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Research paper

Data Distribution Analysis of Alumni of the Civil Engineering Study Programme as a Response to LAMTEK Accreditation Standards

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ABSTRACT

Background: A higher education quality assurance system through accreditation activities is necessary as an indicator for measuring the quality of higher education institutions to ensure that the needs of students and the community are met in accordance with established quality standards. This study aims to determine the achievements of graduates against the gold standard of Surabaya State University (UNESA), determine the time required for graduates to find their first job, evaluate the relevance of the field of study to the graduates' fields of work, and identify the scale of their workplaces.
Methods: Tracer Study data were collected from Civil Engineering undergraduate alumni graduating between 2019 to 2022. Data were gathered in 2023 through questionnaires administered through the UNESA tracer study website. The responses were analysed using quantitative descriptive methods and presented in the form of percentage-based graphs.
Results: The distribution of Tracer Study data shows that the highest gold standard achievement was recorded in 2021, with 75% of alumni meeting the indicators. Regarding waiting time, more than 40% of graduates obtain their first job within three months across all years. The relevance between the field of study and the field of work reached over 40% for the 'Very Relevant' category, while the majority of alumni were employed in national-scale companies.
Conclusion: According to the Tracer Study data distribution analysis, Unesa's Gold Standard achievement reached 75%. Furthermore, the short waiting period for employment indicates the high level of graduate readiness for the workforce. The strong relevance between academic fields of study and professional fields of work, along with the dominance of employment in national-scale companies, indicates that the Civil Engineering Study Programme at Unesa is relevant to the needs of the labor market.

INTRODUCTION

In facing the era of the industrial revolution 4.0, the higher education sector in Indonesia plays a role in improving the quality of human resources. The higher the quality of education, the more competent the graduates will be. To ensure that higher education institutions can produce competent human resources, a quality assurance system is needed, as written in *Undang-Undang No. 12 Tahun 2012 tentang Pendidikan Tinggi pasal 51 (2),* which explains the implementation of a Higher Education quality assurance system by the government to achieve quality education that meets the National Higher Education Standards. Quality assurance includes the external and internal quality of the Higher Education study programmes, covering academic and non-academic components. According to *Permenristekdikti Nomor 23 Tahun 2016 tentang Program Studi dan Akreditasi Perguruan Tinggi*, this guarantee system is carried out through accreditation activities to ensure that the needs of students and society are fulfilled in line with predetermined quality standards. In its implementation, higher education accreditation is based on several relevant elements, including: curriculum transformation, the demands of the industrial revolution 4.0, university and industry partnerships, evaluation of results, and the application of technology (Aristya & Mahmud, 2023). To fulfil these elements, universities must complete accreditation data as a basic requirement that can be obtained through Tracer Study activities with factual and strategic graduate data results because the data obtained will play an important role in the implementation of university accreditation and certification as a form of curriculum evaluation to determine the achievement of alumni quality as a provision for graduates to face the industrial world (Herlitah, 2018; Prasetyo & Eviyanti, 2024; Arifudin et al, 2025).

Tracer Study is an alumni tracking activity to obtain alumni information related to waiting period for employment, fields of work, career paths, academic development, stakeholder satisfaction with alumni, and study programme performance, as well as alumni expectations regarding study programme performance (Mayasari et al., 2022). Through tracer study data, universities can also find out the relevance between higher education and the work industry so that universities are able to prepare student competencies according to job details both horizontally with various kinds of knowledge and vertically with different levels of education (Andari et al., 2021). The implementation of Tracer Study in Higher Education is also an opportunity for study programmes to review the curriculum periodically as an effort to improve student competencies that are in line with the world of work (Lestari & Amri, 2022). The Tracer Study is conducted in almost all universities in Indonesia with similar objectives, including at Universitas Negeri Surabaya (Unesa), which has been explained in the Unesa Tracer Study Guidelines, which tracks graduates within a period of one to two years after graduation in a homogeneous group of students who have completed their studies at the same point in time periodically. The guidelines also mention the specific objectives of Unesa in implementing the Tracer Sudy system, namely to explore information on graduates in the process of finding work, the number of applications that have been submitted by graduates to companies, the period of time alumni get a job after graduation, the suitability of competence and the field of work of graduates, the amount of salary received by graduates in their work, and the contribution of Higher Education to get a job.

The implementation of the Tracer Study by Surabaya State University, as discussed in this study, is in line with the accreditation response of the Civil Engineering undergraduate programme by the Independent Engineering Accreditation Agency (LAMTEK), which is one of the

accreditation agencies for engineering study programmes. The results of the Tracer Study will be the most significant point in the accreditation instrument, with alumni success indicators playing an important role in the accreditation assessment. In accordance with Peraturan Lembaga Akreditasi Mandiri Program Studi Keteknikan Nomor: 10/BATAPAPK-PII/229/VIII/2022 Tentang Perubahan Pertama Kriteria dan Prosedur Akreditasi Program Studi Lembaga Akreditasi Mandiri Program Studi Keteknikan, the productivity of outputs and outcomes, specifically the quality of graduates towards their usefulness in society, is one of the core dimensions of assessing the quality of higher education. These criteria form an essential element of accreditation assessment. The LAMTEK Regulation further specifies that the indicators for evaluating the output of the Dharma of Education include graduate competitiveness such as: (1) description of the implementation of the Tracer Study; (2) alumni waiting time to get their first job or entrepreneurship in a field relevant to the study programme; (3) percentage of relevance between alumni field of work to the study programme. Another indicator is the performance of graduates in terms of: (1) the implementation of a Tracer Study of alumni; (2) the level or size of the graduate workplace; and (3) the level of satisfaction of graduate users. For this reason, in this study, the analysis of the tracer study results focused on the indicators written in the LAMTEK regulations mentioned above, including the career path of alumni, the waiting time of graduates for their first job, and the suitability of graduates' work fields with competencies.

Relevant to Tracer Study research as a response to Higher Education accreditation, previously conducted by Susilawati et al. (2019), in the title 'The Important Role of Tracer Study as One of the Assessments in Improving the Clustering of Bandung State Polytechnic' which shows the results of the percentage of graduates who have found work within 6 months after graduation which is one of the requirements for completing accreditation data by the National Accreditation Board for Higher Education (BAN-PT). In previous research, the analysis only focused on the period graduates got their first job, which is different from this research. Not only focusing on one indicator, the scope of the tracer study analysis in this study is carried out more broadly, including the career path of graduates who become Gold Standard Unesa, namely the percentage of alumni who continue their education, self-employed alumni, alumni waiting time in getting a job less than 6 months, the suitability of the work field of graduates, and the type of workplace of graduates. Based on the scope of variables in this study, a descriptive problem formulation focused on independent variables without any comparison or relationship between variables in other samples (Sugiyono, 2013). The research questions include: (1) How do graduates perform against Unesa's gold standard? (2) How long do graduates wait to get their first job? (3) How closely related are their fields of study to their fields of work? (4) What is the scale of the graduates' workplaces? Based on the research questions, the objectives of this study were identified, namely: (1) To determine the achievements of graduates against the Unesa gold standard; (2) To determine the waiting time for graduates to obtain their first job; (3) To determine the closeness of the field of study to the graduates' field of work; (4) To determine the scale of the graduates' workplace. The data was obtained from the Tracer Study of graduates from 2019 to 2022. In collecting the data, not all alumni in each year participated, so the analysis in this study used data from the 4-year tracer study of alumni for a more accurate analysis.

METHODS

Participants

The participants in this study consisted of 219 alumni of the Civil Engineering Undergraduate Programme who graduated in 2019, 2020, 2021, and 2022. From this population, samples were taken using a non-probability sampling method with saturated sampling, in which the entire population was used as the research sample (Sugiyono, 2013).

Research Time

The alumni tracking of the Civil Engineering Undergraduate Programme, Faculty of Engineering, Unesa, was carried out in 2023. The research activities included proposal preparation, data collection, data analysis, and report writing.

Research Variables

In descriptive research, such as this study, the variables are not classified as dependent and independent variables because no comparative analysis or relationship testing between variables was carried out (Sugiyono, 2013). Therefore, the variables to be studied in this tracer study are called independent variables that indicate the level of graduate absorption in the world of work, competitiveness, and job suitability in relation to competencies, including: (1) Unesa's gold standard, which measures the percentage of graduates who continue their studies, the percentage of graduates who become entrepreneurs, the waiting time for graduates to obtain their first job, and the amount of graduates' salaries; (2) graduates' waiting time; (3) the suitability of graduates' fields of work with their fields of study; and (4) the scale of graduates' workplaces.

Data Collection Technique

Data collection is done by alumni filling out a questionnaire with an instrument that can be accessed through the Tracer Study website, which is shared through the alumni communication group at http://tracerstudy.unesa.ac.id.

Instrument

The tracer study instrument used was adapted from the 2020 Tracer Study Guidelines, which include all Tracer Study questions that have been compiled and determined by the Directorate General of Belmawa and adjusted to the Kemdikbudristek template. The data attributes are presented as follows:

Table 1.
Data attributes of Unesa's tracer study instrument

Advanced Field	Indicator
Employment	Income of graduates Waiting period for graduate employment Reference for graduates' workplace Reference to the type of workplace of graduates Reference to the minimum wage
Further study	Waiting period for further study Education level Location
Entrepreneurship	Graduates' income Start of entrepreneurship Graduate role reference Reference to the minimum wage

Data Analysis

The collected Tracer Study data were analysed using descriptive quantitative methods, namely the process of analysing numerical data using statistics to answer questions in the problem formulation related to independent variables, without making comparisons and without identifying relationships between variables (Sugiyono, 2013). Furthermore, the data were also presented in the form of percentage graphs to show the distribution of values for each variable, which would indicate the relevance of the curriculum to the needs of the world of work used in the Civil Engineering undergraduate programme, referring to the quality of the study programme.

RESULTS AND DISCUSSION

The Civil Engineering undergraduate programme at Unesa has been registered by LAMTEK accreditation with Accreditation Decree number 0550/SK/LAM Teknik/AS/XII/2024 in 2024 with an 'Excellent' rating valid from 21 December 2024 to 20 April 2029. In response to this accreditation, this study will analyse the distribution of tracer study data as follows:

Gold Standard

The Gold Standard is the target of the Main Performance Indicators set by each university as a benchmark of excellence. The Gold Standards that will be achieved by Surabaya State University in accordance with the Tracer Study guidebook are as follows:

Table 2.
Gold standard indicator

Level	Gold Standard Key Performance Indicator (IKU) 1 to be achieved
Undergraduate	Alumni Employed ≤ 6 Months with a Salary 1.2 UMP(*) (based on the location of the university) (after the date of diploma issuance)
	Alumni Self-employed ≤ 6 months (after the date of issue diploma)
	Alumni Continuing Education ≤ 12 months (after date of issuance of diploma)

1. Gold Standard Tracer Study for 2022 Graduates

The number of participants in the 2022 graduate Tracer Study was 31 out of a total of 33 graduates. From these participants, data can be identified that serves as Unesa's gold standard indicator, as shown by the percentage of alumni in each gold standard component in the diagram below:

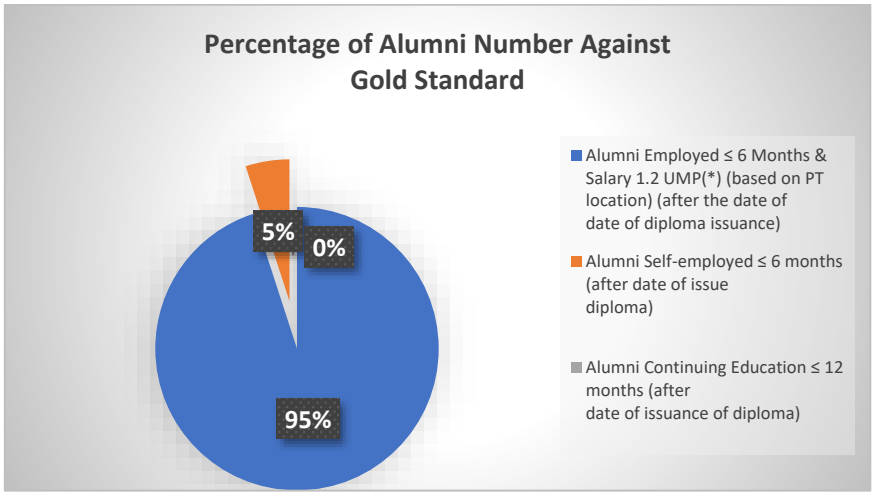

Figure 1. Percentage of Gold Standard Tracer Study for 2022 Graduates

The number of alumni who meet the gold standard indicators from the tracer study survey is known to be 65% of alumni, or 20 of the 31 alumni who participated. The percentage shows that 95% of the 20 alumni who meet the gold standard criteria have worked in less than 6 months with a salary of more than 1.2 UMP and another 5% are self-employed in less than 6 months. In another gold standard indicator, namely alumni who continue their education, 0% percentage is obtained or there are no alumni who continue their education to the master's or professional level.

2. Gold Standard Tracer Study for 2021 Graduates

Participants or graduates of 2021 who completed the tracer study instrument with a gold standard indicator amounted to 49 or 94.23% of the total number of 52 alumni. From this number, the distribution of data can be seen in the following diagram:

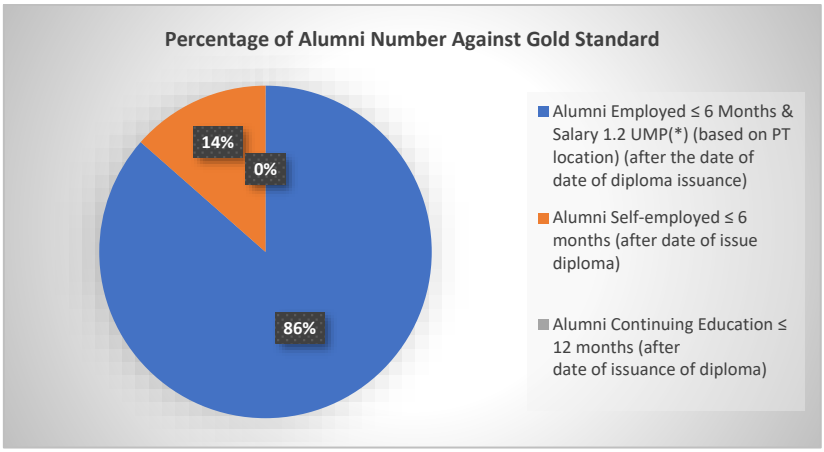

Figure 2. Percentage of Gold Standard Tracer Study for 2021 Graduates

The distribution of data shows that the number of alumni who fulfil the gold standard indicators is 37 or 75% of the 49 total participants. The percentage shows that 86% of alumni from 37 data have worked in less than 6 months after graduation with a salary greater than 1.2 UMP. Then the other 14% are entrepreneurial and none or 0% of alumni continue their studies.

3. Gold Standard Tracer Study for 2020 Graduates

For the 2020 cohort, 84 out of 85 graduates (99%) participated in the Tracer Study. From this data, the percentage for each gold standard indicator is as follows:

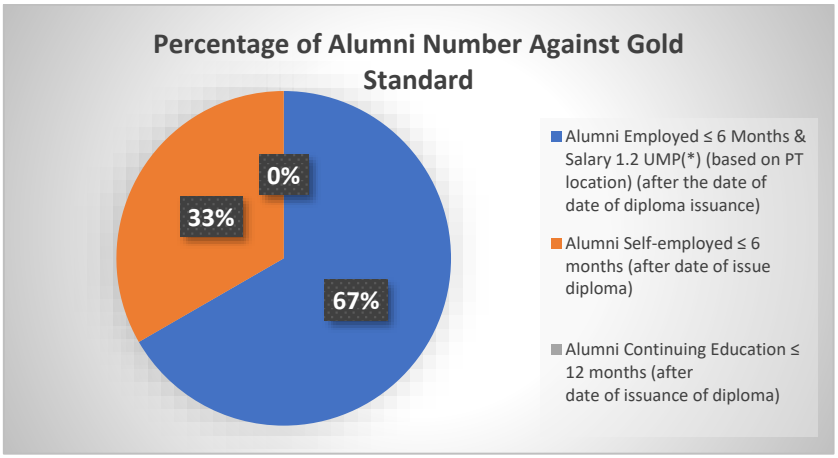

Figure 3. Percentage of Gold Standard Tracer Study for 2020 Graduates

Of the 84 Tracer Study respondents, there were only 9 alumni, or 11% of alumni, who met the gold standard indicator, with a percentage distribution of 67% of alumni getting their first job after graduation in less than 6 months and being paid more than 1.2 UMP. Furthermore, 33% of alumni are self-employed after graduation in less than 6 months and no alumni (0%) pursued further education at the master's or professional level.

4. Gold Standard Tracer Study for 2019 Graduates

The amount of tracer study data collected was 50 alumni data from 53 graduates. However, in the gold standard data processing results, there were only 10 alumni, or 20% of alumni, who met the indicators, with the following data distribution:

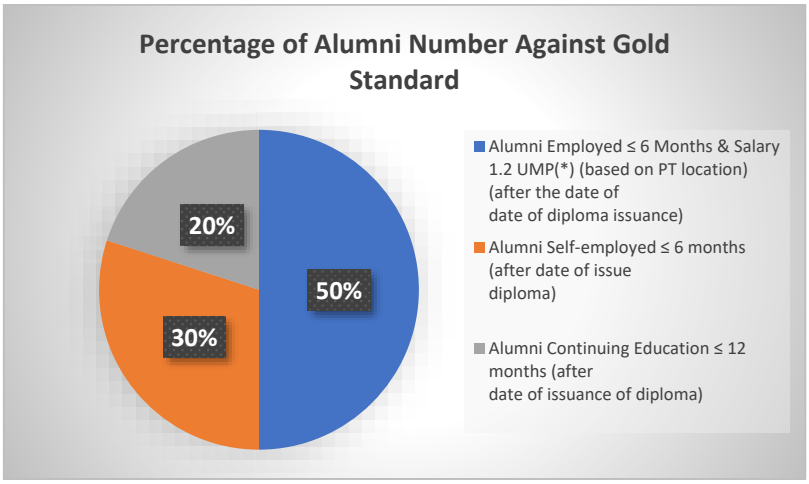

Figure 4. Percentage of Gold Standard Tracer Study for 2019 Graduates

Half or 50% of the 10 Tracer Study data show that alumni have worked in less than 6 months after graduation with a salary above 1.2 UMP. Furthermore, 30% of alumni started self-employment in less than 6 months after graduation, and continued with 20% of alumni continued their studies to master's or professional levels in less than 12 months after graduation.

Based on the Gold Standard indicator diagram, graduates who have worked for less than 6 months after graduation with a salary greater than 1.2 UMP dominate the percentage each year. This indicates that the existence of most alumni with their abilities is in accordance with the criteria required by the world of work, which states that the shorter the period of time, the more it is relevant. It is relevant to the research of Tajidan et al (2021), which states that the shorter the period for alumni to get their first job, the more it indicates that alumni competence is beneficial to the environment and surroundings. If sorted from the most significant percentage, the next indicator in terms of percentage from year to year is self-employed alumni. Not many graduates start their careers with entrepreneurship because the reality is that entrepreneurship is riskier than working for an agency or company. The research of Tajidan et al (2021) shows the interest of alumni who are more likely to work in an agency with lower risk by not bearing the risk of loss. In addition, the data also shows that the income of most alumni is greater than 1.2 UMP, which can indicate the success of alumni in the world of work. This opinion is also supported by research by Irmeilyana et al (2022), which states that alumni income correlates with the position of the job field and can represent their success as evidenced by data on the range of salary levels of graduates and the background of graduate study programmes where the more aligned the alumni's job field and educational background, the more potential for alumni to get a better income. The indicator of alumni continuing their studies in less than 12 months shows a small

percentage figure. This percentage only appears in the Tracer Study results for 2019 graduates, with 20% of 10 alumni meeting the gold standard indicator, which means that alumni interest in continuing their studies is relatively low. This is possible due to the influence of the alumni environment that does not support alumni to continue their studies, and considerations of financial ability to meet the costs of master's education. The factor of alumni interest in continuing their studies to a higher level is also explained by Lestari et al (2021) in their research which states the factors driving undergraduate interest in continuing their studies according to the results of their research, namely the influence of subjective norms or the surrounding environment with a t-count value of 3.346, where the more support from the surrounding environment, the more undergraduate interest in continuing their studies. It is also evidenced in Nurafrilliyah's research (2023), which concludes that the amount of education costs is one of the considerations for students to continue their master's studies. Based on these data, the small percentage of alumni who continue their studies to a higher level indicates that alumni feel sufficient for the competencies obtained from their undergraduate education to compete in the world of work as shown in Ghassani et al's research (2021) which shows that 80% of alumni of Universitas Muhammadiyah Semarang in Geophysical Engineering have sufficient provisions for competition in the world of work with the expertise gained at the undergraduate level so that the small number of graduates who continue their studies.

Graduate Waiting Time

Graduate waiting time refers to the period of time for graduates to get their first job after graduating from college. In filling out the Tracer Study, the waiting time of graduates is divided into three indicators: less than 3 months, 3 to 6 months, and more than 6 months.

1. Waiting Time of 2022 Graduates

The total number of alumni who participated in filling out this tracer study data was 31 alumni out of 33. Of these, there were only 30 alumni who met the graduate waiting time indicator shown in the diagram below:

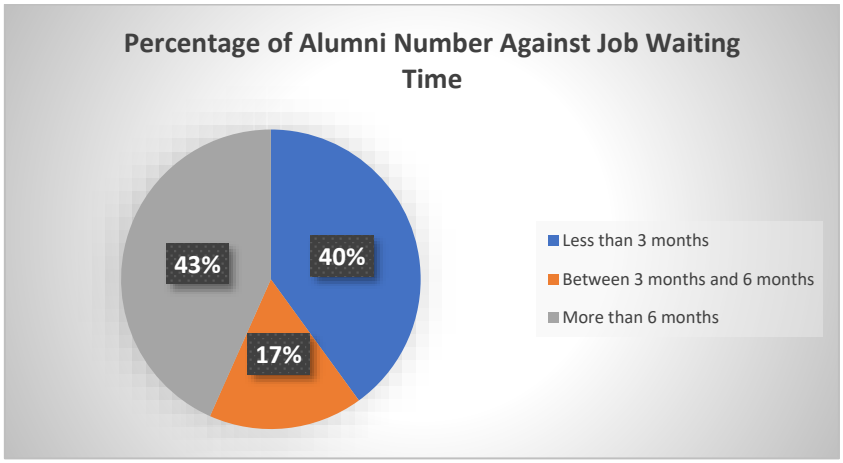

Figure 5. Percentage of Waiting Period for Graduates Tracer Study of 2022 Graduates

From the diagram above, it is shown that 40% of alumni from 30 participants had got their first job in less than 3 months after graduation, 17% of alumni got their first job in 3 months to 6 months, and 43% of alumni got their first job in more than 6 months after graduation.

2. Waiting Time of 2021 Graduates

From the total number of alumni who participated in the Tracer Study of 49 alumni, there were only 37 alumni who fulfilled the graduate waiting time indicator with the percentage of data distribution in the following diagram:

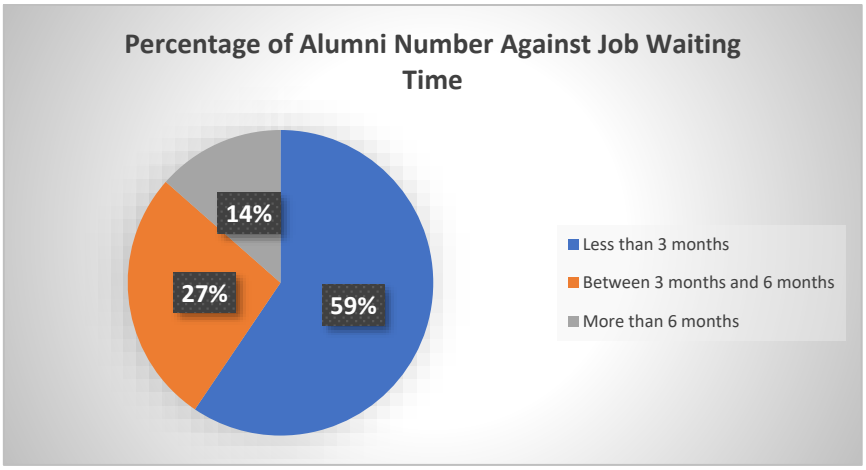

Figure 6. Percentage of Waiting Period for Graduates Tracer Study of 2021 Graduates

The diagram above shows that 59% of the 37 alumni who met the graduate waiting time indicator had found their first job in less than 3 months after graduation. Then, another 27% got their first job with a waiting time between 3 to 6 months, and another 14% got their first job with a waiting time of more than 6 months after graduation.

3. Waiting Time of 2020 Graduates

The 2020 tracer study data recorded 38 alumni out of 84 respondents who met the graduate waiting time indicator with the following data distribution:

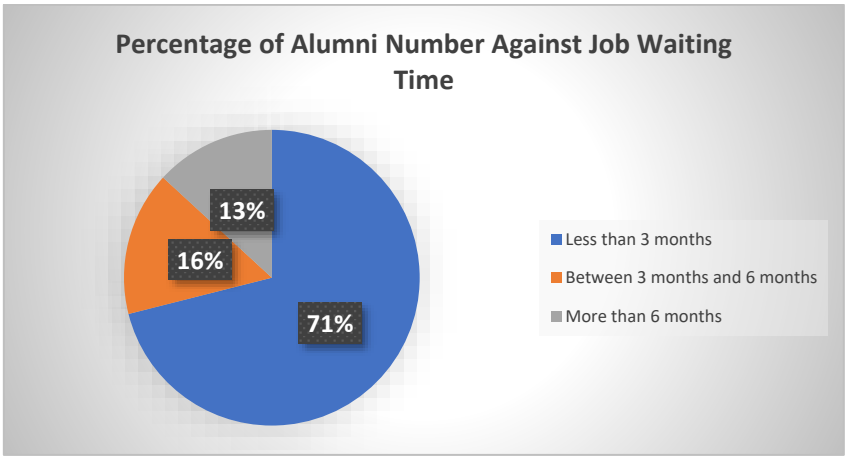

Figure 7. Percentage of Waiting Period for Graduates Tracer Study of 2020 Graduates

Alumni who have found their first job in less than 3 months show a percentage of 71%. The percentage of alumni with a waiting time between 3 and 6 months shows 16% and 13% for alumni with a waiting time in getting their first job of more than 6 months.

4. Waiting Time of 2019 Graduates

In the indicator of graduate waiting time, out of 50 data from tracer study participants, only 30 alumni fulfil this indicator. Of the 30 data alumni, the percentage is described in the diagram below:

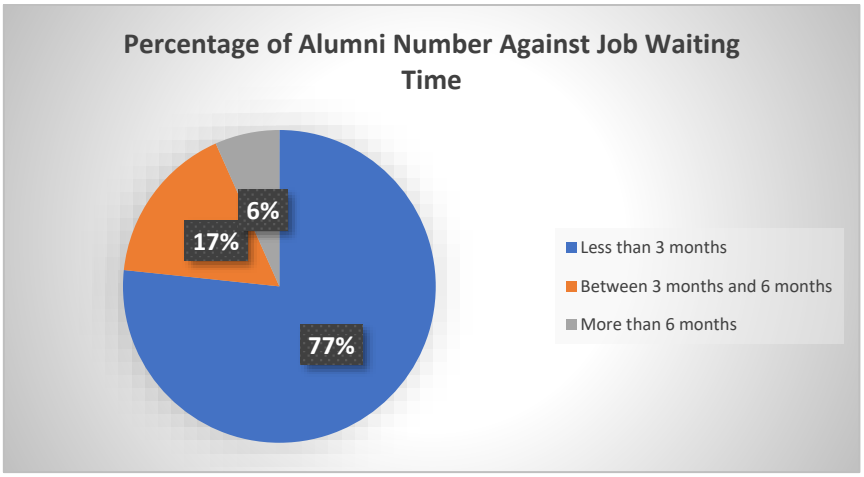

Figure 8. Percentage of Waiting Period for Graduates Tracer Study of 2019 Graduates

The diagram above shows that the percentage of alumni waiting time of less than 3 months to get their first job reached 77%. Followed by the percentage of alumni with a waiting time between 3 and 6 months after graduation, of 17% of 30 alumni. The remaining 6% of alumni got their first job more than 6 months after graduation.

Based on tracer study data from 2019 to 2022 graduates, it shows that the first job of graduates is obtained in the dominance of a span of less than 3 months after graduation which is included in the fast category as mentioned by Hafidh et al (2017) in their research results that if the waiting time for graduates to get a job is in the range of 3 months, it is indicated in the fast category. According to the size of the percentage, it indicates the relevance of alumni competencies to the required job market, and the study programme has succeeded in forming students with mature work readiness. In accordance with the research of Saki et al (2023) in their research which shows the results of 51.1% of graduates have found jobs with a short waiting period, which is less than a month which interprets that the shorter the waiting period for graduates, the more suitable the competence of graduates with the needs of the world of work and the higher the level of readiness of alumni to enter the world of work. The waiting time of graduates is also one of the elements of alumni absorption in the world of work, so that with the results discussed above, it can be stated that graduates of the Unesa Civil Engineering study programme have high absorption with competent alumni according to the needs of the world of work. Relevant to Sawalinar & Nelisa's research (2019), which states that the shorter the waiting period for graduates to get a job after graduation, the higher the absorption of graduates into the world of work. Another percentage of alumni with a waiting period of more than 3 months or outside the fast category is indicated to be caused by factors such as alumni who need time to consider the desired wage and level of education, and focus on their personal goals. Relevant to the research of Sari (2022) and Syofyan & Supraryanti (2022), which state that individual consideration of the desired wage and level of education affects or extends the individual's waiting period in getting a job. In addition, the existence of intense competition in the job search by graduates also has an impact on the period of time for graduates to get their first job as stated

by Karnawati et al (2022) that the intense competition in the job search for graduates in the industrial world and the limited information on vacancies also affect the waiting period for graduates to get their first job. From these results, it can be stated that the Unesa Civil Engineering study programme has been able to produce output with relevant competencies and compete in the job market's needs and maximum readiness to go directly to the world of work.

Relevance of The Field of Study to The Graduate's Field of Work

In Tracer Study activities, it can also be seen that alumni employment data are also used for their suitability or closeness to alumni competencies. Based on the instrument that refers to the Unesa Tracer Study Guidelines, the suitability of alumni work is known through Likert scale analysis with a scale range that includes: 1) Not closely at all; 2) Less closely; 3) Quite close; 4) Tight; 5) Very tight.

1. The Relevance of Academic Fields to the Work Fields of the 2022 Graduate Tracer Study

Among 30 respondents of the Tracer Study of 2022 graduates who have worked, the relationship between the field of work of graduates and the field of science shows the following distribution:

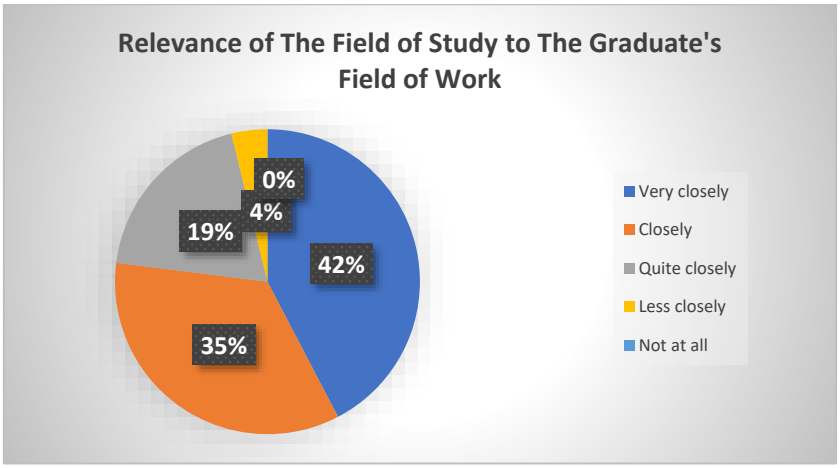

Figure 9. Percentage of Relevance of Academic Fields to the Work Fields of the 2022 Graduate Tracer Study

Based on the diagram above, it can be seen that the job relationship of 42% of the 30 alumni is 'Very Closely' with the field of knowledge learnt. Then, another 35% pursue' Closely' work with their competence. Another percentage shows that the work undertaken by 19% of alumni has a 'Quite Closely' relationship with the field of knowledge that has been pursued, and 4% of alumni's work relationship is 'Less Closely' to the field of knowledge pursued.

2. The Relevance of Academic Fields to the Work Fields of the 2021 Graduate Tracer Study

The suitability of the field of science and the field of work was reviewed from 37 alumni in 2021, who have worked with the following percentages:

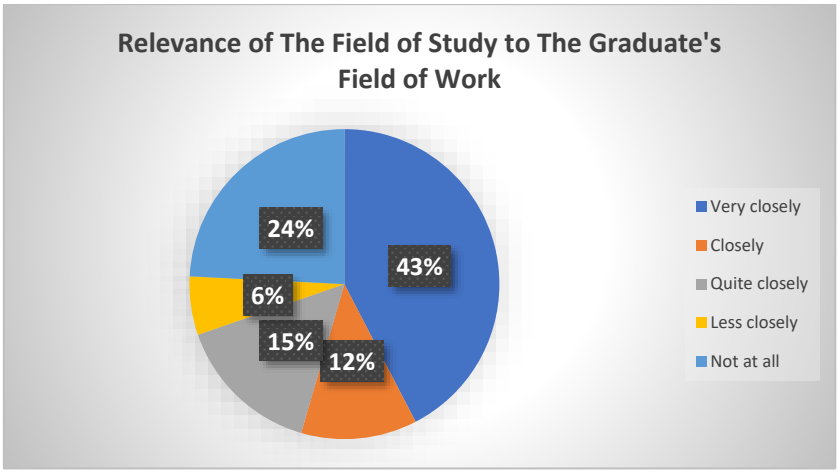

Figure 10. Percentage of Relevance of Academic Fields to the Work Fields of the 2021 Graduate Tracer Study

From the graduates who have worked, it is known that 43% of the 37 alumni have jobs that are 'Very Closely' related to the field of knowledge pursued, 12% are pursuing jobs that are 'Closely' related to their competence, 15% work in jobs that are 'Quite Closely' related to the field of knowledge studied, and 6% of the alumni's work is 'Less Closely' related to the field of knowledge, and 24% of alumni work in fields that are not at all in accordance with the field of knowledge that has been taken.

3. The Relevance of Academic Fields to the Work Fields of the 2020 Graduate Tracer Study

From the 38 data of alumni who have worked, it is known that the percentage distribution of the suitability of the alumni's field of work with the field of science studied was as follows:

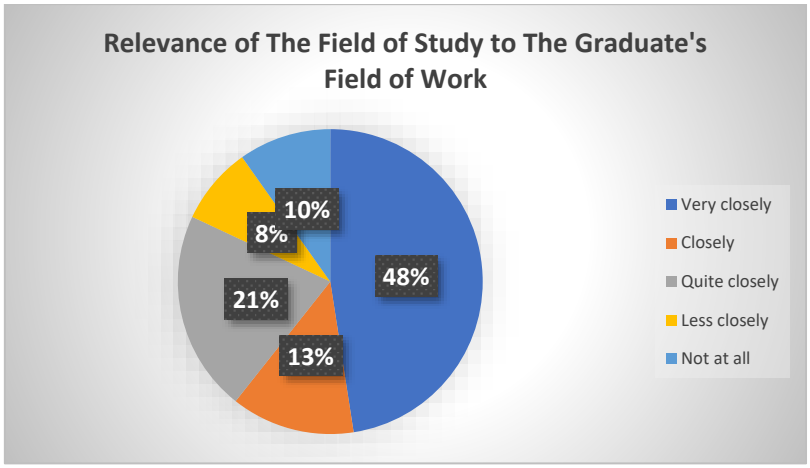

Figure 11. Percentage of Relevance of Academic Fields to the Work Fields of the 2020 Graduate Tracer Study

Based on the data above, 48% of alumni have worked in a field that is suitable or 'Very Closely' to the field of knowledge pursued during college. Then, another 13% have worked in a field that is 'Closely' or in accordance with the field of knowledge pursued by alumni. Furthermore, 21% of other alumni work in a field of work that has a 'Quite Closely' relationship with the field of knowledge that has been taken and another 8% work in a field of work that is 'Less Closely' related to the field of knowledge pursued by alumni and the relationship of the work field of 10% of alumni is 'Not At All' close to the field of knowledge taken.

4. The Relevance of Academic Fields to the Work Fields of the 2019 Graduate Tracer Study

The suitability of the alumni's field of work with the field of science in the 2019 graduate Tracer Study data will be reviewed on 30 alumni who have worked with the following percentage distribution:

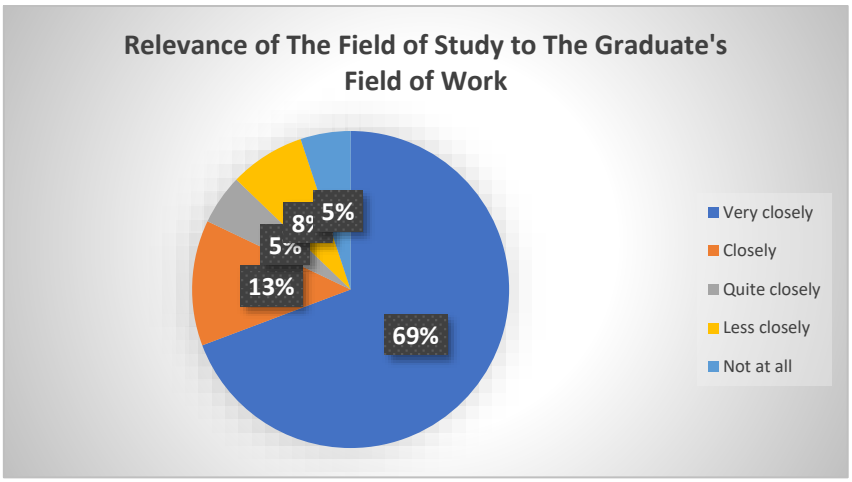

Figure 12. Percentage of Relevance of Academic Fields to the Work Fields of the 2019 Graduate Tracer Study

The suitability of the alumni's field of work shows that 69% of alumni work in a field that is 'Very Closely' related to the field of Civil Engineering. Another percentage shows 13% of alumni work in a field whose level of suitability is 'Closely' to the field of science, and 5% in the 'Quite Closely' category with the field of science. Then, 8% of other alumni work in a field that is 'Less Closely' with the field of knowledge pursued, and 5% of alumni work in a field of work whose relationship is 'Not at All' in accordance with the field of Civil Engineering.

Based on data from the results of alumni tracing from 2019 to 2022 on the closeness of the alumni's field of work with the field of science that has been occupied, it shows that every year there is a 'Very Tight', 'Tight', and 'Fairly Tight' relationship which indicates that the civil engineering science of the Unesa Civil Engineering Study Program is relevant to the needs of the world of work. The results of the tracer study each year also show a mismatch or lack of ties between the field of civil engineering science and the alumni's work field in the 'Less Tight' and 'Not Tight at All' categories. Whether or not the alumni's work is in accordance with their competence is based on various considerations according to the goals and opportunities encountered by each alumni. As explained by Mayasari et al (2022) in their research which states that the field of alumni work that is not closely related to the field of science is taken by alumni according to the opportunities that come and have been considered. The closeness of alumni's work to the field of science studied requires alumni to learn the details of the job from the beginning as written in Herlitah's research (2018) which states that graduates who work in fields that are not relevant to their competence will learn each stage of their work more extra. The closeness of the field of science and the work of alumni will also affect the productivity of alumni in the work environment because the field of science that alumni pursue will have an impact on their competence as described by Amalia et al (2023) in their research on the productivity of Buki Puskesmas nurses and it is stated that with the competence possessed, nurses are able to carry out their work based on knowledge, skills, and work attitudes which are proven to be able to increase work productivity.

Graduates' Workplace Based on Company Scale

Tracking the distribution of graduate workplaces based on the scale of the company is carried out to determine the scale of alumni user stakeholders. The data obtained shows that the scale of distribution of companies where alumni work includes local (regional), national, and international companies.

1. Graduate Employment by Company Scale 2022 Graduate Tracer Study

From the 30 Year 2022 alumni who have worked, 26 graduates work at the level indicator of the company where the graduates work with the following percentage:

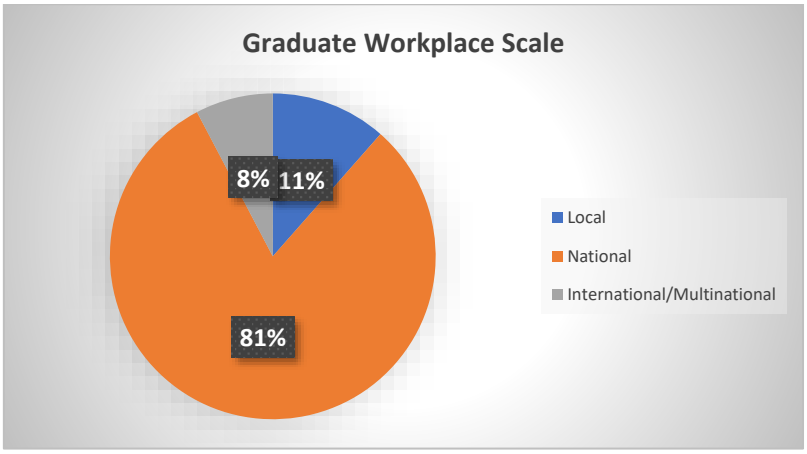

Figure 13. Percentage of Graduate Employment by Company Scale 2022 Graduate Tracer Study

The data distribution in the diagram above shows that 81% of the 26 alumni work in national-scale companies, 11% work in local-scale companies, and 8% work in international-scale companies.

2. Graduate Employment by Company Scale 2021 Graduate Tracer Study

Tracer Study data for 2021 graduates shows that 33 out of 37 alumni who have worked show the percentage of the number of graduates based on the scale of the company as follows:

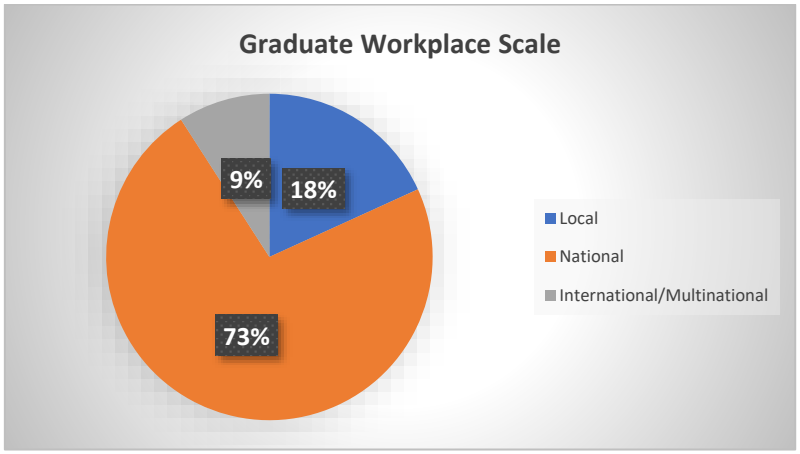

Figure 14. Percentage of Graduate Employment by Company Scale 2021 Graduate Tracer Study

The 33 alumni are divided into 73% working for national companies, 18% working for local companies, and 9% working for international companies.

3. Graduate Employment by Company Scale 2020 Graduate Tracer Study

Tracer Study data shows that 63% of the 38 graduates who have worked are working in national-scale companies, 27% in companies with a national scale, and 10% are working in international companies.

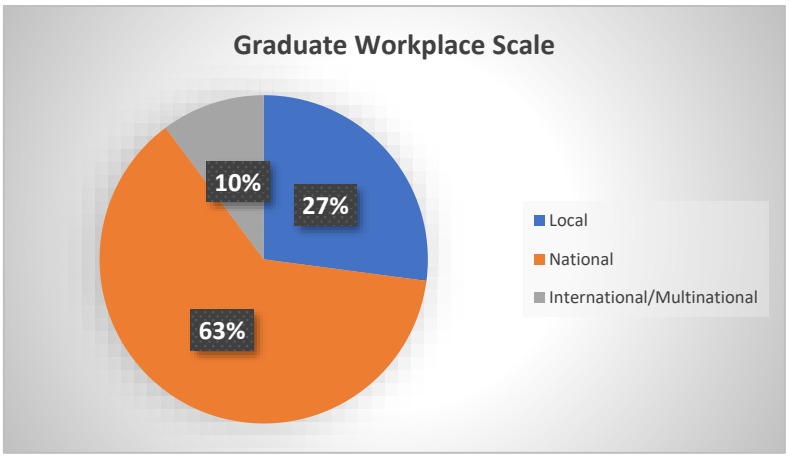

Figure 15. Percentage of Graduate Employment by Company Scale 2020 Graduate Tracer Study

4. Graduate Employment by Company Scale 2019 Graduate Tracer Study

Out of 30 alumni who have worked, 20 alumni fulfil the indicator of the scale of the company where graduates work. This shows that 85% of alumni work in national-scale companies, 15% of alumni work in local companies, and no alumni or 0% of alumni work in international companies.

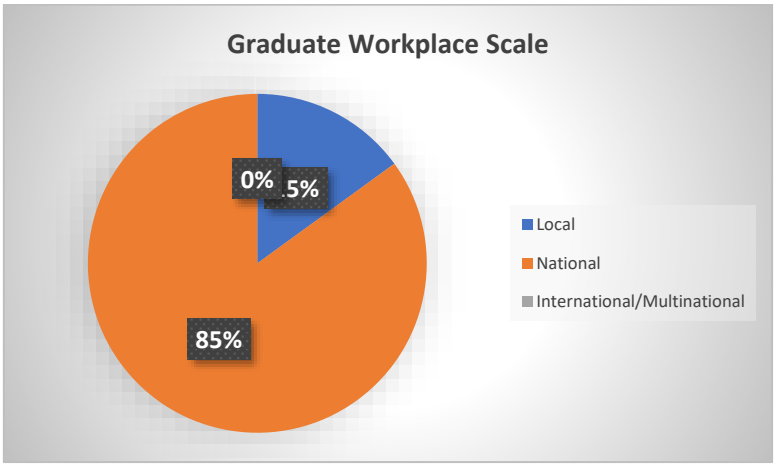

Figure 16. Percentage of Graduate Employment by Company Scale 2019 Graduate Tracer Study

According to the data on the scale of the workplace of graduates, most alumni, based on Tracer Study data from 2019 to 2020, show that the scale of the company where graduates work is dominated at the national level. These national-level companies include Government Agencies, Non-Profit Organisations, Private Companies, Entrepreneurs, State-Owned Enterprises (BUMN), and Regional-Owned Enterprises (BUMD). Furthermore, the level of companies where graduates work is dominated by the level of local or regional companies, which include micro and small businesses. At the international or multinational level, the percentage

each year does not exceed 10%, which means that not many alumni have careers in multinational companies, which typically include multilateral institutions or organizations.

CONCLUSION

Based on the results of the Tracer Study data analysis of graduates from 2019 to 2022, it can be concluded that the highest achievement of Gold Standards was found in the Tracer Study data of 2021 graduates with 37 alumni out of 49 participants or 75% of graduates able to meet the Gold Standard indicators, followed by 2022 with 20 alumni out of 31 or 65%, then 2019 with a percentage of 20% or 10 out of 50 alumni who met the Gold Standard indicators, and the smallest percentage in 2020 with a percentage of 11% or 9 out of 84 graduates who were able to meet the Gold Standard indicators. In the variable waiting time to get their first job, the data consistently show that more than 40% of graduates each year secured employment within less than three months. This finding reflects the strongabsorption capacity of the labor market and the high work readiness of graduates. The results of the tracer study also showed that more than 40% of alumni in each year answered that their field of work was 'Very Closely' to the field of science pursued, indicating that the field of civil engineering science of the Unesa Civil Engineering Study Program has been relevant to the needs of the world of work with the level of workplace graduates who are dominated by national-scale companies.

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