

Graduate Tracer Study for Refining TVET Programs

Diwat Kumar Shrestha
Asian Development Bank
diwat_shrestha@yahoo.com

Abstract

The Technical Vocational Education and Training (TVET) is key to overall development of a nation. Unemployment to TVET graduates in any country means either the country is on the wrong track of development or the TVET education not salable. Tracer study helps to move TVET in right track.. Many TVET scholars emphasize conducting tracer study frequently to save TVET from quality erosion. Selection of a method and instrument, preparation for a survey, case study and focus group discussions are the major activities to be performed to conduct tracer studies. Here, an elaborate description is made on the entire process of Tracer Study conducted in the TVET. The views of graduates as well as their employers are the main data to pull out findings and refinement has to be done accordingly. Data collection should be more accurate and tools used should be appropriate for giving right direction to TVET. CTEVT and the central and administered Technical Institutions are conducting tracer studies from time to time to reflect reality. But, the application of the findings of tracer studies is a big question in CTEVT such as the revision of curriculum does not happen for a long time. As a result, the unemployment rate of graduates is on rise. Real tracer studies with commitment for change as per market need are the demand of modern TVET.

Keywords: *Tracer study, Employability, Labor-Market, Outcomes, Quantitative and Qualitative Methods, Impacts, Diversification and Modernization, Quality Management.*

1. Introduction

The main goal of tracer study is to develop a clear picture on the situation of graduates after studies. Tracer study should be able to assist stakeholders in the decision making process regarding the responsiveness of education, on the supply side, to the situation of labor market, on the demand

side (NCFHE, 2016). A tracer study is an evaluation and monitoring instrument. With this, we can measure effectiveness and relevance of the offered trainings and programs. The graduates will be asked to participate in the tracer study.

One of the factors determining the effectiveness of an academic institution is the employability of its graduates (Celis, et. al. 2013). As noted by Rasiah (2009), employers tend to point their fingers at institutions of higher learning when graduates remain unemployed because curricula are not industry-relevant. According to Millington (2017), when institutions conduct reviews of programs, they tend to focus on the production process not the products (graduates) of training. In order to learn the contribution of an institution to a country, especially employment prospects, tracer studies of graduates are essential (Lange, and Schomburg, 2003).

According to the International Labor Organization (ILO, 1996), a tracer study is an impact assessment tool where the impact on a target group is traced back to specific elements of a project or program so that effective and ineffective components of the program may be identified. Tracer studies, also called graduate studies or follow-up studies or destination of leavers from higher education surveys, are also a management tool for planning, monitoring and measuring the relevance of vocational training programs (CTEVT, 2016).

2. Preparations for Tracer Studies

Tracer studies can take many forms: quantitative and qualitative. We can provide a questionnaire that could be used conducting a tracer study. We even recommend using this questionnaire, to be able to compare the results of different programs and different

regions. For more in-depth analysis, it might be interesting to combine a quantitative approach with qualitative approaches. We can provide a description of two qualitative approaches that could be used during the tracer study; a case study and focus group discussion (SDP, 2014).

Both the survey and the qualitative methods need good preparation to effectively and smoothly conduct the tracer study and present reliable and valid results. We can describe all steps that need to be taken to prepare the tracer study. First thing to do to prepare a tracer study is to make a planning. It is helpful to use backwards design when planning all different steps for the tracer study. Thus, the first question to answer is: when do you need the results? From this date, we can go back in time to see when you will need to start preparing the tracer study. Below, you will find an overview of different activities conducting a tracer study, and the time can be allocated to conduct the activities. You can complete the activities to make your own planning.

1. Make preparation for the tracer study (Choose what areas to trace, choose which methods to use, prepare questionnaires, test questionnaires).
2. Collect all student enrollment data of last five years.
3. Contact them by telephone before going to survey, apply snowball effect method (if contact details missing, contact other graduates and ask for missing contact details).

4. Develop a plan when to visit (which graduates and which location).
5. Orient staffs how to conduct tracer study (questionnaire).
6. Conduct survey.
7. Put all data in excel sheet.
8. Analyze tracer data.
9. Support to write report (school will be responsible to write recommendation).
10. Publish tracer study result.

In preparing a tracer study, the first question that needs to be answered is: what would you like to know at the end? Which questions need to be answered once the whole tracer study is conducted? In general, we would like to know how effective our programs are in preparing students for a job. To be able to answer this question, we need to gather two different information. We will have to know more about the jobs graduates found, and secondly, we need to know more about how students experienced the program/training. Formulating the right questions on each topic will enable us to relate answers on questions about the content and quality of the program/training to the jobs found by the graduates after finishing the program/training.

To be able to measure the outcomes, we have to know more about the jobs the graduates found. We must measure what kind of jobs the graduates found. Is the job related to the field of training? What are they earning? Are the graduates satisfied with the job they found? And, in the case of short term trainings, we are also interested in to what extent graduates job opportunities have

increased after the training. Therefore, we would like to know what graduates were doing before they started the training and if they were working what they earned at that moment.

Secondly, we would like to find out the strength and weaknesses of the study program/training. What contributed to graduates in finding good jobs and feeling prepared for the jobs, and what can be improved to prepare current and future students (even) for better jobs? Questions we would like to answer on this aspect are about the content and skills covered by the program/training, the quality of the instructors, the quality of on the job training (OJT) and quality of available facilities and materials.

3. Choosing a Method and Instruments

What method and instruments you will use during the tracer study depends on the formulated questions. For some questions, you will need a quantitative method, for others, the qualitative method. We can cover different questions in a questionnaire, using multiple choice options. However, we will have to formulate some open ended questions to get all the answers we are looking for. Open questions can be formulated when the range of answers is too wide, or when the answers are unknown. It is more difficult and more time consuming to analyze open ended questions, so always think twice before adding an open question. What purpose does the question serve? How will you be analyzing the question? Is there another way to get the same information?

Conducting a tracer study might also be interesting to hear more about the experiences and stories of the graduates in depth. The stories and experiences could be used as background information to clarify outcomes of the survey. They could also be used to tell future students about former students' experiences. For more in-depth studies, a qualitative approach is more suitable. Different qualitative methods could be used to gather graduates' stories and experiences.

A case study focuses the experiences and development of one specific person or group. Often, multiple cases are examined and used in a case study. Multiple cases allow the researcher to compare cases and to look for similarities and differences. Case studies are often used in addition to quantitative data for a more in-depth study, to clarify results or to be able to present examples. Depending on the kind of case study, different instruments can be used. In case of a tracer study, an interview, potentially combined with observations is a good way to gather data on the development and experiences of graduates during and after the training.

During an Focal Group Discussion (FGD), six to twelve people participate in a group interview. A facilitator will lead the conversation where the participants can freely discuss their ideas and experiences on a certain topic. In this case, it will mean that they can freely discuss their experiences and satisfaction with the course, the support they experienced while finding a job and how they experience their current jobs.

Outcomes of FGD are often used together with quantitative data.

4. Preparing a Survey, Case Study and Focus Group Discussion

A survey consists of a set of questions that needs to be answered by the respondents. Surveys are often used when the population is quite big and the results of a lot of respondents are necessary to come to reliable and valid conclusions at the end.

The preparation of the survey starts with formulating questions. Based on the research question, different questions will be formulated. All these questions should contribute to answering the research question. Often, some background information is required for the analysis. For example, one requirement for the tracer study is to provide the results- GESI (Gender Equality and Social Inclusion) disaggregated. This means that we need to know whether respondents are male or female and to what caste they belong to. Furthermore, we would like to gather some information that could be useful once we need to contact the graduate at a later stage again.

After the background information, we developed different questions on different topics. We started the questionnaire with information about the course followed. We asked different questions to know how graduates experience the course and what kind of strength and weaknesses they indicate. Secondly, we would like to know more about graduates' experiences with the

TVET system in general. Although we call it TVET strength and weaknesses, it depends on how schools implement the common TVET aspects, so it does not mean that schools themselves cannot change things when outcomes would be negative.

Once we have gathered data on how graduates have experienced the course, we would like to know how easy it was for them to find a job. Did they receive support in finding a job? How long did it take for them to find job and are they satisfied with the jobs they got?

To be able to say something about the impact of the course, we also asked what graduates were doing before they started the course, and if they were working how much they earned. Finally, we asked more about their current employment: are they (self-) employed? How much they earn? Are they satisfied with their jobs? But if someone is unemployed, we also would like to find out why he/she was unemployed.

If you would like to use case studies besides a survey, it is important to think what purpose you have with the case study. The case study could be used to have some stories besides all data gathered through the survey or to do a more in-depth analysis. For the second, one a more thorough preparation is needed to come up with reliable and valid results.

For tracer studies, case studies are often based on a semi-structured interview. This could be combined with observations (for example, the living condition, observation of the current job). If you would like to use case

studies for in-depth analysis, the first step is to think about the information you need to gather. Based on the information you would like to gather, you can decide whether a semi-structured interview will be sufficient or you will need observations as well. Because it is a semi-structured interview, questions have to be formulated in advance. Questions that could be asked during the interview are:

- How was your living condition before you started the program/training? In other words, can you describe how you were living and what you were doing (work, unemployed, studying, other) before you started the program/training?
- How did you decide to enroll for the program/training?
- How did you experience the training? Can you elaborate more on the facilities, the available resources and materials, the quality of the instructors, the content (knowledge and skills)?
- What did you do to find a job after the training? Were you able to find a job? How long did it take?
- If you are unemployed, can you describe why you are not able to find a job?
- What kind of difficulties did/do you face finding a job?
- How would you describe your current working condition? Are you satisfied and if not why? To what extent, did your income and social status increase?
- Looking back, what did you find really good about the program/training?

- And what could be improved?
- What dream do you have for the future?

These are examples of possible questions, you can adjust the questions or add questions based on the information you would like to gather. While formulating questions, always keep in mind how you will be analyzing the outcomes.

Choosing for a case study design, you will have to choose how many case studies you would like to conduct. If you would like to compare different stories and use the outcomes for more in-depth analysis, it is important to conduct several case studies. It would be good to include both male and female trainees and trainees from different castes/ethnic groups. During the preparation, it is helpful to make a table with male and female and the different castes/ethnic groups to check whether the persons that will be approached for the case studies cover the different background of all graduates.

There are also different purposes for FGDs. In a tracer study, only FGDs can be used, but whether this is useful and depends on the research question and the way the FGD is designed. As for the case study also, the FGD can be used for thorough analysis to illustrate the quantitative data or for marketing purposes.

We focus the preparations needed for a more thorough analysis. For the more comprehensive analysis, there are two options. FGDs can be organized besides and independent from the survey. This means

that questions can be formulated at the same time as the survey. Another option is to wait for the results of the survey and to base the questions for the FGDs on the outcomes of the survey. The benefit of basing the FGDs on the outcomes of the survey is that you can base your questions on (surprising) outcomes of the survey. It helps for a more comprehensive analysis. As we do not know these outcomes at this point, we can only suggest questions for FGDs that will be conducted independent of the survey outcomes.

Possible questions:

- What were main reasons for you to choose for the program/training?
- What were the strengths of the program/training?
- What were the weaknesses of the training?
- How easy/difficult was it to find work after finishing the program/training?
- What kind of support did you receive in finding work?
- Looking back, how satisfied are you about the program/training followed?
- What are your dreams for the future?

These are examples of possible questions. You can adjust the questions or add questions based on the information you would like to gather. While formulating the questions, it is imperative to keep in mind how you will be analyzing the outcomes.

Choosing for the FGD, you have to decide

how many FGDs you would like to conduct and who should be participating in different FGDs. Facilitating FGD needs to give every participant the possibility to contribute to the discussion. Sometime, it is helpful to form different FGDs to make it easier for participants to contribute. For example, if the younger people would not say that much when there are also older people in the group who look more senior to them, it could be an idea to form two groups-one FGD with youth, and another FGD with older people. With the case studies, it is important that the participants reflect the whole population (thus male and female, different castes, different ages etc.). In general, FGDs are conducted with six to twelve people.

In research, we often speak about sample size. The sample size depends on the instrument you choose to use and the population. Here, we focus the sample size for the survey because that is the main instrument of our tracer study. As the case study and FGDs are not compulsory, we will not make elaborate the number of case studies and FGDs and their participants.

The sample size depends on whole population. In tracer studies of graduates from a specific study program/training from certain years, the population is often small. For example, if you have 20 students in your training and you would like to trace your graduates from the last five years, it means that your population only consists of 100 graduates. The population is so small that you cannot do sampling. To come up with reliable and

valid conclusions, you actually need almost all graduates to fill the questionnaire. In general, a minimum of 100 is required. But, if the total population is smaller than 100, the analyses should be included with a smaller number; and the outcomes should be interpreted more carefully then.

With the small populations, it is important to prepare a non-response analysis. If you have, for example, five times twenty graduates to trace, there is a possibility that you will not be able to trace all graduates or that graduates would not like to participate in the survey. It is helpful to know what the reasons are for not responding. This is called non-response analysis. So, if you cannot trace a graduate, write down that you were not able to trace the graduate despite all efforts. If a graduate does not like to participate in the survey, ask for the reason and write down the reason.

5. Collecting Data

After preparing the questionnaire for the tracer study and the questions for the semi-structured interviews, and if you are to conduct case studies and/or FGD as well, it is time to train people who will be conducting the survey and case studies/FGDs.

The first step will be to interview the graduates, and the second to put all answers in the excel sheet covering the questionnaire, and in case of the case studies/FGD's, write all answers down. First of all, let the graduates know when and where the survey will take place. Make sure that they receive the information and check whether they will be there. On the day of the survey, go

to the place where you will be interviewing the graduates. Go early so there will be time to adjust the place for the interviews when necessary.

During the interview, make sure that the graduate feels comfortable. The interviewer should introduce him/herself and clearly state the purpose of the survey and how the data will be used. If the graduate agrees with the survey, the interviewer can start with the structured interview. The interviewer should follow the order of the questionnaire; should not skip questions; and should make sure that there is only one answer chosen unless stated otherwise. Skipping questions or giving more than two answers will cause problems during the analysis. Close the interview and ask whether the graduate has got any questions. Make sure all answers are filled. Gather all filled questionnaires at the end of the day.

With the survey, inform the graduates about when and where the case study/FGD will take place. Make sure that the graduates received the information and let them confirm that they will be participating. On the day of the case study/FGD, create a good setup in the place where the case study/FGD takes place. During a case study, the semi-structured interview will be one-to-one. Thus, only a small place is needed. Graduates could share confidential information, so make sure that there are no other people around to overhear the conversation.

The interviewer starts by introducing him/herself and explaining the purpose of the interview. Subsequently, the interviewer

starts the interview by asking the first question. Questions do not need to be asked in a specific order, but the interviewer takes care that all topics are covered. The interviewer asks follow-up questions or asks for clarification when necessary. At the end, the interviewer summarizes the main points of the graduate's story and closes the interview by thanking the graduate for participating.

For the FGD, a bigger room will be needed. There should be enough space for all participants. It is important that all participants can see each other and the facilitator can see all participants. A big table where there is room for all participants works well. The facilitator can sit at one of the ends of the table and facilitate the discussion from there. The facilitator asks open-ended questions and makes sure that every participant gets the opportunity to contribute to the discussion. The facilitator asks clarifying questions if necessary and summarizes what is said at the end of each topic (question). The facilitator will be recording the FGD or should ask someone to attend the FGD to take notes.

The facilitator starts the FGD by introducing him/herself and explaining the purpose of the FGD. Secondly, all participating graduates will be asked to introduce themselves. When everyone is introduced, the facilitator will ask the first question. From then on, the facilitator takes care that all questions will be covered and that all participants are able to contribute in the time given for the FGD. At the end of the FGD, the facilitator will

summarize the most important outcomes and check these with the participants. The facilitator will explain how the outcomes will be used and of course thank the graduates for participating in the FGD.

It is important that all notes and records of the interview are written down as soon as possible after the interview. It is important to make sure that no information will be lost. Besides, all records should be labeled in such a way that it is easy to retrieve the right document. So, always write down when the interview took place (date and time) with whom and at what place.

6. Tracer Studies in TVET Sector of Nepal

Jiri Technical School (JTS) in Dolakha District, since its establishment in 1985, started the tracer study in each two year to find out the situation of the graduates. JTS has conducted tracer studies of last two years' graduates through postal survey in two years interval, in which the questionnaire has been sent through post office in their home address. Inside one envelope, there would be questionnaire and another envelope with postal ticket mentioning to fill up the questionnaire by the graduates or parents or wife/ husband and other relatives of the graduates and send it in the another envelope. The report has been prepared and actions taken accordingly. This is the first best practice of tracer study in CTEVT introduced by JTS.

Labor Market Survey (CTEVT, 2016) states that the increasing trend of opening of agro-industries as well as the emerging agro-

businesses like trout farming, off-season vegetables farming, organic farming, farming of several kinds of livestock like poultry, ostrich, pig are creating self-employment opportunities in the informal sector. Since all of these activities are running informally, the formal employment opportunities are hardly available within these sectors. Although the market for public jobs in agriculture sector have saturated, present plan of expansion of agriculture service (including livestock) to wider range of beneficiaries creates job opportunities immediately for the middle level technicians to almost 3,000 and another 1,000 within few years.

Likewise in engineering sector, scarcity of workforce was already prevailing in the market because of the attraction of youths to foreign employment. Some currently running infrastructure projects such as hydropower, irrigation and road and bridge construction have suffered the crisis of skilled workforce. The need of new construction and reconstruction in the post-disaster phase has further multiplied the previous need. Some junior level technicians in construction sector like welder, plumber, carpenter, scaffolder are also demanded in significant number.

Because of diversification and modernization of health technology and services, demand of more specialized courses instead of general courses of medicine and nursing is emerging. These are Orthopedic Assistant, Radiography Assistant, Optical Fitting and Dispensing, Dental Mechanics, Operation Theater (OT) Technician, Dialysis Technician and so on.

Unlike the new and specialized occupations, the graduates from presently available health courses such as Staff Nurse, General Medicine, Lab Technicians, Auxiliary Nurse Midwifery, and Community Medicine Assistant are found saturated in the labor market at present set up of public health service. However, the provision of existing government policy to expand and extend free and quality health services to rural and ward level paves way to create more employment opportunities for the graduates of these programs in a significant number. But, before reaching any conclusion, we have to wait for the proper implementation of the policy.

Likewise, the same survey (CTEVT, 2016) states inflow of tourists during the last decade is not encouraging. However, slight upward trend is observed. In the interview with key informants, it is reported that hotel business was shrinking day by day and it is facing much difficulty to retain the existing employees. The sector is dominant with informal opportunities. Tour and travel sector is also covered by the informal sector and demands differ from region to region because tourism activities do not take place in the same manner in all the regions. Trekking business is another area considered by the study and the study found out that 90% activities slumped, thereby showing huge fall on employment opportunities in the informal sector.

CTEVT in line with the study needs to modify the program related to Agriculture, Engineering, Health and Hospitality Sectors accordingly. To continue the programs as

it is against the research is to create human resources useless for the TVET market.

In the Tracer Study of the Graduates of Diploma and TSLC Programs under CTEVT (Acin, 2016), only 49% of the CTEVT graduates are employed, which is very discouraging factor in TVET. Graduates are lacking skills due to inadequate practical opportunities. Time provided for practicing skill is inadequate in most of the programs in private institutes. There is a need of substantial improvement on workshop and lab equipment. Ample opportunities need to be provided for practice and industrial attachment. Periodic revision of curricula is also needed to make the programs relevant and practical-based to address the growing demand of labor market. The study also indicates the need for updating its programs to prepare the human resource in line with the skill demanded in the job market. 'Lack of link with the employers', and 'inadequate technical and other soft skills' were the other reasons for them being unemployed.

According to Tracer Study Report of IT Graduates of Nepal Banepa Polytechnic Institute (NBPI, 2017), 28% continued their further study; 35% got job; and 34% are still looking for jobs; and out of 35% employed graduates, 27% are working in different fields than their training. It is a serious matter in deed about the IT course in NBPI-employment rate is very low, and graduates are working out of their field which cannot be counted in employment through the TVET.

The Tracer Study of CTEVT, Skills Development Project (DEVTEC, 2018)

shows that majority (63.7%) of graduates were employed after training. While short of the project's 75% target, this rate is still a good achievement and may increase with the inclusion of all employment data at the end of the project. The rate of employment was slightly higher in round two (63.7%) than in round one (61.1%) and the rate of male employment (73.3%) was much higher than that of females (49.1%). (Review at least one of 2019 and 2020 tracer study as well. The research division of CTEVT would be able to provide you with the study reports.)

As mentioned above, CTEVT is conducting the tracer studies in the central level as well as in the constituted schools to strengthen the program. But, it is still questionable that the refining of the programs as per the findings of tracer studies is being done. Unemployment rate of CTEVT graduates is on increasing trend while opening of the new technical schools in political interest is increasing day by day. Another big issue is the quality of the teaching learning activities; practical teaching with On the Job practices are lacking in technical schools. Technical Education outside the CTEVT umbrella is another part of TVET in Nepal. Lack of instructors, resources and experiences in TVET are the problems in the TVET program.

7. Conclusions

Reaching this point, we have implemented the minimum requirement, conducting a tracer study. But, if we would stop here, we are missing the most important part of the tracer study. The purpose of the tracer

study was to use the outcomes to improve the study program/training. Thus, we do not stop at the point where we have drawn conclusions. These conclusions are the first step in formulating recommendations for improvement.

To be able to use the outcomes to improve daily practice, it is important to discuss the outcomes within the school with all staff. It would be even better if outcomes could be discussed with students/graduates and representatives of the industries. Outcomes, for example, can be discussed in different forums. During different meetings with different stakeholders, the conclusions will be discussed and debated. During these discussions, the following questions can be asked:

- Which conclusions are surprising and what did we already know?
- Where is action needed and what kind of action?
- What is our strength? How do we maintain it?

Based on the discussion, recommendations for improvement can be written. It is important to make this the recommendation SMART (Specific, Measurable, Achievable, Results-focused, Time-bound) and to make all concerned sides responsible for implementing the recommendation. The activities resulting from the recommendations can be included in the Yearly Plan of Operations; and progress implementing the activities can be monitored by the Quality Management Unit.

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