



# Application of Tracer Study for Alumni Mapping and Reorientation of Graduate Profiles

Fendi Achmad<sup>(✉)</sup>, Z. Syariffuddien, and Endryansyah Endryanyah

Universitas Negeri Surabaya, Surabaya, Indonesia  
fendiachmad@unesa.ac.id

**Abstract.** The Electrical Engineering Education Study Program is one of the study programs within the Faculty of Engineering, State University of Surabaya. The Electrical Engineering Education Program must always develop itself based on real data. One of the data bases in the development of the Electrical Engineering Education study program is through data generated from alumni tracing activities or known as tracer studies. The UNESA Electrical Engineering Education S1 Study Program has 2 areas of interest including the field of Electrical Power Engineering and the field of Communication Electronics Engineering. The curriculum of the Electrical Engineering Education Study Program, FT Unesa, which was developed is the OBE (Outcome Based Education)-based MBKM curriculum to prepare for ASIIN international accreditation. A tracer study, which is understood as an alumni survey, is carried out by universities with the aim of digging up information related to the journey of graduates, starting from the time they finish their education in college until the time the survey is carried out. Information obtained from tracer studies is very useful for various evaluations of higher education outcomes, improvement and assurance of the quality of higher education institutions and the relevance of higher education, information for stakeholders, and the completeness of requirements for higher education accreditation. The main problem of this tracer study is how to describe the career development of the alumni of the Electrical Engineering Education Study Program in the world of work. In detail, the tracer study aims to: (1) find out the job profile of alumni; (2) determine the suitability of the profile of graduates of the Electrical Engineering Education Study Program with the field of work; and (3) knowing the length of the waiting period from graduation to getting the first job. The method used in this tracer study is a survey. The population in this study are all alumni of the Electrical Engineering Education Study Program graduating in 2021–2022. The total population is used as a data source.

**Keywords:** Tracer study · Alumni · Mapping · Graduate profiles

## 1 Introduction

The quality of the study program is one of the indicators determined by the absorption of graduates in the world of work because of the suitability of the competencies possessed by graduates [1]. The suitability of the knowledge, abilities and skills possessed by graduates

© The Author(s) 2023

S. Setiawan et al. (Eds.): IJCAH 2022, ASSEHR 724, pp. 891–897, 2023.

[https://doi.org/10.2991/978-2-38476-008-4\\_94](https://doi.org/10.2991/978-2-38476-008-4_94)

as well as professional abilities and self-development are important benchmarks for the success of graduates in meeting the expectations of graduate users and the needs of the job market [4, 6]. Indicators of the success of studies in carrying out the academic process for students they teach can be seen from the curriculum according to user needs, graduate competencies possessed by graduates and absorption of graduates in the job market, professional career development and acceptance in public life in general [7, 8]. For this purpose, the study program needs to do things that it wants to miss or also known as tracer studies.

Alumni studies or better known as tracer studies play an important role in the learning process and academic quality development [9, 12]. Through the feedback provided to graduates for study programs, it can provide benefits and be used for evaluation of the academic process carried out as well as periodic curriculum improvements. The study program can make improvements and increase the knowledge and skills needed in accordance with user expectations along with technological, social, and institutional developments and changes [10, 15].

A tracer study, which is understood as an alumni survey, is carried out by universities to explore information related to the journey of graduates, starting from the time they complete their education in college until the time the survey is carried out [15]. Information obtained from tracer studies is very useful for monitoring and evaluating results, improving and ensuring institutional quality and relevance, information for stakeholders, and completing requirements for higher education accreditation [14, 15].

Tracer study is a study of tracer traces of graduates/alumni carried out after graduation and aims to determine educational outcomes in the form of transition from the world of higher education to the world of work, recent work situations, alignment and application of competencies in the world of work. Tracer studies can also provide information on educational outputs, namely self-assessment of mastery and acquisition of competencies, the educational process in the form of evaluating the learning process and the contribution of higher education to competency acquisition, as well as educational input in the form of further excavation of graduate information [6, 11].

In the context of developing higher education, tracer studies play an important role, as the initial stage of developing a new higher education curriculum, for example. Tracer study is also one of the requirements for complete accreditation by the National Accreditation Board for Higher Education and also the completeness of the MBKM curriculum document based on OBE (Outcome Based Education) for the preparation of ASIIN international accreditation.

For this reason, universities or study programs are expected to run an appropriate tracer study program that aims to determine the absorption, process, and position of graduates in the world of work so that they can then prepare graduates in accordance with the competencies and profiles of graduates needed in the world of work and assist government programs in mapping and aligning the needs of the world of work with the competencies obtained from universities.

### ***Graduates Profile of the Electrical Engineering Education Program***

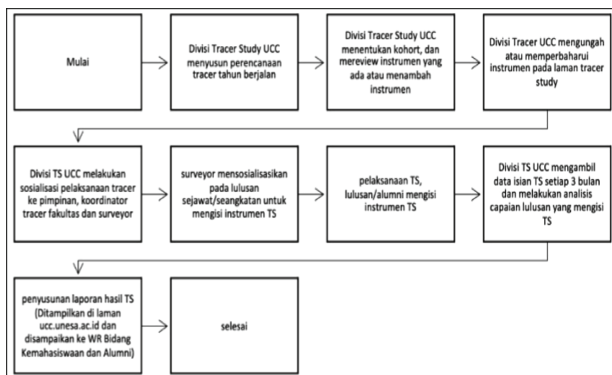
Profile of graduates The Electrical Engineering Education study program aims to produce undergraduate graduates in the field of electrical engineering expertise and electronics engineering expertise who can work as vocational secondary education teachers with

the following descriptions: 1) Mastering and applying pedagogical, professional, personality, and social competencies of expertise programs electrical engineering electrical engineering (teacher); 2) Mastering science and technology and having knowledge of electrical engineering and electronic engineering (knowledge and understanding); 3) Mastering analytical techniques and scientific methods to solve problems in practice in the field of electrical engineering and electronic engineering (engineering analysis); 4) Ability to design products in the field of electrical engineering and electronics engineering (engineering design); 5) Have skills in developing products in the field of electrical engineering (engineering practice and product development); 6) Have the ability to transfer knowledge and skills in the field of electrical engineering (transferable skills); 7) Have the ability to adapt to the progress of electricity.

## 2 Method

This research on tracer study is a type of quantitative descriptive research through a survey approach which is carried out through several stages as follows: (1) instrument development; (2) data collection stage, and (3) analysis and reporting stage. The sampling method is carried out by means of stratified random sampling proportionally according to the number of graduates and year of graduation.

The type of data collected in this study is primary data obtained directly from graduates through structured questionnaires. The distribution of the questionnaires was carried out online through electronic questionnaires, communication network platforms through social media and graduate email. Quantitative data analysis is used to evaluate the response rate to the questionnaire, if it is seen that the response rate is still low, proactive efforts are made to increase the response rate. Tabulation of the results of the questionnaire was carried out for data analysis of the results of the questionnaire. Furthermore, verification of the findings with the relevant key indicators is carried out. At the final stage, a graduate information database is created as a basis for providing recommendations, evaluating academic processes and improvements in curriculum improvement and graduate profiles in the study program. Figure 1 describes the survey approach procedure in the Electrical Engineering Education Study Program.



**Fig. 1.** The survey approach procedure in the Electrical Engineering Education Study Program.

### 3 Results and Discussion

The respondents in this study were alumni of the Electrical Engineering Education Study Program who graduated in 2021–2022. From the results of descriptive analysis of questionnaires that have been filled out by respondents through the Tracer Study website of the State University of Surabaya (Unesa), it can be carried out an analysis related to alumni mapping and reorientation of profiles of graduates of the Electrical Engineering Education Study Program "produce undergraduate graduates in the field of electrical engineering expertise and electronic engineering expertise who can work as vocational secondary education teachers".

#### 3.1 Job Profile (Spread of Work Place)

The following is the distribution of institutions/companies/schools where alumni of the Electrical Engineering Education Study Program work. The distribution of work places for alumni of the Electrical Engineering Education Study Program, such as: (a) PT. Trias Sentosa Tbk, (b) PT. Mitra Integrasi Informatika, (c) PT. Surindo Teguh Gemilang, (d) PT. Keramik diamond industry, (e) CV. Viktori Profindo Automation, (f) PT. Mayora Indah Tbk, (g) PT. Home Center Indonesia (Informa), (h) SMK Negeri 7 Surabaya, (i) PT. Securiko Indonesia Bina Insan Mandiri, (j) SMK Muhammadiyah Taman Sidoarjo, (k) PT. Tri Adi Bersama, (l) SMK Muhammadiyah Trawas Acasa Creative, (m) UD. Perdana Motor, (n) PT. Sun Paper Source, (o) SMK IT Insan Permata Bojonegoro, (p) Dinas Perhubungan Kota Surabaya, (q) Anteraja, (r) PT. Linknet, Tbk, (s) SMKN 1 Gudo, (t) SMK NMC Malang, (u) Madrasah Aliyah Al Imam Sawoo, dan (v) SMK Sore Tulungagung.

#### 3.2 The First Job Linkage/Relationship with the Field of Science and Graduate Profile

Based on temporary data obtained, 37.5% of alumni work in the field of Education (Teachers), while 46% of alumni work in industries according to their scientific fields (Electrical Engineering), and the remaining 16.5% of alumni choose to open their own businesses according to their scientific fields (Fig. 2).

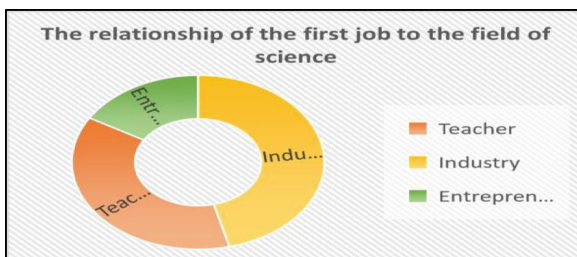
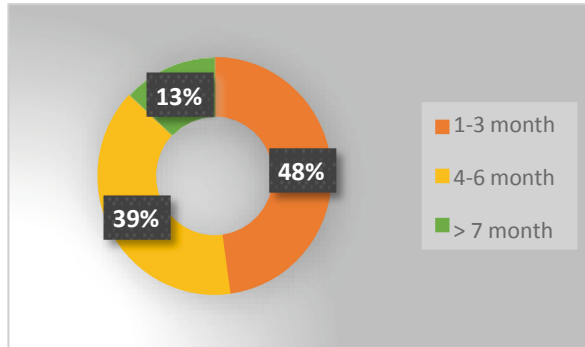


Fig. 2. The relationship/relationship of work with the scientific field



**Fig. 3.** Waiting time to get a job

### 3.3 Waiting Time to Get a Job

Based on the data obtained, it can be seen that as many as 48% of alumni of the Electrical Engineering Education Study Program can get a job 1–3 months after graduating and only 39% can get a job 4–6 months after graduation, the remaining 13% who get a job more than 7 months (Fig. 3).

## 4 Conclusions

Based on the analysis related to alumni mapping and reorienting the profile of graduates of the Electrical Engineering Education Study Program "produce undergraduate graduates in the field of electrical engineering expertise and electronic engineering expertise who can work as vocational secondary education teachers" it can be concluded.

- 1) Most of the alumni of the Electrical Engineering Education Study Program work in private counseling companies). But there are also those who work as entrepreneurs.
- 2) Most alumni of the Electrical Engineering Education Study Program get jobs that are in accordance with their scientific fields.
- 3) Most alumni of the Electrical Engineering Education Study Program find work in the first month to the third month after graduation.

**Acknowledgment.** This research was funded by Rector of Universitas Negeri Surabaya to supporting this research. The authors are also grateful to colleagues for finishing this paper.

**Authors' Contributions.** Fendi Achmad contributed to manuscript conceptualization, M. Syariffuddien Z contributed to editing, and Endryansyah Endryanyah contributed to review for submission.

## References

1. Diana, E. & As'ad. (2017). Analisis dan perancangan sistem informasi tracer study berbasis web. *MediaSisfo* 11(3), 817-829.
2. Fajaryati, N., Priyanto., Sukardiyo, T. & Utami, A.D.W (2015). Studi penelusuran (tracer Study) terhadap alumni Program Studi Pendidikan Teknik Informatika
3. Jurusan Pendidikan Teknik Elektronika Fakultas Teknik Universitas Negeri Yogyakarta. *Jurnal Electronics, Informatics, and Vocational Education (ELINVO)* 1 (1), 44–48.
4. Handajani, L., Alamsyah & Widiastuty, E. (2015). Tracer study pada program Magister Akuntansi Universitas Mataram untuk meningkatkan kompetensi lulusan sesuai harapan stakeholder dan kebutuhan pasar kerja. Laporan Pengabdian Kepada Masyarakat Universitas Mataram tahun 2015.
5. Herwantie, T.; L. Handajani., Hermanto & M. Irwan. 2018. Tracer study terhadap alumni Program Studi Magister Akuntansi Universitas Mataram Untuk pengembangan kurikulum sesuai dengan kebutuhan dunia kerja. Laporan Pengabdian Kepada Masyarakat Universitas Mataram tahun 2018.
6. Indriasari, S. (2012). Sistem informasi berbasis web untuk membantu kegiatan tracer study Program Diploma Institut Pertanian Bogor. *Jurnal Sains Terapan Edisi II Vol-2 (1)*, 84–102
7. Karyono, G. & Hermanto, N. (2013). Rancang bangun sistem tracer study online pada STMIK Amikom Purwokerto. Seminar Nasional Teknologi Informasi dan Komunikasi Terapan. Semarang 16 November 2013 halaman 126–133.
8. Marisa, F., Efendi, D.U. & Mumpuni, I.D. (2016). Tracer study system portal-based social network to optimize data collection on higher education graduates. 2nd International Conferences on Information Technology and Business (ICITB) October 15th, 19–24.
9. Nursubiyantoro, E. & Puryani. (2016). Perancangan sistem penelusuran alumni (Tracer study) berbasis web. *Jurnal Optimasi Sistem Industri* 9 (2), 85-92.
10. Schomburg, Harald. (2011). Methodology and methods of tracer studies. International Centre for Higher Education Research (INCHER-Kassel) University Kassel. Germany.
11. Rachmatullah, S. & Gunawan, I. (2016). Aplikasi tracer study Universitas Madura. *Jurnal Insand Comtech* 1 (2), 31-37.
12. Renny, R. C., Ruhama, S. & Sarjono, M.W. (2013). Exploring tracer study service in career center web site of Indonesia higher education. *International Journal of Computer Science and Information Security* 11(3), 36-39.
13. Suryani, K. & Kahirudin. (2017). Tracer study online pada Universitas Bung Hatta. *Jurnal Edik Informatika* 2 (1), 16-24.
14. Syam, A., & Manga, A.R. (2017). Sistem tracer study alumni Fakultas Ilmu Komputer Universitas Muslim Indonesia menggunakan metode online analytical processing (OLAP). *ILKOM Jurnal Ilmiah* 9 (1), 86-90.
15. Unesa Career Center. (2021). Pedoman tracer study. <https://www.unesa.ac.id/files/2f1f66d0530b35a50ec2c70031d7bb42/A%20guide%20book%20of%20Tracer%20Study.pdf> diakses tanggal 25 maret 2022.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

