
EVALUATION OF STUDENT PERFORMANCE IN THE JAPANESE APPRENTICESHIP PROGRAM

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ABSTRACT

Apprenticeship programs are considered as an effective learning method to improve the job skills of prospective workers. The Japanese apprenticeship program highlights 5 work principles consisting of Seiri, Seito, Seiso, Seiketsu, Shitsuke (5S). However, until now, the apprenticeship program's effectiveness in Japan to foster 5S work principles for students has not been much evaluated. The objectives of this study were (1) to describe the student's 5S performance profile; (2) factors affecting the implementation of student 5S performance in the apprenticeship program in Japan; (3) the benefits of the Japanese apprenticeship program. This study involved 69 students who were apprenticed in Japan. The data collection used a questionnaire, and the data were analyzed using descriptive analysis. The study results revealed that the student's 5S performance was considered good during the apprenticeship program in Japan. Besides, the study results also show that ten factors affect student performance when participating in an apprenticeship program, namely self-discipline, technology, equipment arrangement, workplace, job planning, worker characteristics, management support, work type, job characteristics, and the existence of training. Finally, the apprenticeship program in Japan provides benefits to the development of student work competencies which include aspects of knowledge, attitudes, and skills. This study recommends the need to develop and strengthen apprenticeship programs with a positive work culture that can encourage student performance improvement.

Keywords: apprenticeship, Japanese work culture, work discipline, work behavior

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INTRODUCTION

The 21st century is marked by trade liberation, which requires serious efforts to improve human resources quality, ready and able to face competition. Changes that are so complex and fast will profoundly impact the educational process; therefore, the education process must consider the needs of the world of work, especially the world of industry and the world of work (Lusk & Bullock, 2013). The demands for change have a profound impact on the education process so that it requires the right patterns and strategies in the management of education. The development of vocational education cannot be separated from the characteristics of the world of work and the workforce needed. Therefore, the management of education needs to pay attention to this problem so that society's progress and prosperity can be achieved immediately.

The big concern faced by the world of work today is how to get good workers, reliable, responsible, careful, neat, able to solve problems and have the skills and ability to work together with high performance. This situation requires the world of work to be very selective in choosing

or recruiting prospective workers who are truly professional and needed in their fields. This situation is a challenge for universities in the vocational field to prepare graduates as well as possible to produce graduates who are well accepted in the world of work. Responses that can be taken to answer this challenge can be started from education policy, curriculum design, and learning management to measure success. One of the vocational training programs that are considered to improve student job skills significantly is the apprenticeship program.

The industrial apprenticeship program is a process of introducing students to the world of work. They learn various job skills, technical skills, soft skills, work standards, process standards, and results, all of which will foster and develop the meaning of work following their profession's demands. Also, the apprenticeship program is a job training program that offers real work experience in the industry. Providing real work experience is very important for vocational students to increase the relevance of their work competencies. This relevance is related to the development of labor needs, which are relatively constantly changing. Students will also get more marks because students can improve their performance when they are involved in an apprenticeship. Another understanding is that the apprenticeship program is considered a place of learning to work, learning about work, and understanding the meaning of work that is in line with the demands of industrial work. It is hoped that the involvement of students in the apprenticeship program will have better competencies due to the synergy between the world of education and the world of work and is increasingly relevant to changes in industrial work competency structures.

Currently, the apprenticeship program's implementation is not only implemented in the country but has been carried out overseas, such as in Japan. Choosing an apprenticeship in Japan is a form of the institution's responsibility for global graduate work competencies. As a country that is advanced in applied technology, Japan has discovered many food processing technologies. Many various exhibitions show the development of food technology in Japan for increased productivity, greater efficiency, and better quality (Asianet, 2018). The advancement of the invention of food technology has influenced the food and beverage production system in Japan. Therefore, it is very appropriate that Japan is one of the options for apprenticeships for vocational students in Indonesia, especially in the culinary field.

An apprenticeship program in Japan is packaged in industrial work practice for 6 months or more, which is the perfect time to develop students' employability. Apprenticeship is one of the teaching methods that are still relevant to use in vocational education because this program offers practical work practices that can improve student work competence. Scholars also convey that apprenticeship is a training program that provides real work experience in the industry (Andersson et al., 2015; Mahfud et al., 2017; Sharpe & Gibson, 2005). The culture that is built while students work in the workplace will foster a relatively sedentary work ethic. Japan is known for its strong human resources assets, hard work awareness, and sincere responsibility towards work, willing to study seriously. This is why the work culture in Japan is good and harmonious. Also, Japan has known for its good Total Quality Management (TQM) implementation in most industries. The TQM principles they often use are Kaizen or Continuous Improvement, Just-In-Time factory processes, and several other techniques to produce better product quality. Among them, the most basic and become culture is the 5S principle, which consists of Seiri, Seiton, Seiso, Seiketsu, Shitsuke. This working principle highlights the importance of good workplace management through concise, neat, clean, maintenance, and habituation. Although Japan's work culture is well known, there are not many studies that discuss 5S performance development through an apprenticeship program. Therefore, this study aims to reveal the achievement of 5S student work behavior through an apprenticeship program in Japan. Besides, this study also highlights the factors that influence 5S student behavior development through an apprenticeship program in Japan. And finally, this study aims to find out the exploration of student competency development through an apprenticeship program in Japan.

Apprenticeship Program

Apprenticeship is the oldest learning method known in vocational education and is still widely used today. One of the desired outputs through the apprenticeship program is job

readiness. Partially students and students who take industrial apprenticeship levels of work readiness increase by 10.69% (Zulaehah et al., 2019). Apprenticeship can also be assessed as a process of learning in the workplace (workplace learning). Students will learn how to do a job with work standards set by the company. Students will learn how to work in the workplace, learn to interact with the work environment, grow the capacity needed to carry out a job or a position. With an apprenticeship, work habits will be formed that support effective and efficient work. In general, apprenticeship programs are company-based programs that combine hands-on experience in the workplace with formal theoretical training. This program integrates theory and practice in skills learning, and apprenticeship programs are considered as the most efficient type of vocational education and training (VET) to facilitate the transition of students from education to work (Biavaschi et al., 2013; Eichhorst et al., 2015; Wolter & Ryan, 2011).

Apprenticeship provides work experience and provides skills training according to the competencies needed by the industry (Mahfud et al., 2017). In other words, apprenticeship is work-based training to gain technical and non-technical work experience so that students are ready to work. If possible, students get recognition or competency certification that is trained in the workplace. In fact, there are many benefits obtained from apprenticeships, including: (1) students will gain insight on how to work in the workplace; (2) fostering good relations between campuses and institutions providing apprenticeships; (3) improve student job skills. In business schools, the apprenticeship program is the main program because it allows students to gain real-life experience and work experience. The apprenticeship program is a staple of various business schools because it provides opportunities for students to gain real experience and work experience useful in determining jobs after graduation (Wolter & Ryan, 2011). Besides, the apprenticeship program is also beneficial for students when they first work in the world of work, enhancing personal development, strengthening university and community partnerships (ILO & APINDO, 2015). Besides, it is an advantage for the company. In the apprenticeship process, the company can take advantage of student job assistance to screen future employee candidates.

According to Gessler (2019), apprenticeship training is a training process so that participants become skilled workers through a combination of classroom learning and on-the-job training. This method traditionally involves participants (learner/apprentice) studying under expert guidance in their field. The apprenticeship program can be carried out in various ways, including (1) informal model, meaning that unofficially students work according to their needs. Students can take this during semester breaks at various companies that require apprenticeship students; (2) the semi-formal / apprenticeship model that is served according to time; (3) apprenticeship is output-oriented, which emphasizes the mastery of defined work competencies; (4) the apprenticeship model is input-oriented, meaning that the apprentices are selected; (5) process-oriented apprenticeship model, which means building a company work culture; and (6) the collective apprenticeship model, meaning that the apprenticeship is carried out in large groups, following the company's line of work (Gessler, 2019).

Work Principles in Japan Japan is well known for its continuous improvement or Kaizen quality management principle. This means that every job must be done and completed on time. There is an optimization of costs and time to produce high-quality products (Suwondo, 2012). This principle is based on the philosophy that life should focus on continuous improvement or continuous efforts. Kaizen consists of two words; Kai changes, and zen is good. The meaning is that there are always changes towards continuous improvement or refinement. This change involves everyone involved in the company. Not only leaders, but all workforce must be built on Kaizen's principles. Apprenticeship students as part of the workplace workforce will automatically be directly involved in the Kaizen principle's working mechanism. This experience will bring about a change in the student's perspective of the meaning of work in line with industrial work demands.

Besides, the working principle in Japan is known as 5S. The term 5S comes from the first letters of the Japanese term, namely Seiri, Seiton, Seiso, Seiketsu, and Shitsuke. Seiri means concise, meaning work behavior to regulate everything, sorting according to certain rules and principles. This means distinguishing between what is needed and what is not needed. When

working, workers must remove objects that are not needed or used for work. Items that are on the job site are only items that are really needed for work activities. At maximum, the work location is only for storing used items. Seiton means neat, meaning that everything must be placed according to the determined position so that it is ready to be used when needed. It Means storing goods in the right place or the correct layout so that they can be used in an emergency or ready to use at any time. This is also a way to eliminate the search process's time, making it easier to search, especially if other people do not know the previous storage location. If something is kept in place for quality and safety, then you have a tidy workplace.

Another principle is seiso, which means clean. This term means to clean things, so they are clean. This means that cleaning trash, dirt, and foreign objects and cleaning everything is an activity to clean equipment and work areas to maintain all work equipment in good condition. The work environment is always kept clean before, during, after work, and when leaving the work area. Besides, seiketsu is a great treatment. This working principle aims to ensure that all equipment, machinery, work environment, and other conditions are well maintained following established SOPs. This means continuous and repeated maintenance, sorting, and cleaning. Finally, shitsuke means diligent. That is, steps to self-awareness of work ethics include discipline on work standards that are posted in the workplace. This discipline is important to be able to carry out the 5S program in a sustainable manner.

METHODS

This study involved 69 students from one of the state universities in Yogyakarta, Indonesia. The student is involved in an apprenticeship program in Japan in the food production industry, namely Domremy Co., Ltd and Sagami Fresh Co., Ltd. They attend an apprenticeship program in Japan for 6 months to 1 year. This study's data collection uses a questionnaire, and students fill out the questionnaire after they have finished participating in an apprenticeship program in Japan. The questionnaire was used to reveal the 5S student performance evaluation during the apprenticeship program in Japan, the factors that influence it, and to explore the competency development of the apprenticeship program. Data analysis used quantitative descriptive analysis.

Table 1. Background of participants

Attribute	Categories	N	%
Gender	• Male	23	33
	• Female	46	67
Apprenticeship duration	• 6 months	16	23
	• 7 months	13	19
	• 12 months	40	58

FINDINGS AND DISCUSSION

Apprentices Performance in Japan

This study involved 69 students who took part in an internship program in Japan. Respondents consisted of 33% male and 67% female. Students attend an internship program in Japan for six months. Evaluation of 5S performance achievements consisting of seiri, seiton, seiso, seiketsu, and shitsuke after participating in the internship program is shown in Figure 3. Based on the assessment with a measurement scale of 1 to 10, the average student 5S performance achievement is above 8.5. This means that the student's performance after participating in the apprenticeship program in Japan is considered good.

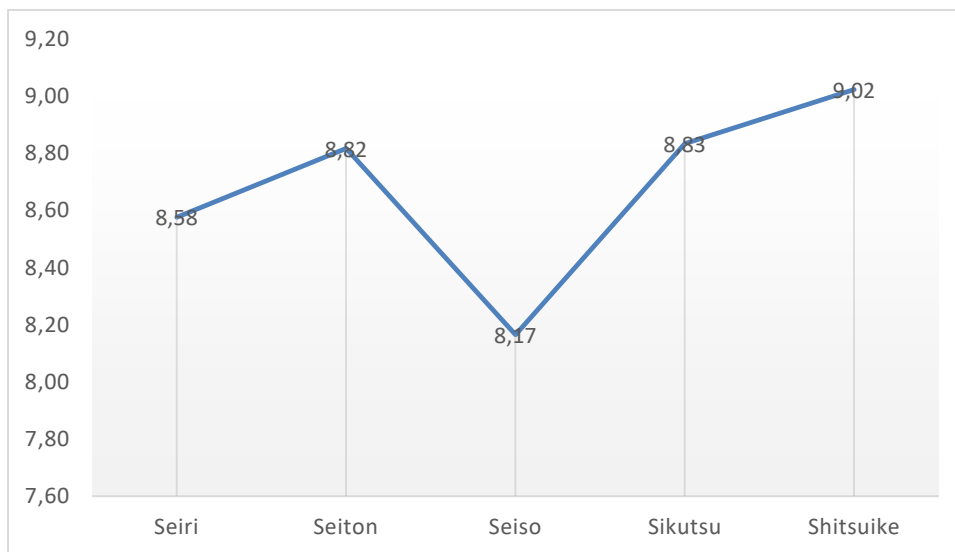


Figure 1. 5S Student Performance in the Japanese Apprenticeship Program

Based on Figure 3, it is known that all aspects of the student 5S performance appraisal shows good results. The individual aspects of the student during the internship scored 8.58. This means that during the apprenticeship program, students can work concisely and use tools according to work needs. Besides, the seiton aspect shows good performance too. The ability of students to work in industrial places to work neatly and regularly is considered good. Students are accustomed to arranging kitchen items neatly and placing them according to their storage. Meanwhile, the seiso aspect shows the lowest performance but is still in the good performance category. Seiso means the ability to work cleanly. This means that students are used to cleaning trash, dirt, and foreign objects and cleaning up everything in the workplace. This work behavior is critical because maintaining cleanliness will guarantee food safety and health to customers.

Another aspect is seiketsu. This aspect describes work behavior to maintain work facilities and equipment. Cultivating this behavior for every worker will provide an advantage for the industry, reducing the cost of repairing work equipment. Students can demonstrate the behavior of maintaining, sorting, and cleaning work equipment. Lastly, the shitsuke aspect of students at work shows good results. This means that students' work behavior during their apprenticeship program in Japan is considered diligent and able to follow all workplace procedures. Overall, during the apprenticeship program, students' work behavior showed good results, with an average score of 8.7. This work behavior's achievement must be maintained and even need to be improved to obtain maximum performance.

Factors that influence the Implementation of 5S Performance

5S performance behavior in Japan is a positive work habit and needs to be imitated by Indonesian workers. And this behavior has become the working culture of the society in Japan until now. However, the question that often arises is how to shape this behavior? In fact, many factors affect the performance of 5S workers, including self-discipline, technology, equipment arrangement, workplace, job planning, worker characteristics, management support, type of work, job characteristics, and training. The survey results show that ten factors influence student performance when participating in an internship program.

The descriptive data below shows that several factors affect student performance, starting from the most influential to and not. Table 1 shows the factors that influence student 5S performance in the apprenticeship program in Japan. The three most influential factors are discipline, technology, and equipment arrangement. These three factors are the most prominent factors related to work culture and the development of work equipment and technology in Japan. Thus, disciplined work behavior that has been entrenched in Japanese society can motivate

students to work in a disciplined manner. Meanwhile, the three lowest factors that influence student 5S work behavior are factors of type of work, job characteristics, and presence of training.

Table 2. Factors Affecting 5S Behavior in the Apprenticeship Program in Japan

Rank	Factor	Average	Percentage (%)
1	Self Discipline	3,80	76,0
2	Technology	3,64	72,8
3	Equipment Arrangement	3,62	72,4
4	Workplace	3,58	71,6
5	Job Planning	3,58	71,6
6	Worker Characteristics	3,57	71,4
7	Management support	3,49	69,8
8	Work type	3,49	69,8
9	Job characteristics	3,36	67,2
10	The existence of training	3,35	67,0
	Average	3,55	71,0 %

Table 1 shows that the discipline factor is the most important in shaping student 5S performance. Individuals who can form disciplinary behavior will be closer to 5S work behavior. Thus, forming disciplinary behavior for students is an absolute must to prepare them to enter the world of work. Likewise, previous studies have also stated that discipline is an important factor for improving performance (Waris, 2015). Although discipline is an important factor influencing 5S work behavior, the discipline itself is influenced by several factors such as environmental factors, work rules, and personal. Figure 4 shows that environmental factors have a great influence on work discipline behavior. This means that a positive work environment such as peer support, management support, facility support, etc., will encourage changes in student disciplinary attitudes when doing internships.

The second supporting factor is personal factors, including motivation, self-efficacy, knowledge, self-awareness, a sense of responsibility towards work, a desire to maintain quality, and a better desire. Finally, regulations or work policies from management. Management policies that require each employee to work discipline, either in the form of written policies such as work procedures or SOPs or unwritten policies, will encourage students' disciplinary attitudes.

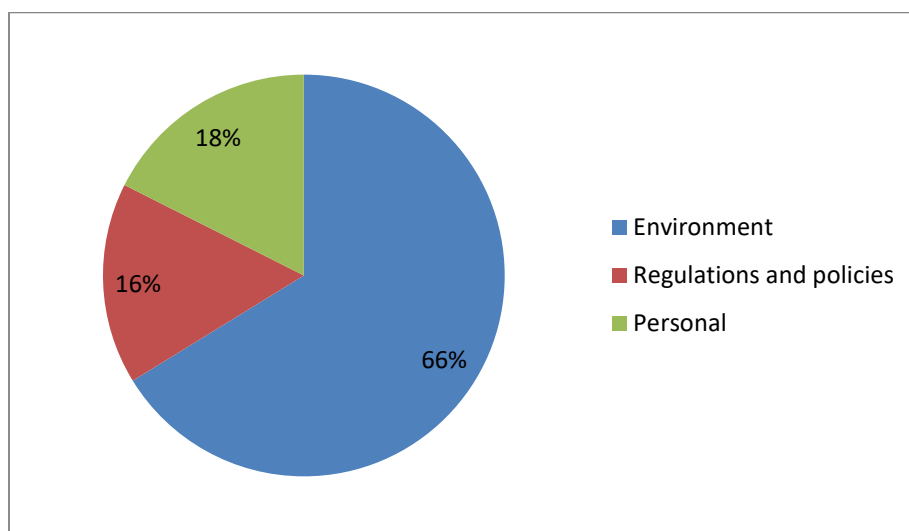


Figure 2. Supporting factors for disciplinary attitudes in carrying out 5S while in Japan

Competencies Exploration in Apprenticeship Programs in Japan

Most of the scholars agreed that the apprenticeship program had an impact on increasing the competence of apprentices. For example, Mahfud et al. (2017), in their study, revealed that the hotel apprenticeship program had an impact on improving the soft skills of polytechnic students. The same thing was also found in the implementation of the apprenticeship program in Japan; this program had a positive impact on the development of student work competencies, which included aspects of student knowledge, attitudes, and skills. The aspects of knowledge obtained by students during the internship program in Japan are shown in Table 2. Students' content of knowledge in the apprenticeship program includes knowledge of Japanese culture, work procedures, food production, hygiene sanitation, quality control, work ethic, technology, and mass production.

Table 2. Knowledge Aspects of the Apprenticeship Program in Japan

No	Knowledge Aspects
1.	Knowledge of Japanese culture
2.	Knowledge of discipline time at work, SOP in work, hygiene sanitation.
3.	Knowledge of SOPs in work, hygiene sanitation. .
4.	Knowledge about sanitation hygiene.
5.	Knowledge of the division of tasks according to expertise
6.	Knowledge of the production process
7.	Knowledge of how to control inventory
8.	Knowledge of how to estimate the production process time
9.	Knowledge of the Japanese work ethic, (to be more active and persistent in working, understanding the balance of nature and living things).
10.	Knowledge of the technology used.
11.	Knowledge of how to mass produce food

Apart from the knowledge aspect, students also get a work attitude development during their internship program in Japan. Several types of work attitude development in the apprenticeship program in Japan are shown in Table 3.

Table 3. Attitude Aspects of the Apprenticeship Program in Japan

No	Attitude	No	Attitude
1	Discipline	20	Mutual respect
2	Environmental sensitivity	21	Work fast, effectively, efficiently
3	Cleanliness	22	Organize yourself
4	Neatness	23	Be aware of his role
5	Consistent	24	Persistence
6	Work ethic	25	Work attitude
7	Consciousness respects time	26	Focus on objectives
8	Standard Operating Work procedures	27	Obedience
9	Spirit at work	28	Appreciate other people's work
10	Regularity	29	Obey the rules
11	Independence	30	Works perfectly
12	Responsible	31	Honest
13	Compactness	32	Does not harm others

14	Accuracy	33	Cooperation
15	Mutual respect	34	Manners and ethics
16	Prioritizing work safety	35	Aesthetics
17	Hard work	36	Appreciate work
18	Balance	37	Confidence
19	Mutual respect		

In the aspect of skills, students acquire job skills development in the culinary field. Some of these skills include food production, quality control, sanitation hygiene, work procedures, and work time management (see Table 4). Students' skills are related to job skills in the food production sector, especially in the pastry and bakery fields. Students' food production ability is a vital aspect that they need to master when entering the world of work. The food production capabilities include the preparation, processing, and serving of food and beverages. However, mastery of food production is not enough; students need to understand and apply the principles of hygiene sanitation. This working principle will assure health and food safety for customers. Previous studies revealed that chefs' important competencies are hygiene and food safety (Mahfud et al., 2019).

Another skill is quality control. Scholars have highlighted the importance of implementing quality control in the food industry sector (Hu et al., 2019; Jindal, 2020; Ma et al., 2020). Because this aspect can guarantee the quality of culinary products sold to consumers, the quality of the product must be adequate in terms of taste and food safety, meaning that eating quality is delicious and healthy food. This is where quality control skills play an important role in ensuring the products' quality to be sold. Quality control skills are closely related to work procedures, usually one of the steps to control quality, namely by following work procedures established by management. Furthermore, another skill is time management. These skills lead to work effectively and efficiently, which leads to increased performance. In addition to being known for its disciplined behavior, Japanese society is also known for good time management. So, this program is excellent for Indonesian students to learn about Japanese society's work culture.

Table 4. Skills Experience in the Apprenticeship Program

No	Acquired skills
1	Skills to estimate the time of the production process related to production efficiency
2	Ability to control inventory
3	Skills in maintaining cleanliness, tidiness, and applying hygiene sanitation
4	Skills in implementing standard operating procedures
5	The ability to work faster, effectively, and efficiently

Thus, the implementation of an apprenticeship program in Japan is considered to impact students positively. The apprenticeship program is a forum for students to implement the knowledge they gain during their studies. Besides, internships can provide real work experience for students, especially on 5S work behavior, namely seiri, seiton, seiso, seiketsu, and shitsuke. Even though the work behavior is familiar in Indonesia, the excellence of the Japanese people's work behavior regarding the implementation of 5S behavior is a best practice means of implementing good work behavior. And hopefully, students can re-implement these work behaviors in the work environment in Indonesia.

CONCLUSION

The apprenticeship program is an important learning method in vocational education because it offers learning based on real work experiences. The results of this study revealed that the achievement of 5S student work behavior consisting of seiri, seiton, seiso, seiketsu, and

shitsuke showed good results when they joined the apprenticeship program in Japan. The survey results also show that ten factors affect student performance when participating in an internship program: self-discipline, technology, equipment arrangement, workplace, job planning, worker characteristics, management support, work type, job characteristics, and training. Finally, the apprenticeship program in Japan provides benefits to developing student work competencies, including aspects of knowledge, attitudes, and skills. This study's results have implications for the importance of strengthening the apprenticeship program as learning based on real work experiences for vocational students.

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