrial practice is an education that unites systematically and synchronously between educational programs in higher education and expertise acquisition programs obtained from direct work activities in the world of work (Karyaningsih & Sari, 2019).

The urgency of industrial practice in shaping student competencies includes: the need for competencies in the workforce, the link and match between education and industry, the development of soft skills and hard skills, and the competency gap among students.

With technological advancements, globalization, and the need for a workforce with practical skills, today's industries are rapidly evolving (Tan et al., 2017). Students must not only possess theoretical knowledge but also skills that are relevant to industry demands. The gap between theory and real-world practice is bridged by industrial practice. The 'link and match' policy between higher education and industry emphasizes the importance of closer collaboration (Atkinson, 2016); (Goulart et al., 2022). Industrial practice provides students with the opportunity to develop specific competencies required in the workforce, while also adapting to the current dynamics and technologies in the field. Through industrial practice, students not only deepen their technical

knowledge (hard skills) but also develop soft skills, such as communication, teamwork, and time management (Kipper et al., 2021); (Sanyang, 2023). The competency gap, often cited by companies, highlights that graduates are not fully prepared to enter the workforce (Prikshat et al., 2020). Industrial practice is considered a solution to minimize this gap, allowing students to apply what they have learned in campus to real-life situations. Therefore, industrial practice is often integrated into higher education curricula as a key component to achieve more comprehensive and contextual learning outcomes (Leal Filho et al., 2016); (Oraison et al., 2019).

In reality, the implementation of industrial practice does not necessarily go as expected. There are cases of discrepancies in the implementation of industrial practice such as poor practice partners and students' lack of ability to adjust (Kuat & Kristiyanto, 2020); lack of partner trust in students, gaps between students' expertise competencies and work in the industry, and lack of communication between supervisors and partners (Tarmidi et al., 2020); and so on. Based on these cases, interviews with 33 Building Engineering Education students in one of the universities resulted in 9 respondents feeling dissatisfied with the implementation of industrial practice. Students complained about several things such as poorly structured industrial practice activities, lack of interaction between students and industrial institutions, unsupportive teammates, lack of monitoring from supervisors, and the difficulty of dividing time between industrial practice with teaching and learning activities and school field introduction activities. Of course, this fact greatly affects the effectiveness of industrial practice to achieve maximum goals (Dewi et al., 2021).

The purpose of this study is to reveal the factors that determine the success of industrial practice by examining students' experiences in carrying out industrial practice. The contribution of the results of this research is expected to provide information on knowledge and skills during the implementation of industrial practice activities.

### **Research Methodology**

This research was conducted at the construction project of Sentra IKM Mebel Surakarta. This research uses a qualitative method with a partial collaborative autoethnography approach, a method that involves researchers and other people as participants (Jones et al., 2016). Determination of participants in this study using purposive sampling technique (Lenaini, 2021). The participants of this study were 2 people, students who carried out industrial practices at the construction project of Sentra IKM Mebel Surakarta. Data collection was carried out by critical autoethnography (Taylor et al., 2012), observation (Raco, 2018), Focus Group Discussion (FGD). Data validity tests were carried out when conducting FGD by providing opinions and validation when presenting the results of photo narratives (Bachri, 2010). The photo and narrative data obtained were then analysed using content analysis. There are 4 stages to conduct content analysis adapted from Erlingsson & Brysiewicz (2017) presented in Table 1.

Table 1. Practice guide for conducting content analysis

<b>Step</b>	<b>Description</b>
Condensation	Condensation is the first stage of compacting, summarising or simplifying the text of the information while retaining the essence of the information
Code	Coding is done to explain the main meaning formed from the condensation stage
Category	The codes that were formed were then grouped into categories based on their relationship to each other
Theme	Themes are derived from revealing the underlying meaning of two or more categories

In the Erlingsson & Brysiewicz (2017) content analysis guide, it is also explained that researchers can choose categories as the highest level of abstraction. that researchers can choose categories as the highest level of abstraction to display the research results. display the research results. This depends on the purpose of the research and the quality of the data collected. So in this study, it was determined that the content analysis stage was carried out up to the category stage as the highest level of abstraction.

## Research Results and Discussion

### Study Of Industrial Practice Experience With Photovoice Analysis

The results of the implementation of photovoice resulted in 293 photos and then selected according to the research objectives, 22 photos were obtained, with details of the researcher in as many as 7 photos, participant 1 in as many as 8 photos, and participant 2 in as many as 7 photos. The photo selection was based on the consideration that the selected photos were able to represent the issues raised in this study, namely industrial practice experience. The data was content-analyzed by condensation, coding, and then obtaining categories.

Table 2. Grouping of codes into categories

Code	Category
Togetherness	Collaboration skills
Co-operation	
Discussion	Communication skills
Involvement	Proactive
Contribution	
Initiative	
Responsibility	
Dedication	Adaptive
Implementation of knowledge	
Fast learning	
Self-development	
Obedient	
Time management	

#### *Collaborative Skills*

The ability to collaborate refers to learning to work together, appreciate and identify different perspectives, and work together to solve certain problems. The codes of collaboration skills obtained from the results of analyzing the photovoice of researchers and participants include togetherness and cooperation. Figure 2. This is the result of the researcher's photo work, which illustrates the togetherness and cooperation that exist with the industrial practice group. This was expressed by the researcher in the photovoice quote as follows:

*"We often solve problems and discuss them together regarding the assigned tasks. When one of us cannot come to the project, then we will backup each other according to the existing conditions. There is no such thing as "leaving" in our team. Whatever the problem is, it is always solved together. If I do not understand one of the tasks, then my two friends will explain according to their understanding." (Researcher, 18/08/2023)*

When carrying out the field inspection together, it has created a sense of togetherness. Team members trust each other's results and will correct together if there are mistakes. In accordance with some research, which states that togetherness will make employees have a sense of unity and trust. In addition, togetherness can also be closely intertwined when working together to solve problems. With cooperation, it will increase the effectiveness of work (Hannah & Eisenhardt, 2017); (Simatupang, 2019). Not everyone can work well together in a team because this soft skill includes interactions with others and interpersonal relationships. So that this cooperation ability

can become a habit and personality of students, it requires slow and continuous training (Lestari, 2022).



Figure 2. Photovoice : Selfies together



Figure 3. Photovoice: Discussion with experts

### *Communication Skills*

Communication skills are needed by someone to convey ideas or opinions when conducting discussions. This is because humans communicate to share what they have related to their knowledge or experience. The communication skills code obtained from the results of the photovoice analysis of researchers and participants is discussed. Discussion is the directed communication of a group to convey opinions or ideas to each other and find solutions to the problems discussed (Strandberg et al., 2019); (Qudratullah & Rosniar, 2021). With discussion, it can add new knowledge and skills. This is in accordance with the quote from photovoice Figure 3, as follows:

*"As in this photo that I took, my friend is discussing with the drafter the steel that has been installed. The discussion was carried out to increase understanding of working on the assigned steel portal drawings." (Researcher, 18/08/2023)*



Figure 4. Photovoice: Safety talk activities



Figure 5. Photovoice: Working on sloof reinforcement requirements

### *Proactive*

Individuals who have a proactive personality show that they are not affected by current circumstances and tend to take the initiative to improve their work environment (Anindita & Muafi, 2020). These individuals will change their work environment by actively engaging and contributing, taking initiative, and finding opportunities to benefit. The codes obtained in the proactive category include involvement, contribution, initiative, responsibility, and dedication.

#### 1. Involvement

Student intern involvement is empowerment, which means that the company gives full trust and recognition to students to help the company achieve success (Chrisshyaren, 2023). For millennials, involving them in the company is the best way to reward them (Manikotama et al., 2022). As shown in Figure 4, the researcher and intern team were invited to attend a safety talk, which proved that the contractor appreciated the presence of the researcher and the team. In addition, the involvement of students during the PI provides a sign that the team is interested and enthusiastic about the PI. This is in line with the photovoice quote of one of the participants, as follows:

*"... my team and I, who were 'guests' in the project, were still encouraged to participate in the safety talk. My team and I felt enthusiastic about participating in this activity in the midst of our busy schedule of doing PLP and PI at the same time. We tried to make time to attend safety talk activities in the midst of our busy schedule and limited time when carrying out PI. By participating in the safety talk, it means that we also take part in supporting the smooth running of the project." (YWS, 18/08/2023)*



Figure 6. Photovoice: Measuring the embankment



Figure 7. Photovoice: Keep going to the field even if it's cloudy

## 2. Contribution

Contribution can be interpreted as the participation and concern of a person or group in an activity. When working on portal drawings until overtime at night, it shows that researchers and teams have contributed in the form of time and thoughts to complete the work before the deadline. Figure 5. is the result of a photovoice that contains a contribution code. It can be seen that students participate in contributing to the count in the office. A number of studies state that when students contribute optimally during their internship, they have good work readiness.

## 3. Initiative

When the team was given the task of drawing drainage details and did not know the dimensions, they decided to bring their own meter and check it in the field. This action is included in the ability to take initiative. When faced with certain situations or conditions, a person will tend to start or take action. This is in accordance with the participant's photovoice quote in Figure 6, as follows:

*"At that time, my other colleague was given the task of making SL working drawings. But he still did not know the size of the field, so he took the initiative to bring his own meter, and finally we measured the back area." (RJS, 18/08/2023)*

#### 4. Responsibility

When given a mandatory task for field inspection or overtime, researchers and participants automatically have a sense of carrying out the task properly and responsibly. This responsibility arises from the researchers' and participants' sense of ownership of the assigned tasks. A sense of responsibility is very important for students because it affects the quality of work in the future. Students who have a sense of responsibility for their actions and work are likely to be respected and trusted by colleagues, which will result in good collaboration (Scager et al., 2016).

#### 5. Dedication

A deep sense of satisfaction, passion, and enthusiasm for work refers to dedication (Akgunduz et al., 2023). When students work overtime at night to try to complete the drawing work so that it is completed on time according to the supervisor's request, it is a form of dedication to their work. This is in line with the statement of Schaufeli et al. (2002) that the dedication of an employee is characterized by his efforts to be productive. Figure 7 is the result of the participant's photovoice, which illustrates the situation when it is cloudy and students still take the time to go to the field. This shows high dedication to his work. In order to achieve success towards a positive goal, sacrifices of time, energy, or thoughts are needed.

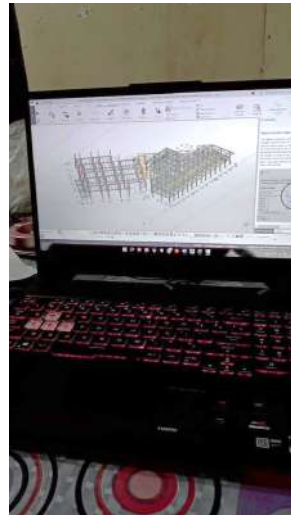


Figure 8. Photovoice: First time trying Tekla

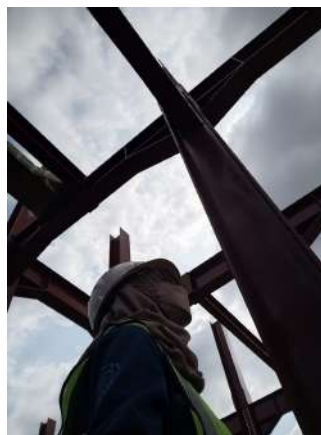


Figure 9. Photovoice: Own field inspection



### *Adaptive*

Adaptive is a personality that becomes a whole unit with a proactive personality because, in general, a proactive person can adapt well to new environments and situations (Ulfah & Akmal, 2019). In this adaptive category, there are 5 codes: implementation of knowledge, fast learning, self-development, obedience, and time management.

#### 1. Implementation of knowledge

The quality and quantity of a person can be known from the results of his work. One of the factors that influence this is the knowledge and skills a person has and the ability to implement them. During industrial practice, researchers and participants have implemented the skills gained during theoretical lectures. This is evidenced by the following quote from the researcher's photovoice:

*"Under these conditions, my team and I were given the responsibility to help complete the drawing of the steel portal. With our ability to master 2D CAD, we can do this drawing task quite well." (Researcher, 18/08/2023)*

With the knowledge and skills mastered, it will be easier for students to adapt to the work environment and the work they receive.

#### 2. Fast Learning

Putri (2023) stated that fast learning is the ability of someone to accept, understand, and master something quickly. There is new knowledge gained from industrial practices such as steel erection, floor deck reinforcement planning calculations, and drawing work using Tekla software. Thus, there is a knowledge gap in the implementation of industrial practices. So as a student, the ability to adapt quickly to the new knowledge gained so that you can apply this knowledge to work is needed. Technology and science continue to develop and change over time, so fast-learning skills are very useful and increase productivity. Figure 8 is the result of a photovoice taken when researchers first tried the Tekla software. Fast learning skills are needed to master the software because of the deadline target.

#### 3. Self-development

Self-development refers to improving the quality of a student. This includes mastery of technical skills (hard skills) according to the field and soft skills such as the ability to communicate, cooperate, and adjust (Suarjana, 2022). Self-development arises from a new situation encountered, and then naturally, an individual becomes accustomed to the situation. This is in accordance with the researcher's photovoice quote in Figure 9, as follows:

*"Therefore, when doing hospitalization alone for the second to third time, I was able to enjoy and focus without having to worry about the surrounding environment and did not depend on being accompanied by teammates who had other tasks." (Researcher, 18/08/2023)*

#### 4. Obedient

During industrial practice, students always obey both written and unwritten rules. As an example, every time they go to the field, students always use PPE in order to create a safe and controlled work environment and avoid work accidents. This is evidenced by the participant's photovoice quote, as follows:

*"... and while doing a daily check-up, it can be seen that we always apply K3 and also still carry the check-up paper even though there are no additional structures in the field" (RJS, 18/08/2023).*

#### 5. Time management

Time management is a plan that a person makes for organizing each activity or job so that it can be completed properly and on time (Hasanah & Daharnis, 2019). For example, when checking the guttering, the researchers and the team made a plan to do a field inspection at the same time so as not to go back and forth to the office. In other words, this planning is an effort to produce more effective and productive work. This is expressed in the following photovoice excerpt:

*"Finally, we measured the back area while doing a daily field inspection." (RJS, 18/08/2023)*

### Factors Determining The Success of Industrial Practice

#### *Supportive partner work environment*

Researchers found the fact that the work environment can affect student performance so that it affects the success rate of industrial practice. This is in accordance with the opinion of experts

who state that the work environment is everything that is around employees who can have an influence on employees when doing tasks (Taher et al., 2020). In some research shows that the work environment has an influence on employee performance. So that when the work environment is comfortable, good working relationships between coworkers and superiors, and adequate facilities when doing internships will have a positive influence on student performance. This was revealed by the researcher in the FGD as follows:

*"... the work environment in the office is really helpful for us to learn about new knowledge. If we have difficulties, we are always helped by being introduced to Furix software that can make our work more efficient. We also get closer to the drafters, especially when we work overtime together." (Researcher, 18/08/2023)*

#### *Team solidarity*

According to Maulini et al. (2022) solidarity is the existence of mutual trust, common goals, solidarity, and a sense of struggle among group members. In research conducted by Shafira & Swasti (2023), it was concluded that the existence of solidarity between coworkers or teams can overcome workloads and increase work achievement. When a group of people often do activities together, a sense of belonging and need will arise. This was expressed by the participant as follows:

*"... this PI team has been formed long ago in several major assignments, for example Interior Design. So we are already used to the way each member works. That's why when we work together we are quite compact and can complement each other ..." (YWS, 18/08/2023)*

In carrying out industrial practice, students will encounter new situations and conditions that are quite unfamiliar. With solidarity in the team, the adaptation process will be faster because togetherness in the team is always maintained. In addition, team solidarity will improve performance and productivity because students support each other, work together, complement skills, and collaborate. Thus, team solidarity is one of the factors that determine the success of industrial practice.

#### *Student competence*

Competence is the ability possessed by students to carry out their work properly and correctly (Wijaya et al., 2020). The competencies possessed by students when carrying out industrial practice will support the quality of their work. This is in line with several research results which reveal that employee competence has a significant effect on employee performance (Suarjana, 2022; Wijaya et al., 2020; Firmansyah & Nugrohoseno, 2022). So that the competencies possessed by students will support the success of a job and the achievement of partner goals. Of course, this is also a factor that triggers student success in carrying out industrial practice.

#### *Student personality*

Student personality is a combination of thoughts, emotions, and student behavior patterns that can influence interactions with situations or other people. There are several positive personalities that students must have when carrying out industrial practice, one of which is an obedient and disciplined personality. In carrying out industrial practice, high attendance indicates that students have an obedient and disciplined personality. This was expressed by participants in the FGD as follows:

*"... attendance also affects success because it is like the project is something that continues to develop so for example, missing one point of development can affect our understanding of what our internship is all of a sudden here is the*

*process, the purpose of our internship is to know how the process is like in full, apart from being diligent in coming to the project but also related to being diligent in completing the job desk." (RJS, 18/08/2023)*

In addition, when students are diligent in coming to the project, the new knowledge that exists will be conveyed all well without any missed parts. Thus, the personality of students is very important and influences the success of implementing industrial practice. The results of students' learning experiences and success factors in implementing industrial practices are illustrated in Figure 10.

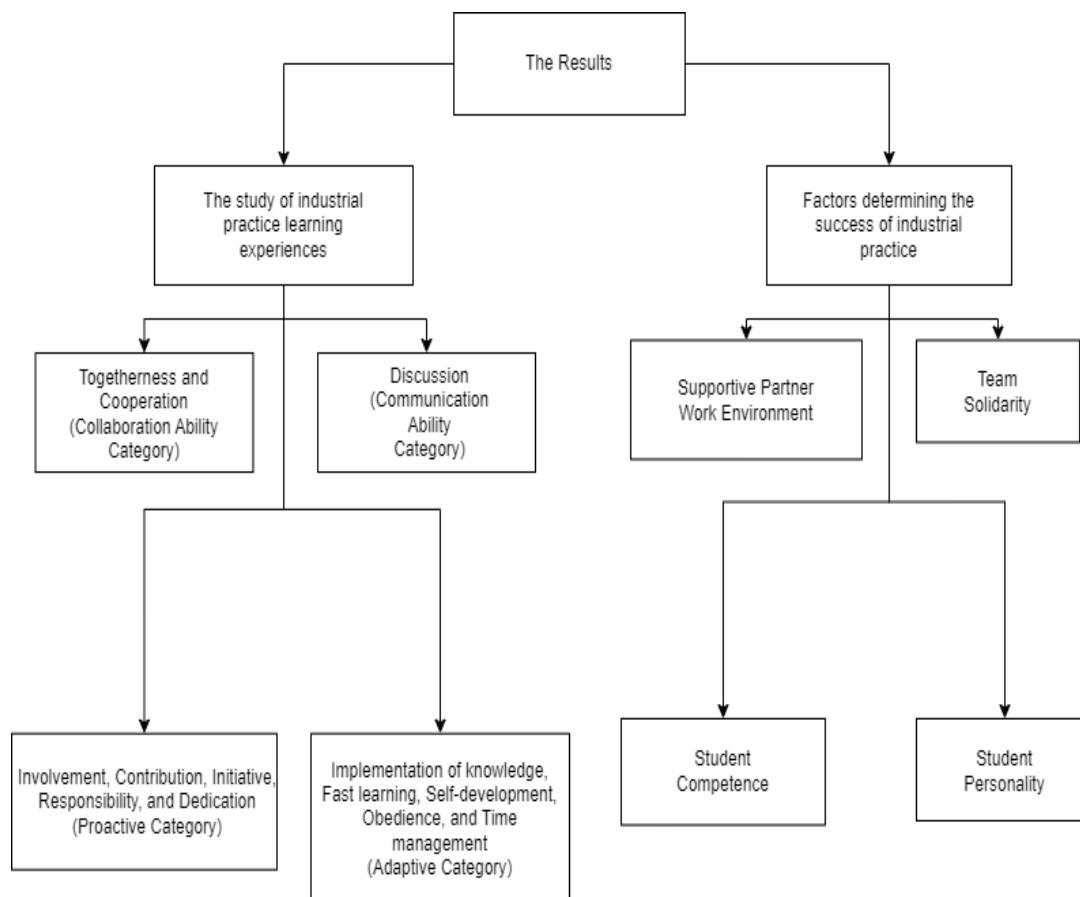


Figure 10. Photovoice: Own field inspection

## Conclusion

In this study, the determining factors for the success of the implementation of industrial practice in relation to the industrial practice course in the building engineering education study program at one of the universities in Indonesia were found. Based on the results of the analysis, it was determined that the main factors influencing the success of industrial practice work were:

- 1) a supportive partner work environment;
- 2) team solidarity;
- 3) student competence;
- 4) and student personality.

These factors were obtained from the analysis of students' practical learning experiences in the industry from the categories of collaboration skills, communication skills, proactiveness, and adaptability. The findings of this study can be used to prepare the practical learning process and can be adapted to the context of other fields, besides industrial practice in building engineering

education. The limitations of this study refer to the selection of only one university; however, further research can include more universities to create a more balanced sample in one country.

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