Employability Skills of Higher Education Graduates: Analysis of the Undergraduate Program of Building Construction Education

Wahyu Dwi Mulyono[1] Gde Agus Yudha Prawira Adistana[2] and Agus Wiyono[3]

[1,2,3] Faculty of Engineering, Universitas Negeri Surabaya, Surabaya, Indonesia 60231
wahyumulyono@unesa.ac.id

Abstract. The 21st century is the century of knowledge, information technology, and the industrial revolution 4.0. In this century, changes occur very quickly and are difficult to predict. Results Based on a survey of graduates in 2020 of The Undergraduate program of building construction education, Faculty of Engineering, Universitas Negeri Surabaya, there are 43% of graduates are not yet working. The purpose of this study is to analyze the skills of graduates possessed and needed by the industrial world. This research is descriptive research with a quantitative approach. The subjects of this research are all alumni of the Bachelor of The Undergraduate program of building construction education who graduated in 2020. The results of this study are as follows. (1) The highest skills possessed by graduates are ethics, use of information technology, communication, self-development, and teamwork. (2) The highest skills needed by industry are communication skills, ability to work under pressure, analytical skills, responsibility, and ethics (3) Overall the value of skills required by industry is higher than the average score skills possessed by graduates.

Keywords: Employability skills, Undergraduate program of building construction education, Graduate skills, Skills required by industry

1 Introduction

The 21st century is the century of knowledge, information technology, and the industrial revolution 4.0. In this century, changes occur very quickly and are difficult to predict. Changes that occur can provide opportunities, but can also be a threat if not anticipated properly.

These changes trigger the emergence of changes in the field of skills in the industrial world. Predicting the skills needed will be very difficult because it depends on the field and sub-jobs that are the focus of these skills. The 21st century raises the need for new types of skills that did not exist before, as well as eliminating skills that are no longer relevant.

The problem solving, team working and communication are the skills most needed. Communication and collaboration are essential 21st-century skills because so many jobs of tomorrow will require them. The survey results concluded that problem-solving (50%), teamwork (35%), and communication (32%) were the top three skills needed by the company [1].

A. Mustofa et al. (eds.), *Proceedings of the International Joint Conference on Arts and Humanities 2023 (IJCAH 2023)*, Advances in Social Science, Education and Humanities Research 785,
https://doi.org/10.2991/978-2-38476-152-4_197

The survey results for ages 18-25 years, communication ranks second, and for ages, 11-17 years ranks third. In addition, there are also other skills needed by companies, namely digital literacy, creativity, and entrepreneurship. The P21 framework is called the 4Cs (communication, collaboration, critical thinking, problem-solving, and creativity and innovation) [1].

Sustainable Development Goals (SDGs) number four recognizes the importance of vocational education as a core part of the development of technical and vocational skills, decent work and entrepreneurship [2]. TVET is an important element in the country's development to provide the jobs needed by the industry [3]. Vocational education qualifications earn higher wages. For example, graduates of vocational education in India earn 20 percent more than graduates of general education [4].

One of the important factors in the implementation of education in Vocational High Schools (SMK) is the teacher. Teachers must have pedagogical and technical abilities. Pedagogical ability is the ability to carry out learning from planning, and implementation, to learning evaluation. Technical ability is the ability in technical or vocational fields in the form of knowledge (cognitive) and skills (psychomotor) that will be taught to students.

Universities that produce graduated a teacher should receive special attention. Universities that hold teacher procurement programs are called Education Personnel Education Institutions (LPTK). Many LPTKs have now become universities so that they not only organize programs that produce teachers but also produce graduates of pure and applied sciences. So programs that produce teacher graduates must compete and adapt to the changes that occur.

The Undergraduate program of building construction education, Universitas Negeri Surabaya is one of the programs that produce vocational high school teacher graduates. Based on the results of the tracer study data in 2020, it was found that the percentage of graduates who have not worked is still high. It is found that there are 41.30% of graduates have not found work. This data is quite high compared to the expectations of all graduates absorbed in the world of work. One of the main factors so that graduates can be absorbed in the industry is employability skills.

Employability skills are skills to get or maintain a job [5]. Employability skills are non-technical skills needed to enter the world of work [6]. Employability skills need to be owned by all career levels in the world of work to be able to always work effectively and efficiently.

The employability skills of college graduates are communication, teamwork, analytical and critical thinking, learning abilities, IT, organization, and planning [7]. The employability skills for the 21st century consist of five major skills, namely team player, self-motivation, verbal communication, problem-solving, and being proactive [8]. In the industrial revolution 4.0 era, several skills are needed, namely self-management, critical thinking, responsibility, communication, teamwork, emotional intelligence and others. [9].

There are severals skills are considered very important by students where discipline is at the top. In addition, there is a significant relationship between graduate skills and gender and there is also a significant relationship between skills and institutions [10]. Personal qualities, professional skills, job-seeking skills, and transferable social skills have a positive influence on graduates' confidence to work. [11].

Based on the description above, the purpose of this research is to analyze the work skills of graduates that are owned and needed by the world of work, especially in the undergraduate building construction education program.

2 Method

This research is descriptive. This study aims to collect information about the work skills of graduates of the undergraduate program of building construction education which are possessed after graduation and which are needed when working in the world of work.

This research was conducted for six months starting from June 2021 to November 2021. The population of this study was all alumni of the undergraduate program of building construction education, Faculty of Engineering, Universitas Negeri Surabaya. The sample of this research is alumni who graduated in 2020 with a total of 54 respondents.

This questionnaire was made by consisting of a list of statements about the work skills of graduates with five choices of answers on a Likert scale. This questionnaire can be accessed by alumni or graduates through the link address http://tracerstudy.unesa.ac.id/, making it easier to fill out the questionnaire. Based on the literature study, there are 26 statements about the skills described in the questionnaire, which include communication, working under pressure, responsibility, analytical skills, ethics, internet skills, self-development, general knowledge, adaptation, learning ability, use of information technology, cooperation. team, initiative, time management, problem-solving, tolerance, loyalty, critical thinking, leadership, presentation skills, knowledge-based expertise, integrity, research skills, report writing skills, negotiation, and English language skills.

The data analysis used a quantitative descriptive technique. The data that has been obtained from the questionnaire is then tabulated the data, then analyzed, and arranged in tables and graphs.

3 Results and Discussion

3.1 Skills of Graduates

The work skills possessed by graduates are the skills possessed by alumni when they graduate from the undergraduate program of building construction education. The results of the average work skills possessed by graduates can be seen in Fig. 1.

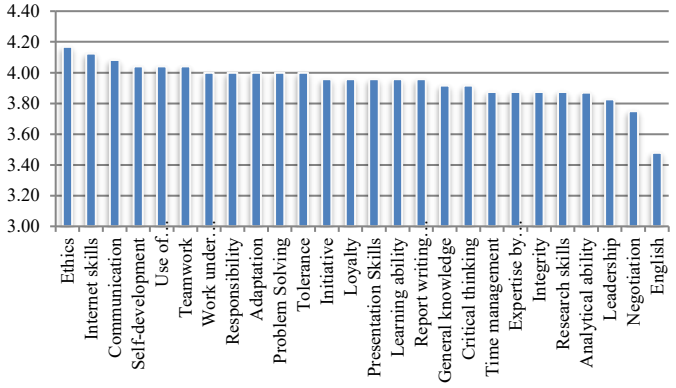

Fig 1. Work skills possessed by graduates.

Based on Fig. 1, it is found that of the 26 work skills, the order of skills from the highest to the lowest value is obtained. There are five skills that alumni have when they graduate from college with the highest average scores, namely ethics, internet skills, communication, self-development, information technology skills, and teamwork. While the abilities that have the lowest scores are leadership, negotiation, and English.

3.2 **Skills Industry Needs**

The skills needed by the industrial world are skills that must be possessed when working in the industry. These skills are required when alumni are already working in the industry. The average results of the work skills needed by industry can be seen in Fig. 2.

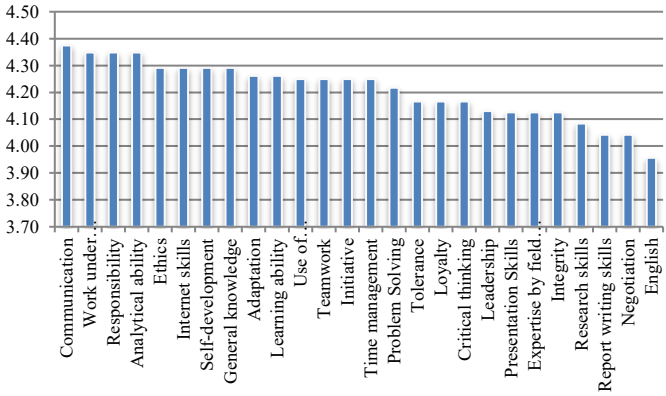

Fig 2. Graduate skills required by the industry.

Based on Figure 2, it is found that of the 26 work skills, the order of skills needed by the industry is from the highest to the lowest value. There are five skills needed in the world of work with the highest average score, namely communication, working under pressure, responsibility, analytical skills, and ethics. Meanwhile, the ability that has the lowest score is the ability to make reports, negotiate, and speak English.

These skills can be taken into consideration in learning in higher education. These results are from a study that states that communication, thinking, and problem-solving skills are considered very important by employers or industry, so the management team of vocational colleges should develop students with these attributes before they proceed to the job search process [12].

3.3 Comparison of the skills

The skills possessed by graduates and the job skills required by the industry are ideally the same. The results of a comparison between the skills possessed by graduates and the skills needed by the industry can be seen in Figure 3.

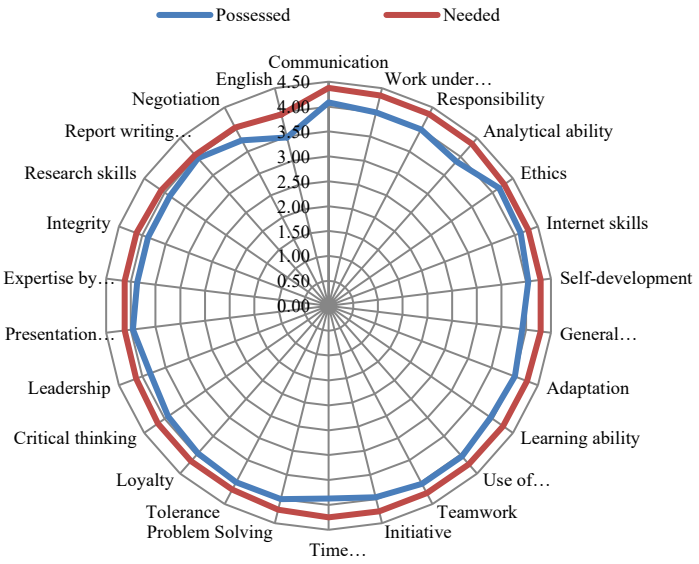

Fig 3. Comparison of work skills.

Based on Figure 3 it is known that the work skills required by the industry are higher than those possessed by graduates. This shows that it is necessary to increase the skills of graduates. One way is by incorporating the work skills needed by the industry into the learning outcomes in the study program curriculum.

Learning by incorporating work skills as one of the strategies to improve graduate work skills. The importance of embedding work skills in the curriculum needs to be

supported by proper learning, and provides an assessment of the quality of work. So that it is necessary to redesign the curriculum that can link learning activities with the skills desired by the world of work [13].

4 Conclusions

Based on the results and discussion above, the conclusions of this study are as follows. (1) The top job skills possessed by graduates are ethics, use of information technology, communication, self-development, and teamwork. (2) The top job skills needed by the world of work are communication skills, ability to work under pressure, analytical skills, responsibility, and ethics (3) Overall the value of skills required by the world of work is higher than skills possessed by graduates

Based on the conclusions above, it has implications for higher education providers, education providers must pay attention to the work skills needed by the industry, so that they have graduated with skills that are by the world of work, one way that can be taken into consideration is work-integrated learning, namely entering work skills into the curriculum.

References

1. L. Kenworthy and P. Kielstra, Driving the skills agenda : Preparing students for the future. New York: Economist Intelegnce Unit (2015).
2. UNESCO, Strategy for Technical and Vocational Education and Training (TVET). Paris: United Nations Educational, Scientific and Cultural Organization (2016).
3. S. Wilkins, "Human Resource Development Through Vocational Education in The United Arab Emirates: The Case of Dubai Polytechnic," J. Vocat. Educ. Train., vol. 54, no. 1, pp. 5–25 (2002).
4. T. Agrawal and A. Agrawal, "Vocational Education and Training in India: a Labour Market Perspective," J. Vocat. Educ. Train., vol. 69, no. 2, pp. 246–265 (2017).
5. L. Brewer, Enhancing youth employability : What? Why? and How? Guide to core work skills. Geneva: International Labour Organization (2013).
6. S. Munadi, Employability Skills Lulusan SMK dan Relevansinya Terhadap Kebutuhan Dunia Kerja. Yogyakarta: UNY Press (2018).
7. F. Suleman, "The employability skills of higher education graduates: insights into conceptual frameworks and methodological options," High. Educ., vol. 76, no. 2, pp. 263–278 (2018).
8. D. McGunagle and L. Zizka, "Employability skills for 21st-century STEM students: the employers' perspective," High. Educ. Ski. Work. Learn., vol. 10, no. 3 (2020).
9. W. Teng, C. Ma, S. Pahlevansharif, and J. J. Turner, "Graduate readiness for the employment market of the 4th industrial revolution: The development of soft employability skills," Educ. Train., vol. 61, no. 5 (2019).
10. I. A. G. Azmi, R. C. Hashim, and Y. M. Yusoff, "The Employability Skills of Malaysian University Students," Int. J. Mod. Trends Soc. Sci., vol. 1, no. 3, pp. 1–14 (2018).
11. L. Nicolescu and C. Nicolescu, "Using PLS-SEM to build an employability confidence model for higher education recipients in the field of business studies," Kybernetes, vol. 48, no. 9, pp. 1965–1988 (2019).

12. M. A. Haron, M. A. Mohammad Hussain, R. M. Zulkifli, I. M. Nashir, and N. N. I. Ma'arof, "Employability skills needed by vocational college graduates: Feedback from industries," J. Tech. Educ. Train., vol. 11, no. 4, pp. 86–94 (2019).
13. A. D. Rowe and K. E. Zegwaard, "Developing graduate employability skills and attributes: Curriculum enhancement through work-integrated learning," Asia-Pacific J. Coop. Educ., vol. 18, no. 2, pp. 87–99 (2017).