Analysis of Tracer Study D3 Civil Engineering to Support Vocational Program at Universitas Negeri Surabaya

Puguh Novi Prasetyono[1,*] Hasan Dani[1] Feriza Nadiar[1] Arik Triarso[1]

[1] Department of Civil Engineering, Universitas Negeri Surabaya, Surabaya, Indonesia
*Corresponding author. Email: puguhprasetyono@unesa.ac.id

ABSTRACT

In the face of intense competition in the world of work, the development of study programs is absolutely necessary. To produce graduates from study programs who are reliable and competent in their fields, they need to be well prepared in order to compete with graduates from other institutions in the world of work, so tracer studies are needed. The results of the tracer study will later be used as a study program development. This research method uses a survey (questionnaire distribution) through the website tracerstudy.unesa.ac.id. by using a questionnaire as the main data collection tool. Data analysis uses descriptive analysis which will describe the data obtained from the tracer study that has been carried out. The results of the tracer study graduates suggest the learning process method using demonstrations, discussions, internships because it makes students active and has learning experiences that can be used in the world of work. Most graduates look for work after graduation with a percentage of 72% and get job information from relationships. 50% of respondents considered that the field of study they took during college with their current job is very close, and the majority of graduates work in private companies and are entrepreneurs. No graduates have received job vacancies information from the faculty/university career development center/office, this shows that the role of the university is still low and needs to be improved regarding job vacancies information.

Keywords: Tracer Study, Civil Engineering, Vocational Program.

1. INTRODUCTION

In the face of intense competition in the world of work, study program development is absolutely necessary. To produce graduates from study programs who are reliable and competent in their fields need to be well prepared in order to compete with graduates from other institutions so that they can compete in the world of work. Education must produce graduates who are ready to work and are professional in accordance with their field of expertise. Therefore, educational institutions must be responsive to the needs raised by stakeholders or users of graduates at this time [1].

It is an obligation for the study program to be responsible for graduates in establishing relationships, both institutional and personal relationships. This is done in order to develop a study program because Graduates can provide feedback on how the knowledge gained in lectures is with developments in the current world of work. It is expected that graduates will have

competitiveness with graduates from other institutions in the world of work [1].

Graduates play a very important role in the development of study programs because they can provide input about the needs of the world of work which can later be implemented in lectures as input in the preparation of curriculum in study programs. graduates can also be a benchmark for the quality of graduates from a study program when in the world of work. The importance of the contribution of graduates is therefore carried out a tracer study to determine the existence of graduates and to find out how successful a study program is. Tracer study is an approach that is widely used by educational institutions to evaluate the relevance of higher education and collect other valuable information from institution graduates [2].

The results of the tracer study will also be used as study programs development in the accreditation process and in the preparation of curricula according to the needs of the world of work. By conducting a tracer study, the

study program will have a database of graduates that will be useful for future study programs, for example used in data requirements for study program accreditation [3].

There are several studies that discuss tracer studies in developing and developed countries. The results of the literature review of some of these studies are seen from the percentage of graduates who work. A tracer study conducted at a university in China found that more than 75% of the graduates were already employed and the rest had not found a job in 2019. [4]. Similarly, the results of a tracer conducted in England for graduates of the Bachelor of Arts majoring in English showed that 56.8% of graduates were employed, 9% were self-employed and 34% were unemployed. [5]. Similarly, the results of tracers for computer engineering graduates are absorbed in the world of work by 83.3% [6].

In addition to knowing the percentage of graduates who find work, the Tracer Study is also important to find out the employment sector of graduates in the government, private and entrepreneurial sectors. this will help the development of study programs according to market needs. A tracer study of graduates in Electronic Engineering from the Camarines Sur Polytechnic campus found that around 62% were employed in private companies and 11% worked in government services, only 2% of graduates were self-employed. [7]. Likewise, graduates of Kalinga Apayao State College found those working in the private and government sectors as the main sector of employment, respectively 36% for the private sector and 33% for the government sector and the rest are not yet employed. [2].

There are several tracer studies that also discuss the issue of how long graduates take to get a job. The results of a tracer study of Bachelor of Arts graduates majoring in English found that 47.7% of graduates who were undergraduate graduates received employment within 1 year of their graduation, 13.6% within 1 to 2 years and 4.5% over 2 years. [5]. Another study found that only 3% of respondents found a job within 1 year of their graduation, 1 to 2 years 41% and more than 2 years 56% [2].

The Vocational Study Program of D4 Building Engineering Technology is a young study program. Because this study program is still young, it really needs input from graduates. graduates who have almost the same field of expertise are D3 civil engineering graduates whose current study programs are directed to vocational programs, namely the D4 Building Engineering Technology study program. By conducting a tracer study, it is useful to identify early on the role of graduates in the community, both those who are working and those who continue to study again, as well as graduates who are looking for work. The results of the tracer study in Vocational Schools will also be used as study programs development in the accreditation process and in the preparation of curricula according to the needs of the

world of work. By conducting a tracer study, the study program will have a database of graduates that will be useful for future study programs.

2. METHODS

This research can be classified as an exploratory research which aims to find out the results of tracing the Tracer Study of Civil Engineering D3 graduates. This research method uses a survey (distribution of questionnaires) through the website tracerstudy.unesa.ac.id. by using a questionnaire as the main data collection tool to obtain facts. Explorative research is research that aims to develop new knowledge or assumptions and to provide direction for further research.

Where the main purpose of this exploratory research is to identify the research situation and data needed for further research. If the research problem is still not clear, it is more suitable if a qualitative method is used, which means that it goes directly to the object so that the problem can be found clearly. The data analysis presented is descriptive analysis.

3. RESULTS AND DISCUSSION

This study aims to know the results of the tracer study which was carried out on D3 Civil Engineering graduates at the State University of Surabaya in the last two years in 2019 and 2020, D3 Civil Engineering graduates who have completed the tracer study, there are 18 respondents, as for the details of the tracer results can be described in detail as follows.

3.1. Graduate Profile

From a total of 18 graduates who have filled out the results of the study tracer, the following is a description of the graduates profile regarding gender and year of graduation. The result shows in Table 1 and Figure 1.

Table 1. Graduate profile.

Graduate profile	Clasification	Frequency	Precentage
Gender	Male	12	67
	Female	6	33
Year of Graduation	2019	8	44
	2020	10	56

From the tracer study data, it was found that the number of graduates who had male gender were 12 respondents or 67% of the total respondents, while 6 respondents were female with a prentage of 33%. and of the 18 respondents, 8 respondents were graduates in 2019, 10 respondents came from graduates who graduated in 2020.
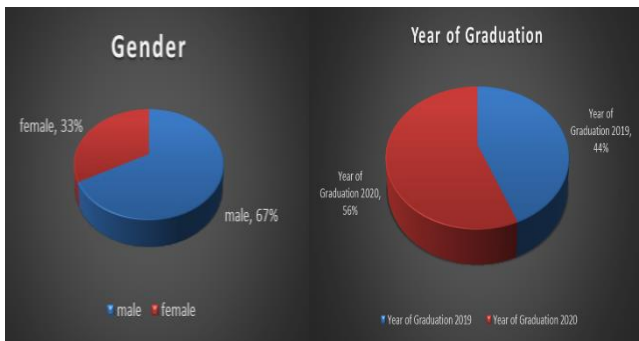
Figure 1. Graduate profile.

3.2. *The Role of Learning Methods During Graduates in the Teaching Learning Process*

There are several learning methods delivered during lectures, including using lectures, demonstrations, participation in research projects, internships, practicum, field work and discussions. From some of these methods, the results of filling out a questionnaire about the benefits in the world of work were obtained. The assessments of these respondents can be presented in Table 2 and Fig. 2 below.

Table 2 The role of learning methods during graduates the teaching learning process.

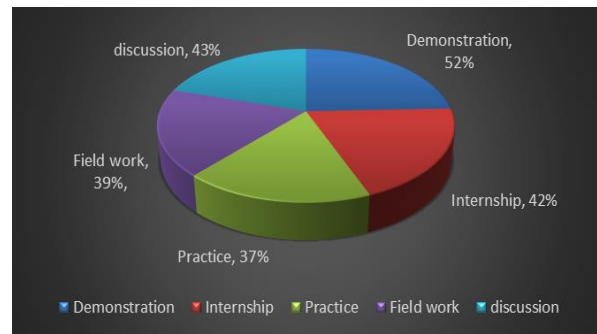| Method	Role					Total Score
	None (1)	Less (2)	Fair (3)	Great (4)	Very Large (5)	
Demonstration	0	0	0	0	0	0
Internship	1	6	5	6	0	52
Practice	0	0	0	0	0	0
Field work	5	6	4	2	1	42
discussion	6	8	2	1	1	37
Demonstration	6	6	4	1	1	39
Internship	3	8	5	1	1	43

Figure 2 The role of learning methods during graduates in the teaching learning process.

Based on these data, the respondents considered that the most suitable learning method to use was demonstration with a score of 52, then the second rank was discussion with a score of 43, in third place was internship and followed by field work and practicum, from these data the graduates did not suggesting a learning process method using lectures, there are indications that graduates hope that demonstrations, discussions, internships are learning methods that make students active and have learning experiences and long-term memories of the material presented that can be used later in the world of work.

3.3. *Time When Graduates Look for a Job*

Data on when respondents are looking for work are presented in Table 3. And Fig 3. The following:

Table 3 Time when graduates look for a job.

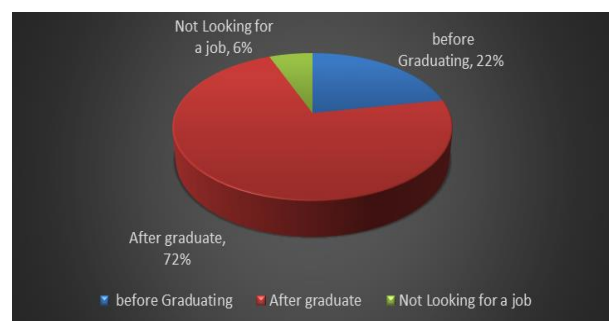|	Before Graduating	After Graduate	Not Looking for Job
When alumna are looking for job	4	13	1
	22%	72%	6%

Figure 3 Graduate are looking for work.

Based on table 3 and Fig. 3 above the time when graduates start looking for work the most after graduation, which is 72%. For the time of graduates

looking for work before graduating by 22%, while graduates who are not looking for work are 6%. It is known that the majority of the time graduates graduate work after graduation with a percentage of 72%, so indeed the majority of D3 Civil Engineering graduates at the State University of Surabaya are looking for work after they finish their studies.

3.4. Details of the Length of Time Graduates are Looking for Work

Data on the time of the respondents in looking for work is presented in Table 4. The following:

Table 4 Long time for graduates to find a job.

Duration	Before Graduating	After Graduating
1-2 Months	0	10
3-4 Months	2	1
5-6 Months	2	1
7-8 Months	0	0
9-10 Months	0	1
>10 Monyhs	0	0

In Table 4, it can be seen that before graduating the respondents looked for work between 3-6 months before graduating, with details of 2 respondents looking for work 3-4 months before graduating and 2 respondents looking for work 5-6 months before graduating. Meanwhile, after graduating the majority of respondents looked for work 1-2 months after graduation as many as 10 respondents, then 3-4 months after graduation as many as 1 respondent, 1 respondent looked for work 5-6 months after graduation and there was only one student looking for work 10 months after graduation.

3.5. Sources of Job Information for Graduates

Sources of information on job vacancies were obtained by respondents from several sources. Sources of information obtained by respondents related to job vacancies are presented in Table 5. The following:

Based on table 4 above, it shows that 15% of graduates use advertisements in newspapers/magazines, brochures to find work. There are 3% of graduates applying to companies without knowing the vacancies. And there are 6% of graduates who attend the market or job fairs. There are also graduates who look for work via the internet/online advertisements/mailing lists by 23%

of graduates. There are also graduates who are looking for work who are contacted by the company by 3% of graduates. 12% of graduates build a network (network) since they were in college to get a job. 26% of graduates take advantage of relationships (eg lecturers, parents, relatives, friends, etc.). 12% of graduates find work through job placements or internships.

Table 5 Source of job information for graduates.

Job vacancy information media	Percentage of Answers
Through advertisements in newspapers/magazines, brochures	15%
Apply to companies without knowing the vacancies	3%
Go to job fairs/shows	6%
Searching via the internet/online advertising/mailing lists	23%
Contacted by company	3%
Contacting the Ministry of Manpower	0
Contacting a commercial/private employment agency	0
Obtaining information from the faculty/university career development center/office	0
Contact the student affairs office/graduates relations	0
Building a network (network) since I was in college	12%
Through relationships (eg lecturers, parents, siblings, friends, etc.)	26%
Build your own business	0
Through a job placement or internship	12%
Work in the same place as the workplace during lectures	0
Other	0
Total	100%

The data in table 4 can be seen that the majority of graduates are looking for work by using internet media/online advertisements/mailing lists to find work and take advantage of relationships (eg lecturers, parents, relatives, friends, etc.). For the role of the University towards graduates, it can be seen in the answer choices "Obtaining information from the faculty/university career development center/office" and "Contacting the student affairs office/graduates relations", from the two

answer choices we can conclude that the role of the university is still low and needs to be improved.

3.6. Type of Company/Agency/Institution Currently Employed by Graduate

For an overview of the type of company or institution where the graduates work, see Table 6. and Fig 4. below:

Table 6 Type of company/institution/ institution graduates works.

Type of Company/Agency	Percentage
Government Agencies (including BUMN)	17%
Non Profit Organizations/ Non -Governmental Organizations	0%
Private companies	33%
Entrepreneur/entrepreneur	44%
Other	6%
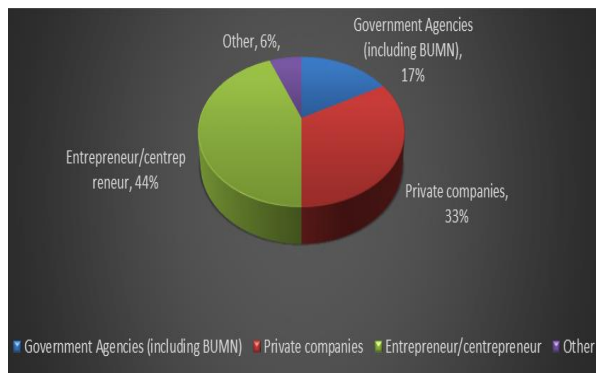
**Figure 4** Type of Company/Institution where Graduates Work.

Based on Table 6, graduates found work in several types of companies/agencies/institutions including those working in Government Agencies (including BUMN) as many as 17%, none working in non-profit organizations/ non-governmental organizations, working in private companies as much as 33% , became entrepreneurs as much as 44%, and worked in other fields as much as 6%. This shows that the majority of graduates work in the field of Entrepreneurship / Entrepreneurship, then the second largest is in private companies.

3.7. The Closeness of the Field of Study with the Current Work of Graduate

For an overview of the type of company or institution where the graduates work, see Table 7. and Fig. 5 below:

Table 7 The Closeness of the field study with current work of graduate.

	very close	Strictly	suficiently	Not tight	Not Close at all
Closeness of the field of study with graduate work	50%	40%	10%	0%	0%
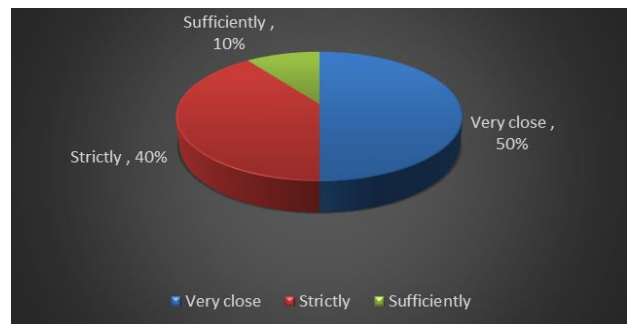
Figure 5 The closeness of the field of study with the current work of graduates work.

Based on Table 7, graduates who have got a job have a close relationship between the fields of study that have been taken in lectures and the work they are currently doing, as many as 50% of respondents assess that between the fields of study that have been taken in lectures and the work being undertaken at this time is very closely. there are 40% feel that the closeness between the field of study that has been taken in lectures and the work being undertaken at this time is stricly, as much as 10% considers that the field of study that has been taken in lectures and the work undertaken at this time is suficiently. And there are no graduates who work outside the field of study studied, the majority work in accordance with the graduate's study program.

3.8. Graduate Salary in Main Job Every Month

For an overview of the income of graduates in the main job each month can be seen in Table 8.

Based on Table 8, it can be concluded that the main job income of graduates every month is in the range of 0 - 1,000,000 by 5% or a number of 1 respondent from a total of 18 respondents, the main job income of graduates every month is in the range of 1,000,001-2,500,000 by 22% or a total of 4 respondents from a total of 18 respondents, the main job income of graduates every month is in the range of 2,500,001 - 5,000,000 by 62% or a total of 11 respondents from a total of 18 respondents,

the main job income of graduates every month is in the range of 5,000,001 – 10,000,000 by 11% or a number of 2 respondents from a total of 18 respondents. This indicates that the majority of graduates have a main job income every month with a range of 2,500,001 - 5,000,000 by 62% or a total of 11 respondents out of a total of 18 respondents and a minority of graduates have a main job income every month with a range of 0 - 1,000,000 by 1% or a number of 1 respondent of the total 18 respondents.

Table 8 Graduates income every month.

Salary (IDR)	Respondent	Percentage
0-1,000,000	1	5%
1,000,001 - 2,500,000	4	22%
2,500,001 - 5,000,000	11	62%
5,000,001 - 10,000,000	2	11%
Total	18	100%

4. CONCLUSION

The results of student responses show that from the data, graduates do not recommend the method of the learning process using lectures, it is more advisable to study during lectures using demonstration, discussion, and internship methods. This method is considered to make students active and have learning experiences and long-term memories of the material presented that can be used in the world of work. Many graduates are looking for work after graduation, so the work they get is closely related to the study programs and areas of expertise of the graduates. And the majority of graduates are entrepreneurs and work in private companies where job information is obtained from online/internet relations and advertisements, no one has received job vacancies information from the faculty/university career development center/office, this shows that the role of the university is still low and needs to be improved regarding job vacancies.

ACKNOWLEDGMENT

REFERENCES

[1] M. T. B. Kalaw, Tracer study of bachelor of science in mathematics, Int. J. Eval. Res. Educ., vol. 8, no. 3, pp. 537–548, 2019, doi: 10.11591/ijere.v8i3.17343.

[2] N. Dorji and K. B. Singh, Tracer study: An analysis of 2018 graduates of gedu college of business studies, Bhutan, Int. J. Adv. Sci. Technol., vol. 29, no. 6, pp. 1680–1686, 2020.

[3] K. Suryani and Khairuin, Tracer Study Online Universitas Bung Hatta Jurnal Edik Informatika, J. Edik Inform., vol. V2.i1, pp. 16–24, 2015.

[4] L. J. Cuadra, M. R. K. Aure, and G. L. Gonzaga, The Use of Tracer Study in Improving Undergraduate Programs in the University, Asia Pacific High. Educ. Res. J., vol. 6, no. 1, pp. 13–25, 2019, [Online]. Available: https://www.academia.edu/40583968/The_Use_of_Tracer_Study_in_Improving_Undergraduate_Programs_in_the_University?auto=download.

[5] O. C. Pannogan and D. P. Ocampo, Tracer Study of Bachelor of Arts Graduates Major in English, Int. J. Adv. Res., vol. 313, no. 1, pp. 281–297, 2016.

[6] E. L. De Castro, M. Theresa, B. Prenda, and C. I. Dotong, Employability of Computer Engineering Graduates during Academic Year 2015-2016 and their Lifelong Learning Options, Asia Pacific J. Acad. Res. Soc. Sci., vol. 2, no. November, pp. 58–66, 2017.

[7] R. Loquias, Employability of the Bachelor of Science in electronics engineering graduates of Camarines Sur Polytechnic colleges, Asia Pacific J. Multidiscip. Res., vol. 3, no. 4, pp. 33–40, 2015, [Online]. Available: www.apjmr.com.