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A GUIDEBOOK ON TVET RESEARCH:

TOOL KITS FOR TVET PRACTITIONERS

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Preface

This book named "A GUIDEBOOK ON TVET RESEARCH: TOOL KITS FOR TVET PRACTITIONERS" is a guide developed by CPSC to specifically tackle a particular research concern or situation. It aims to provide a simple, concise yet comprehensive information on the technical processes of doing research.

This publication supplements CPSC's own publication, "Research in TVET Made Easy". As the former tackles the general practice of doing research, this recent publication is specific and direct in its approach.

As it is composed in view with the general concerns of TVET practitioners, the cases and information indicated in this publication can be generally applied to research situations without any biases on the cultural or educational background of the reader. It is designed, and hoped, to be understood and adopted by every TVET practitioner in the CPSC member countries.

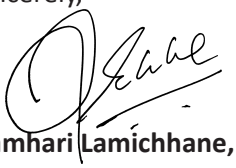
Tapping the expertise of CPSC faculty and staff who have been directly practicing certain expertise in research and development for a significant amount of time, Colombo Plan Staff College assures you that the contents developed in this book are specifically geared towards TVET and are tailored to be of use not only in research but also in practical situations.

Aside from my own personal contribution to the completion of the project, I would also like to acknowledge the writers and contributors namely: Dr. Vijay Patil, Engr. Sanyog Bhattarai, Engr. Abdul Ghani Rajput and Ms. Therese Tan Lee. They have demonstrated their expertise and experience in the articles that they have submitted. We would also like to acknowledge as well the efforts of Mr. Rae Emmanuel Echaveria and Ms. Adrienne Abril, whose expertise in their respective fields have given additional information towards the enrichment of this book.

Lastly, we would like to thank our audience and supporters in the member countries for continually giving us the trust and confidence in providing relevant TVET information to you.

We hope that this publication will be of significance and use to you and we hope that through this book, you will be able to further improve the development of the research culture in your respective institutions.

Sincerely,



Ramhari Lamichhane, PhD
Director General, Colombo Plan Staff College
Editor-in-Chief

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PART I

PRACTICAL TIPS IN COMPOSING THE RESEARCH PAPER

PREAMBLE

The succeeding chapters focuses on further developing and improving particular sections of the research paper. It adheres to the basic errors commmitted by the researcher. It further discusses practical topics on preparing your backgrround of the study, review of related literature and tips conducting technical researches vs. academic researches.

The following chapters aim to standardize and recommend easy measures to the amateur researchers on the proper composition of the research paper, which is usually the requirement in submitting paper proposals for international conferences, funding agencies, research firms or any other sector that uses research-based employment.

CHAPTER 1
COMMON ERRORS IN RESEARCH

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INTRODUCTION

Though TVET is important for the global economy as it serves the qualification of skilled workers for the intermediary sector of the employment system, TVET research is still relatively young field within the domain of educational research. TVET research builds on the contributions of a number of different research traditions and disciplines. These range from qualification research in industrial sociology to the didactics of the various vocational disciplines. There are many commonalities with pedagogy, labor studies, sociology, economics and engineering in terms of research questions, methods and results. However, occupations and occupational domains, and the design and evaluation of vocational training processes, belong exclusively to the core of TVET research.

Any research has the components like problem statement, literature review, sampling size, research design, data handling, analysis and the methodology. Therefore efforts must be taken to ensure these components are aligned appropriately with each other so as to reach to a decision which is relevant and contributing towards value addition in the research. Accuracy is one of the most important aspects of research. The information that is obtained should be accurate and true to its nature. However, while conducting the research, researcher normally makes some mistakes knowingly or unknowingly which may perhaps causes distortion of research results. In order to achieve the perfect solutions, it is required to know about these errors and the also the ways to deal with them. In this context, this article discusses some of the common errors that are expected in some components of research process such as literature search, research design, data handling, research methodology, statistics and analysis and to explore the approaches for reducing the errors in research. This enable the researcher to organize his/her tasks in more professional way.

ERRORS AFFECTING RESEARCH RESULTS

Information gained from a research project/design has to be as accurate as possible. Any research design or project needs time, skill and knowledge. If, the researcher don't follow the required process with a clear goal and methods, then researcher will likely come out with skewed data or an inaccurate picture of what he/she was trying to accomplish. It is therefore important to use not only the appropriate methodology in research process but also equally important to avoid making critical mistakes which may produce the inaccurate results.

Thus, researcher is facing the problem at all stages, right from problem formulation to report presentation due to possibility of error in any of these stages and hence the research designer is required to adopt a strategy that will manage and minimize the error. No set of experimental data is perfect and, normally researchers are aware that the data contains some margin of error. Such potential sources of error distort the

results of a research study leading incorrect interpretation. Following are the some common errors in the research process that are normally seen and the same are discussed along with the strategy to avoid them, so as to get the best data possible. Any research project is subject to errors, so a research designer must do everything he/she can to minimize them. (Eco, 2016)

In general, following errors have important implications in survey research designs:

- Systematic errors that are caused by the way in which the experiment was conducted or by the design of the experiment.
- Random errors that are unpredictable and are chance variations in the measurements over which the researcher has little or no control.

Systematic Errors

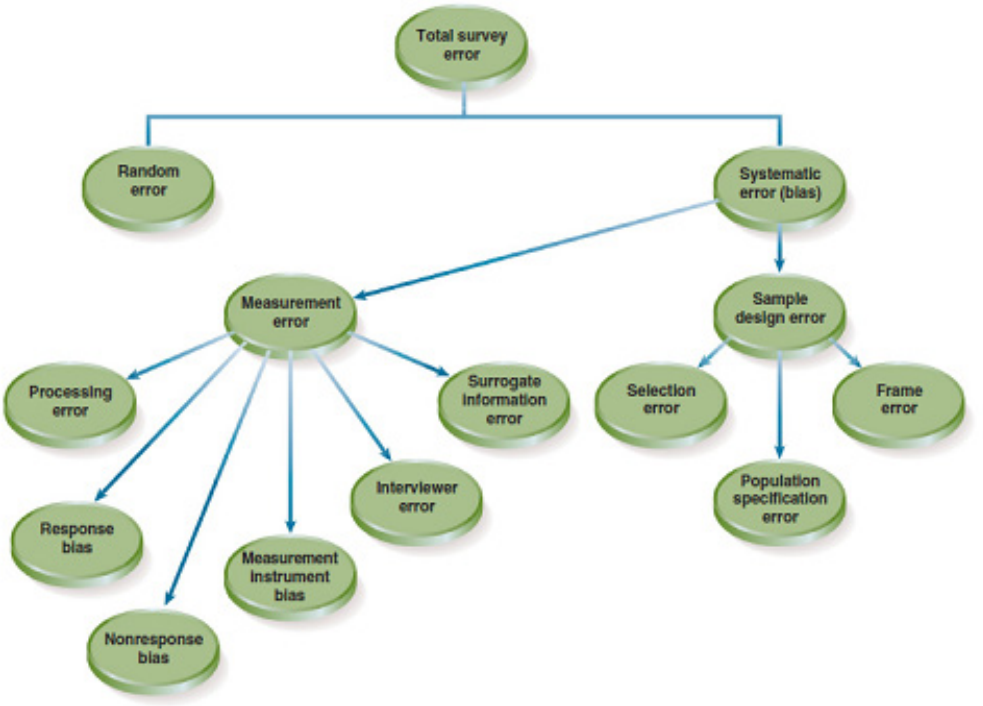

Figure 1. Types of Errors in Survey Research. Note: Diagram Adapted from Eco (2016). Retrieved from https://siteeconomics.blogspot.com/2016/10/types-of-errors-in-survey-research.html

Systematic error, or bias, results from mistakes or problems in the research design or from flaws in the execution of the sample design and includes all sources of error except those introduced by the random sampling process. Therefore, systematic errors are sometimes called non-sampling errors. The non-sampling errors that can systematically influence survey answers can be categorized as sample design error and measurement error. Systematic error exists in the results of a sample if those results show a consistent

tendency to vary in one direction (consistently higher or consistently lower) from the true value of the population parameter. Systematic errors cannot be eliminated by averaging. Systematic errors can only be rectified by changing the experimental setup.

Sampling Error

Two major types of errors may be encountered in connection with the sampling process and are known as random error and systematic error. Surveys often attempt to obtain information from a representative cross section of a target population with the goal is to make inferences about the total population based on the responses given by respondents sampled. Even when all aspects of the sample are investigated properly, the results are still subject to a certain amount of random error (or random sampling error) because of chance variation. Chance variation is the difference between the sample value and the true value of the population mean. This error cannot be eliminated, but it can be reduced by increasing the sample size. It is possible to estimate the range of random error at a particular level of confidence. (Eco, 2016). Sampling error occurs when a sample does not accurately represent the population. The more homogeneous is the population, the smaller is the sampling error; and as sample size increases, sampling error decreases. (Nil G, 2015). Example: A random sample of 500 people in, composed only of people between 35- 50 years of age may not be representative of adult population.

Sample Design Error

Sample design error is a systematic error that results from a problem in the sample design or sampling procedures. Types of sample design errors include frame errors, population specification errors, and selection errors

Frame Error

This type of error results from using an incomplete or inaccurate sampling frame. The sampling frame is the list of population elements or members from which units to be sampled, are selected. A sample drawn from a list that is subject to frame error may not be a true cross section of the target population. A common source of frame error is the use of a published telephone directory as a sampling frame for a telephone survey. Many households are not listed in a current telephone book because they do not want to be listed or are not listed accurately because they have recently moved or changed their telephone number. This means that if a study is based on listings in the current telephone directory, it will be subject to frame error. (Eco, 2016). A sampling frame supposedly represents all the members of the population. It is usually a listing of the respondents, the researcher want to sample. (Nil G, 2015).

Population Specification Error

Population specification error results from an incorrect definition of the population from which the sample is to be selected. For example, if the population for a study is people over the age of 35 and later on it younger individuals are also included such that the population has been defined as people having age of 20 years or older. In such cases, if the younger population who were excluded are significantly different in regard to the variables of interest, then the sample results will be biased. (Eco, 2016).

Selection Error

Though the researcher or analyst has a proper sampling frame and has defined the population correctly, selection error can occur. It occurs when sampling procedures are incomplete or improper or when appropriate selection procedures are not properly followed. (Eco, 2016). Selection error is the sampling error that occurs when a sample is selected by a nonprobability method. Selection error often reflects people who are easily reached, are better dressed, have better kept homes, or are more pleasant. The selection error can be reduced by following the clear, written procedures specifying how to select the respondent. (Nil.G, 2015). Selection error can be controlled by going extra lengths to get participation. A typical survey process includes initiating pre-survey contact requesting cooperation, actual surveying, and post-survey follow-up. Thus, if a response is not received, then a second survey request is being followed, and responses are obtained through interviews using alternate modes such as telephone or Person-to-person. (Qualtrics, 2019).

Measurement Error

Measurement error is often a much more serious threat to survey accuracy than is random error. When the results of public opinion polls are given in the media and in professional research reports, an error figure is frequently reported (say, plus or minus 5 percent). Measurement error occurs when there is variation between the information being sought (true value) and the information actually obtained by the measurement process. (Eco, 2016). Measurement error is the difference between the measurements obtained by researcher and the truth. In the research process, this error comes up at many stages, from the development of the survey to analysis of researcher's finding. Measurement error can be introduced by the interviewer, the questionnaire, or the respondent. (Nil.G, 2015).

Examples of measurement error from the interviewer and questionnaire might include: faulty wording of questions; bias in representative graphics materials; unintentional interviewer modification of the question's wording; interviewer misinterpretation or mis-recording of the response. On the respondent side, measurement error includes

the way a respondent interprets the question, and the respondent giving incorrect information.

Surrogate Information Error

Surrogate information error occurs when there is a discrepancy between the information actually required to solve a problem and the information being sought by the researcher. It relates to general problems in the research design, particularly failure to properly define the problem. (Eco, 2016).

Since it is not possible to obtain the needed information in some research situation, researcher accepts the substitute data which will act as a surrogate for the required information. This happened either due to the inability or unwillingness of respondents to provide the information requested. Example, decision-oriented behavioral research is always concerned with the prediction of behavior. This limits the research, since one cannot observe future behavior. Therefore, researchers obtain one or more kinds of surrogate information useful in predicting behavior. (Nil.G, 2015).

Interviewer Error

Interviewer error, or interviewer bias, results from the interviewer's influencing a respondent—consciously or unconsciously—to give untrue or inaccurate answers. The dress, age, gender, facial expressions, body language, or tone of voice of the interviewer may influence the answers given by some or all respondents. This type of error is caused by problems in the selection and training of interviewers or by the failure of interviewers to follow instructions. This type of error can be reduced by providing proper training to the concern people and by supervising them closely.

Measurement Instrument Bias

Measurement instrument bias (sometimes called questionnaire bias) results from problems with the measurement instrument or questionnaire. Examples of such problems include leading questions or elements of the questionnaire design that make recording responses difficult and prone to recording errors. Problems of this type can be avoided by paying careful attention to detail in the questionnaire design phase and by using questionnaire pretests before field interviewing begins.

Nonresponse Bias

Ideally, if a sample of 400 people is selected from a particular population, all 400 of those individuals should be interviewed. However, this never happens practically as some response rates of 5 percent or less are common in mail surveys. Therefore, the

question is, "Are those who did respond to the survey systematically differ in some important way from those who did not respond?" Such differences lead to nonresponse bias. Obviously, the higher the response rate, the less is the possible impact of nonresponse because non-respondents then represent a smaller subset of the overall picture. If the decrease in bias associated with improved response rates is trivial, then allocating resources to obtain higher response rates might be wasteful in studies in which resources could be used for better purposes. Nonresponse error occurs when the following happens:

- A person cannot be reached at a particular time.
- A potential respondent is reached but cannot or will not participate at that time.
- A person is reached but refuses to participate in the survey.

Nonresponse error can exist when an obtained sample differs from the original selected sample. This may occur because either the potential respondent was not contacted or they refused to respond. The key factor is the absence of data rather than inaccurate data. (Qualtrics, 2019). These type of errors can be avoided by ensuring the participation of the original respondents while collecting the responses and by using follow-up surveys and alternates modes of reaching them if they don't initially respond.

Input Error: Input errors may be due to mistakes that occur when information from survey documents is entered into the computer. For example, a document may be scanned incorrectly. Individuals filling out surveys on a smartphone or laptop may hit the wrong keys.

Colombo Plan Staff College (CPSC), Manila has also elaborated the ways of avoiding the errors in research and the same are summarized below in table - 1.

Table- 1: Common Errors made

SN	Common Errors made	How to avoid it
1	Selective Observation- when our attention is drawn to answers or observations that confirm our pre-existing beliefs.	Do thorough and extensive literature review so you will know which relationships other studies have found out; decide your research approach beforehand; take thorough notes (to prevent biases);consider different "sides" of your study; use time or area sampling (looking at all possible angles rather than just those what you expect to see).

SN	Common Errors made	How to avoid it
2	Inaccurate observation- happens when you "misremember" or misrecord data. You think you correctly observed the information when you really had not done so. This happens when your brain miscoded the information at the processing stage.	Planning includes focusing on the task at hand rather than thinking of something else during data collection; careful literature review can help alerting you what you might find; doing time and area sampling (to reduce the amount and variety of information you are responsible for writing down and remembering at any given moment); practice observing and recording your observations before actually doing it real.
3	Overgeneralization- is generalizing to others who are different from one's research population. Quickly taking research findings as absolute. Just because something works in one study mean it will work in another.	Replicate one's study (to ensure that the results apply to different populations); support many tests of the same theory (to be sure it operates the same way under a different circumstance);use representative samples; recognize the limitations of your research.
4	Made-up information- happens when one fills details without scientific basis. Inference is based on speculation rather than based on science	Ask for opinion of others; do a thorough review of literature to help you understand possible outcomes; rely on prior research studies and/or theory to guide your own interpretation of what is going on.
5	Ex post facto hypothesizing- happens when you decide what happened after it happened and after the study was done. In scientific research, we have to decide what will happen before we embark on a study and not after.	Remember that correlation does NOT imply causation; do not feel obligated to report your research as deductive (that is based on hypothesis testing).
6	Illogical reasoning	Base your decisions on prior research and theory; make extensive use of peer review (Make your peers read and critic your writings).

SN	Common Errors made	How to avoid it
7	Ego involvement in understanding-happens when people let the human side of them dictate their findings and how they view findings by other researchers. Ego involvement affects how we look at and react to research by others.	Try to remain neutral, or to stay away from topics about which you cannot be neutral. Use the team approach, you cannot get too ego involved when you share the research task with others.
8	Premature closure of inquiry-occurs when we decide that we know enough about a topic and decide that it no longer warrants future study.	Keep looking for answers, even if such act involves using different approaches.
9	Mystification- happens when we attribute results to the supernatural.	Keep looking for answers when you feel tempted to rely on enchanted explanations; peer review will prevent this.

Note: Data Adapted from Colombo Plan Staff College (2018) Research in TVET made easy (2018). Copyright: Colombo Plan Staff College.

CONCLUSION

Recognizing that potential error exists, there are two basic approaches for reducing errors: Minimizing both sampling and non- sampling errors through appropriate research design incorporating the effective use of research methods and techniques and reducing the estimated and measured sampling error using statistics. However, researcher has to rely on his/her intuition, in dealing with non-sampling errors.

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CHAPTER 2
CONDUCTING TECHNICAL RESEARCH

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INTRODUCTION

This article describes and provides step by step procedure to conduct and write technical research in TVET (Technical Vocational and Education Training). It will explain and describe the list of competencies and skills needed in the conduct of technical research and its process. The skill of collecting information, and data deciding what is important in technical research, and writing about it for someone else is extremely valuable and will stay with researcher for the rest of the life. Therefore it is important to understand the process of technical research which includes identification of problem, solution design and investigation of artifacts in TVET context. Technical research is outcome based methodology which offer a specific guide to for evaluation and iteration within the projects (2016, Wikipedia, Design science methodology).

In order to do research in TVET, it is better to understand the process of technical research before conducting and writing. TVET trainer, trainee and administrator need to have a sense for what research entails for readers including connecting with your readers, defining your topic, the format of technical research, and how to include references from the literature.

WHAT IS TECHNICAL RESEARCH?

A very short definition of technical research, as given by Turabian (1996) is ”oriented towards engineering disciplines, but not specific to product or process, and aimed at developing tools and test equipment and procedures, and at providing solutions to a specific problem.” It is also defined by Wierenga (2010) that design and investigation of artifacts in any context. The artifacts we study are designed to interact with a problem context in order to improve something in the context. The following are the two examples, one technical and other one is organizational.

- Design and investigation of agent-based route planning algorithms
- Design and investigation of goal-oriented enterprise architecture design method

Technical research is an interaction between the artifact and a problem context that contributes to solving a problem. Therefore researcher should understand and study the philosophy of interaction between artifacts and contexts to achieve the stakeholder’s goals (Ahlberg and Schneiderman, 1994).

Research Problems

There are number of definitions on Research problems are available. The most specific and concise definition that clear the concept and understanding of writing research problems during technical research ”a statement about an area of concern, a condition to be improved that exists in scholarly literature, in theory, or in practice that points to the need for meaningful understanding and deliberate investigation”.

Wieranga (2010) discussed and defined research problems for design science research, that it has two parts namely design problems and knowledge questions. Design problems means ”Call for a change in the real world and require and analysis of actual or hypothetical stakeholders goals”. On the other hand knowledge questions refer to not calling for change in real world but ask for knowledge about the world as it is.

In addition to above definitions, it is also important to understand the different research problems questions to be answered during conducting a research.

- Technical Research Questions- These are used to improve an object made by a human being, typically an item of cultural or historical interest, in some kind of context.
- Empirical knowledge questions- These are used to ask questions about the real world
- Analytical knowledge questions- These are used to ask questions about the logical consequences of definitions

In technical research, writing a problem statement is a most important element because it will set the direction of research and help to design a most effective solution. Wierenga (2016) defined a template to write and design a problem statement. This template may be used by the researchers to write research problems in technical research.

- Improve (problem context)

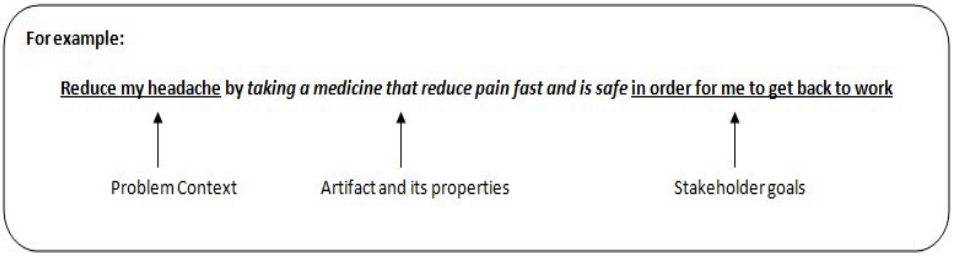

Figure 1: Problem Statement Example

- By (treating it with a (re) designed artifact)
- such that (artifact requirements)
- In order to (stakeholder goals)

RESEARCH GOALS

In research, writing the goals is most important task because it is distinguish the goals of researcher from the goals of an external stakeholders. If the goals are not defined properly than research results are unusable. A clear picture of your research goal will help the researcher to steer the research work towards satisfactory completion (Patricka, 2014).

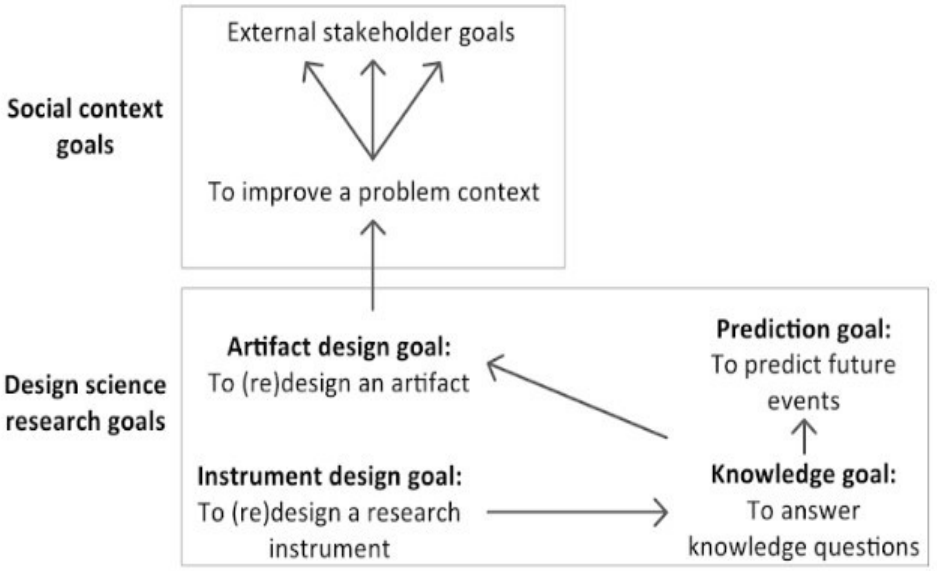

Figure 2: Goal Structure of a Technical Research Project

In technical research project, goals have different hierarchy with the characteristics contribution structure as shown in figure 2. The goals on the right hand concern our beliefs about past, present and future phenomena. The goals on the left side are design goals or more generally, improvement goals.
In research. there are different types of goals depending on the stakeholders' requirements as mentioned in figure 2.

In order to explain and define the phenomena of research project, it is important to understand knowledge goal. In order to answer the knowledge questions, some technical research projects may have to design instruments. These instruments design goals are the lowest-level design goals in figure 2.

Nowadays, market driven projects and research have a very clear goal hierarchy. Exploratory projects may have a more fuzzy goal hierarchy where the higher-level goals are speculative or may even be absent.

Technical Research Cycle

There are numerous types of research design that are appropriate for the different types of research projects. The choice of which design to apply depends on the nature of the problems posed by the research aims (Walliman, 2011). Based on the choice of research design, technical research is an action research, it is also called 'on the spot'

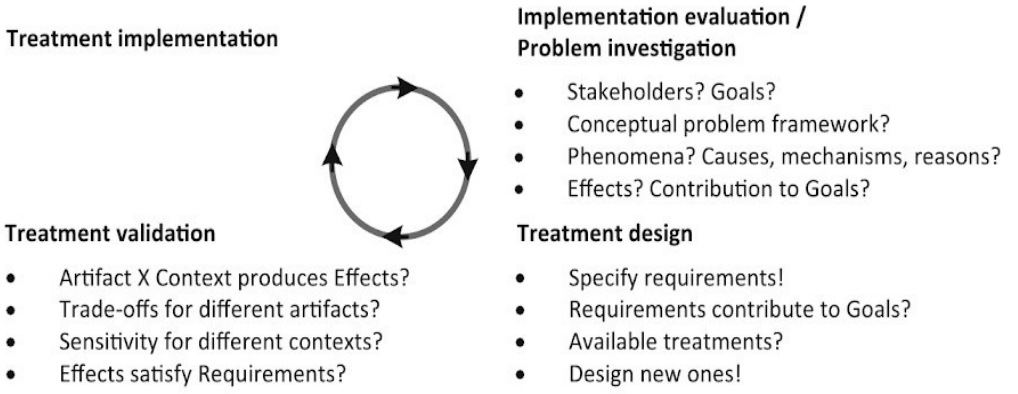

Figure 3: The Technical Research Cycle (Wieringa, 2011)

procedure, principally designed to deal with a specific problem found in particular context. The research cycle is a rational problem-solving process with the structure shown in figure 3. In order execute action research, the following technical research cycle has to be followed:

Problem Investigation

In technical research, focus on solution oriented research in which design an artifact that validate it by simulation. In this case, the problem investigation is very important part because rest of the research is based on this elements. If anyone didn't find the exact problem than the goal of the research will not achieve.

The goal of problem investigation, by contrast, is to prepare for a design of a treatment (solution) by learning more about the problem to be treated. As discussed in the first section that two types of problem are exists one is Knowledge problems and design problems. In figure 4, the questions marks indicate knowledge questions and the exclamation marks indicates design problems. It is important to understand discuss the following points when investigating research problems.

- Stakeholders and its goals
- Conceptual problem framework
- Phenomena, causes of problems and reasons
- Effects (Positive/negative) and goal contribution

Treatment Design

The treatment design is also called solution design for a technical research. In research, different terms are used to design the solution such as treatment, mitigation, intervention etc to solve a problem. The treatment has the advantage that it naturally suggest an artifact (medicine) interacting with a problem context (the human body) to treat a real-world problem (contribute to healing), and so we used the term "treatment". Therefore treatment is an interaction between the artifact and problem context. The following elements are important to understand when treatment is design.

- Specify requirements
- Contribution to goals
- Available treatments
- Design new ones

Treatment Validation

Validity is one of the main concerns with research. "Any research can be affected by different kinds of factors which, while extraneous to the concerns of the research, can invalidate the findings" (Shohamy). 1989

Treatment validation is the list of activities of explaining the treatment's appropriateness to stakeholders and sponsor. It will discuss the effects of artifact and context. In order to test the effects of treatment, different test will be carried out to validate the treatment. Controlling all possible factors that threaten the research's validity is a primary responsibility of every good researcher. Therefore, the following elements are important to understand when treatment is validated.

- Context Artifact Effects
- Effects satisfy Requirements
- Trade-offs for different artifacts
- Sensitivity for different Contexts
- Different test/experiments

Design Implementation

Design implementation is a process that research will effect change and improvement in the context of the problem. The concern of the people can lead to new improved services and changes in practice. It will tell that whether the treatment design is true to solve the problem identified in step 1.
Implementation is introducing the treatment in the intended problem context. For example, If problem context is a real-world context, implementation of a solution is technology transfer to the real world. It is a process to transfer of practice to a real world.

Implementation Evaluation

From the beginning of a technical research project, researchers should think about how they are going to monitor and evaluate researcher involvement and the impact of society involvement throughout the project (JICA, 2011). This will help for future projects and provide valuable knowledge for other researchers looking to involve members of the public in their work.

In the design research cycle, research projects always restricted to the first three task of the design research cycle: 1. Problem Investigation, treatment design and treatment validation. These three task is called design cycle, because in design or technical research projects usually perform several iterations through this cycle.

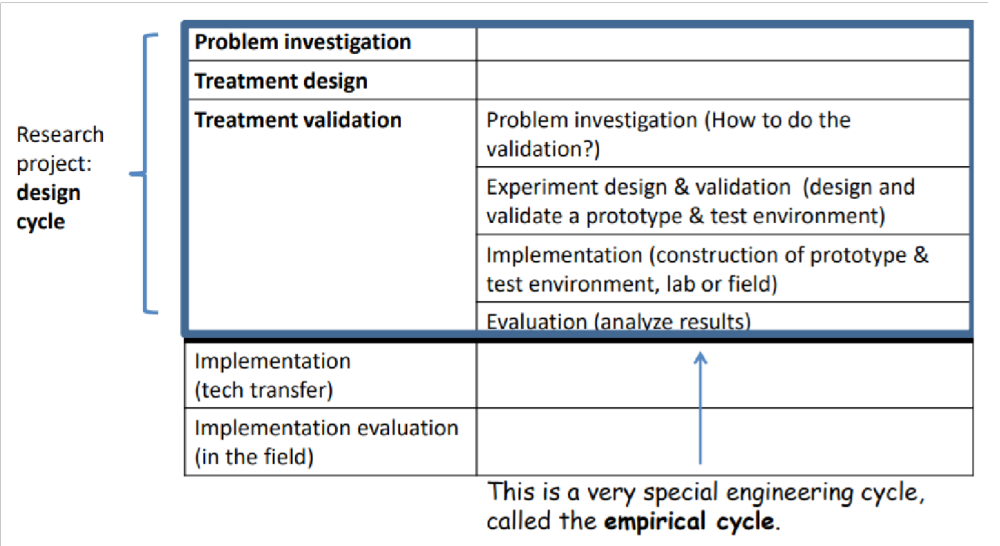

Figure 4: Nested Problem Solving Approach (Wieringa, 2009)

The Nesting of Cycles

Wieranga (2009) discussed that some knowledge problems that occur within the practical problems solving cycle as mentioned in figure 5. This will explain that nested problem solving cycles, in which solving a practical problem may lead the problem solver to ask knowledge questions, and answering these knowledge questions leads the problem solver to new practical problems.

CONCLUSION

The huge literature is available on conducting technical research. This article provides technical research cycle elements to help you to conduct technical research in TVET or any other sector. The design cycle consist of problem investigation, treatment design and treatment validation. The research cycle is a part of action research, in which a designed and validated treatment is implemented in the problem context and the implementation evaluated. Managing the technical research includes what to do, when to do and how to align with stakeholders and how to use finite resources to achieve the research goal.

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CHAPTER 3
WRITING THE RESEARCH ABSTRACT

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INTRODUCTION

The abstract is the most commonly required way for researchers to summarize their work. It is usually included in the first pages of the research report, and it aims to communicate everything that has happened in the paper in one page. This is designed for the readers to fully grasp and appreciate the research without going into all the pages of the report. It is usually the first document required by organizers in conferences and seminars. It enables them to collect a substantial information regarding your paper and also publish its details in its publications. It also gives an impression regarding the qualifications of the author, his capabilities and his efforts in the research.

Thus, the creation of abstract is guided by strict rules when it comes to the length and content. It should be enough to tell, in summary all of those that transpired in your research study without being too long or too wordy. It is also a test for the researcher's ability to paraphrase, summarize and select the most appropriate phrases that will capture the essence of his research.

The abstract is not meant to be a document to defend or recommend but to describe, in brief the process of the research for the initial appreciation of the audience.

TYPES

According to USC libraries (2019), there are different types of abstract depending on the purpose, namely:

1. Critical abstract- a critical abstract mainly highlights the study's validity, reliability and completeness. It features how the study addresses the critical issues in its area and are either compared vis-à-vis with the other works or studies. It is usually 400-500 words and can be very judgmental, technical or critical, which is why it is used as infrequently as the other types.
2. Descriptive abstract- a descriptive abstract indicates the type of information indicated in the work. It usually describes the study's problem, methodology, scope and purpose of the research and can be mistaken as an outline rather than a summary of the work. It is also a short abstract, consisting of 100 words or less.
3. Informative abstract- an informative abstract aims to provide more information regarding the study. It tries to explain the main arguments, results and methodologies used in the paper, as well as the conclusions and recommendations of the paper. It is the most common form of abstract and usually restricted to a maximum of 300 words in length.
4. Highlight abstract- the highlight abstract only targets to attract the reader's attention. The information presented may be incomplete or un-proofread but

only aims to spark the interest of the reader. It is not a true abstract because it cannot stand independent of its associated article and thus, it is used rarely in the academe.

Consider the following that should not be included in the abstract:

1. Very long sentences and jargons that may be confusing or un-understandable to the reader.
2. References to other literatures (e.g. current research shows that…. Or, based on….).
3. Ellipsis or incomplete sentences
4. tables, images, figures or other illustrations.

Some of the tips that you can explore when creating the abstract include:

1. Use active voice when possible.

   Using active voice means that you first indicate the subject, then the predicate. (ex. “I am going home” instead of “Going home, I will”). It is more direct and concise.

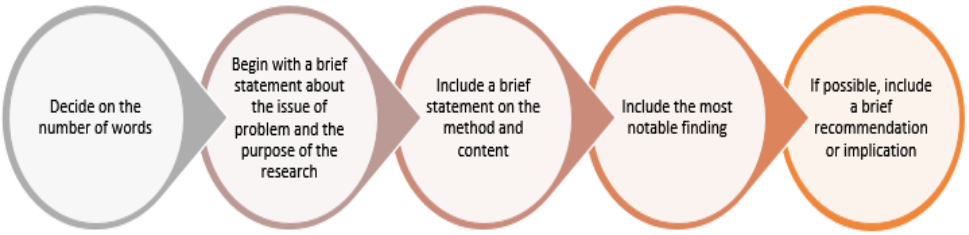
2. Use past tense

   Unless otherwise stated, abstracts are usually a reflection or a summary of a finished research study. Thus, all verbs should be expressed in past tense.

3. Write it after you have completed the research.

   The abstract should not be the first paper that you will write because it is a summary of your paper. Unless the paper has not been finished and an abstract is required for submission to a conference or publication, it is normally written after the research paper is finished.

PROCESS OF DEVELOPING AN ABSTRACT



Source: Reprinted from George Mason University Writing Center (2019, online).

GOOD VS BAD ABSTRACT

Bad Abstract	Good Abstract
This paper examines the relevance of APACC in the international setting. In this study, i have used surveys and focused group discussions. The results show that subscribing countries see APACC as relevant.	Established in 2004, the Asia-pacific accreditation and certification commission (APACC) intends to provide a basis for a region-wide implementation of TVET institutional standards of quality in the region through accreditation. The study explores its relevance and importance to its stakeholders. The method used is a qualitative-quantitative research design through online surveys and focus group discussions. Data from the 50 respondents coming from 6 subscribing countries show that they consider APACC as a relevant component in establishing standards for maintaining institutional quality and has recommended for its expansion to other countries as a way to establish more linkages and fulfill its aim to promote workforce and student mobility in TVET in the region.

CONCLUSION

Abstracts are necessary to convey a first impression to your readers. It integrates them to your research without having the go through the trouble of going to your manuscript. It is also the document that is usually required by conference organizers as they may not have the time or the patience to go over all of the submissions. Although it is a short summary of your research, the abstract should be formulated in a way that it captures the attention of your reader and is also self-explanatory, which means that it can stand on its own as a succinct information or source of what your manuscript talks about.

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CHAPTER 4
WRITING THE BACKGROUND OF THE RESEARCH

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INTRODUCTION

In some point or another, you may encounter an academic requirement that requires a research write-up or project. The research paper will be used as a gauge or a basis if you have really mastered the subject, and in this case it will require a considerable amount of your effort and time to really create a requirement that will prove your mastery of the subject or project.

The common question among students is: "What is Research"?

Research, according to Leedy and Ormrod (2005) is a method of academic study in which an identified problem in our environment is solved through a careful investigation of facts with the aim of contributing to the increase in knowledge or updating them with new ones. It is closely tied with a deeper understanding of the subject matter through the practical applications of the theories and methods that you have learned throughout your class.

In simple thoughts, doing your research work can reflect your expertise or knowledge in the said matter. It is important therefore that you have to bear with the rigors and the arduous tasks associated with it. Have in mind the requirements set by your professors regarding the format and the style of writing. That is very important.

BACKGROUND OF THE RESEARCH AND STATEMENT OF THE PROBLEM

Any research would start with the identification of the problem. Simply put, a strong problem statement would further explain the issues that are underlying in the study, with the aim to provide possible alternatives to rethink, analyze or process the said issues in order to contribute to the existing body of knowledge.

The research problem acts as the backbone of your study. It is where your subsequent literature searches, data gathering, results and recommendations emerge. Thus, an important deliberation among your peers, your adviser or even among yourself is important in considering a topic to be studied.

In this exercise, it is important to remember the following characteristics of a good research problem (Bwisa, 2014 on-line):

1. *Addressing the problem gap:* The problem gap refers to the comparison between the present situation and the ideal situation. An ideal research problem attempts to explain what is ought to be addressed by looking into the

ideal situation by making some recommendations to change the present.

2. *Be significant enough to contribute to the existence of the research:* Always remember that your research will strive to add to the existing body of knowledge. As much as possible, pursue a topic that will address the most pressing issue in your environment with the aim of introducing interventions, recommendations or even systems that will at least help in making the current situation closer to the ideal one.
3. *Be interesting to the researcher and suited to his/her current capabilities:* Remember, it is you who will conduct your study so as much as possible select a topic in which you feel comfortable or knowledgeable.
4. *Be realistic:* Doing a research will require a lot of time and personal resources. It is important that an achievable research is pursued. By achievable, I mean the research that will require the lesser disruption of the normal schedules or a lesser shell out of money or labor.
5. *Be ethical:* Certain rules have to be considered in doing researches. Try to know your subjects first and your projected interaction with them. Also, it is important to note that some rules apply when you do data gathering. Have this consultation with your adviser for proper guidance.
6. *Use the proper statistics:* It is important that you cite several statistics cited from different agencies, offices or even international organizations such as UN, World Bank and ILO in order to emphasize the need for this research. For example, if your study involves poverty alleviation, cite the recent figures released by the National Statistical Coordination Board (NSCB) or the World Bank regarding poverty. If your research involves school-related projects such as preventing drop-outs, use the enrollment figures obtained from the School Registrar. Please bear in mind that you should coordinate with the correct departments these data, as some of them are either confidential or published with the consent from the proper authorities.

The research problem contains four parts: (1) the ideal; (2) the reality, (3) the consequence and (4) the research problem:

Components	How does it look like?	What are the things to include?
Part 1: The Ideal	The ideal mentions the desired situation and the aim of the study. It can either propose a change in the current scenario and an explanation of how things should be	Construct the Ideal by incorporating the following elements: a. A description of the desired goal. b. An overview of an ideal situation c. A statement expressing what is expected

Components	How does it look like?	What are the things to include?
Part 2: The Realty	The reality describes the current scenario, including the problems, challenges and difficulties that makes the problem far away from the ideal situation	Normally, this part includes the following: 1. A description of the current problem using statistical references, news reports, personal observations, quotations from organizations, agencies or reliable bodies of knowledge, etc. 2. Sometimes, researcher includes the causes or the reasons that led into the current situation. This is very vivid on historical or archival resources. Proper citation and attribution to factual documents and events apply. 3. Using connector words such as “however”, “due to” and other terms can bridge the thought between part 1 and part 2
Part 3: The Consequences	The consequences will revolve on the idea that a certain situation will happen if the problems indicated in the reality will not be addressed. This signifies that your research is needed in order to further contribute in finding acceptable solutions or propose new ideas or systems.	1. The consequences should cite specific details that would highlight problems. As much as possible, try to persuade your readers about the possible consequences that may arise unless something is done. 2. The consequences can also mention the benefits that your research can provide.

Components	How does it look like?	What are the things to include?
Part 4: The Research Statement	The final research statement the possible steps to address the concern or issue raised in the "reality" part. This part should make a bold statement about the existence of the gap between the ideal and the reality and the need to bridge the two. This part wraps the three previous parts into a statement that will address the concerns as stated. It boldly states the objectives of your research.	1. The research statement should reflect your plans for the research. It should indicate that upon analyzing and reflecting on the possible work, there is a projected change that you will introduce. 2. This usually starts with "The study will investigate (or analyze, describe, problematize depending on the recommended research design approved by the adviser). 3. This part will be your "proposal" to the readers and audience, indicating boldly your commitment and motivation to embark on a selected topic.

Below is the sample of the research problem. Take note that this is a summary:

Proposed Research: Factors Affecting the Absenteeism and the Increase in Dropout Rate in the School

Statement 1: Ideal

"The success of the child's learning in schools can be attributed to a regular attendance in the classes. Several reports have suggested that children with perfect attendance records in their classes tend to respond better, process information efficiently and are more active compared to their peers who are mostly absent on their classes. This shows that an efficient learning policy is the one that would encourage children to attend their classes and actually enjoy them, reducing their incentives to be distracted in other activities that would prevent them from coming into the classroom."

In this example, an ideal scenario that ideally, children should attend classes in order to make their learning efficient.

Statement 2: Reality

However, the current figures from the Office Student Affairs indicate that as much as 30% of the first years currently enrolled in the morning classes have been absent for at least 50% of the time. 20% of the first years enrolled in the afternoon classes also absent in 20% of their classes. The statistics from the Office of the Student Affairs also show a rising number of people dropping out of school. Increased vigilance of the school authorities to monitor the problem seems to be lacking because of this incidence, as reflected on the lack of records from the proper authorities, show that students can go in and out of the campus as they wanted.

In this example, it shows that despite the benefits brought by attending classes regularly, the statistics show otherwise. This highlights that indeed, there is a problem that should be addressed.

Statement 3: Consequence

By turning a blind eye to this problem, the programs and services of the school may suffer. Also, the education of the students may suffer, which can lead to countless social problems that is associated with this.

In this example, the author tries to persuade the readers that absenteeism is a problematic consequence. It does not have to appear as if you are presuming or judging the authorities. Rather it will be used to make your planned research significant.

Statement 4: Research Problem:

In light of the problems that I have gathered, the study will be focused on understanding the factors that are associated with the increased absenteeism among the students of this school. I believe that my research will be a key into providing a realistic solution in addressing the high incidence of absenteeism and drop out. It is my intention to contribute to the existing body of knowledge about this topic, and I hope that as an administrator of this school, I would be able to contribute to the policy that will curb the further increase in the absences among students.

In this example, the author signifies his/her intentions in addressing the problem. It boldly states the motivation of this study (because the author is a school administrator) and his aim in achieving a goal that is close to the ideal situation that was stated.

RESEARCH QUESTIONS

The research questions will specifically outline what you want in your study. These will function as your checklist on the type of data that you will gather, how your results look like, and what will be your recommendations when you gather your data.

For example, refer to the study about the factors on school absenteeism. Specifically, the researcher wanted to study the factors that are associated with it. Let us further discuss how the outline should be constructed.

Start with the statement of the problem. This time, this should be more specific and direct to the point.

General Statement of the Problem/Umbrella objective: The study aims to investigate the factors leading to the increased absenteeism and dropout rates in the school. Specifically, it aims to answer the following questions:	
Sample Research Questions	**Remarks**
What is the profile of the respondents in terms of a. Gender b. Age c. Year Level d. Course	These questions focus on the descriptive characteristics of their respondents. Attributes such as age, school, gender or course being studied (for projects based in schools) are the common questions. This is important to know the variety of your respondents, and can be used in your analysis later on (comparing the attributes of your respondents are popular topics for discussion in the research).
What are the different factors associated with the increased absenteeism and dropout rates?	This question will directly address the objectives of the study. In this case, you have to be specific on your desired results. A good background of your study, and some preliminary library work, can be of great help.
What is the perception of the respondents on the different factors associated with the increased absenteeism and dropout rates?	Normally, questionnaires using the Likert Scale (the scale measuring responses from the minimum to maximum in specified points) that converts perceived responses into a numerical form.

Is there a significant difference between the gender, age, year level and course of the respondents to the factors associated with the increased absenteeism and dropout rates?	This research question would normally require inferential statistics. In this case, you need to form a hypothesis and use the correct statistical tool to determine which side of the hypothesis you will accept or reject.

THEORETICAL AND CONCEPTUAL FRAMEWORK

After you have determined your research topic and laid out the research problems that you aim to address, the next step would be the formulation of the framework.
A framework can be both theoretical and conceptual. This will serve as a sort of blueprint for your study. As I have mentioned in the previous sections, your research should be based from facts. The theoretical and conceptual framework will strengthen your position that indeed, this research is based on several theories and concepts that are relevant in your study.

a. Theoretical Framework- A theoretical framework hinges on theories that explain why the phenomenon exists (Alto, 2009). These theories serve as a structure of ideas which will serve as an orientation to the readers on the facts that are relevant in analyzing the research
b. Conceptual Framework- This describes the researcher's viewpoint upon his analysis of the theories. According to Alto (2009), this will serve as a guide for the researcher in conducting his investigation.
c. Research paradigm- it is a graphical representation of the research process. Using graphs, the paradigm describes the functions that each data plays in the research.

Commonly, the research paradigm identifies the different types of variables used in the study. These types of variables include:

a. Independent variable- these are the variables that can be manipulated, changed or altered. In simple terms, the variable is the CAUSE or one controlled or manipulated by the researcher.
b. Dependent variable- these are variables that are altered, changed or manipulated as the result of the changes in the independent variable. According to Calderon and Gonzales (2008), these are conditions, process or attributes that we test using the independent variable. In simple terms, this is called the EFFECT.
c. Moderator variable: these are the variables that can either affect the relationship between the independent and dependent variable.

Brief Examples:

Theoretical Framework

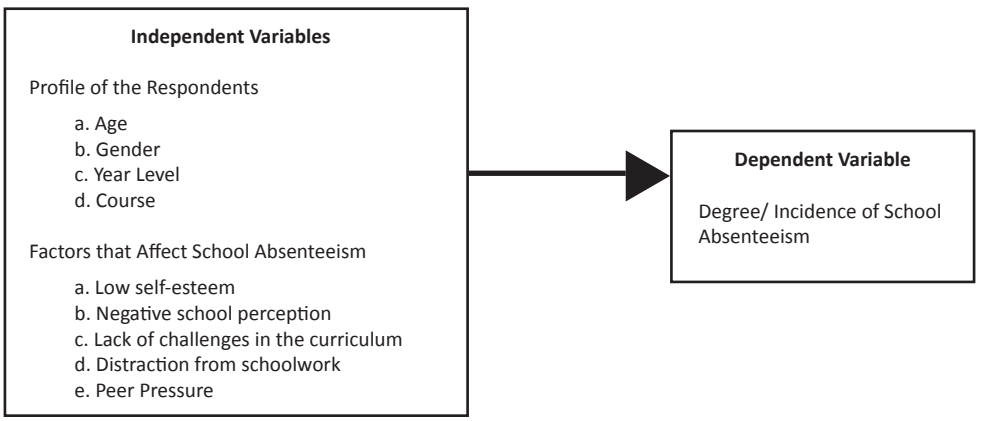
"One way of discussing absenteeism is through school refusal behavior (SRB) theory as formulated by professionals (Williams, n.d.). As discussed by Kearney and Silverman, the official definition of SRB can be "the difficulty of attending the school or remaining in school for the rest of the day". The school refusers can attribute these perceptions to the negative reinforcement that the school may bring, such as punishments or bullying. Also, the separation anxiety brought by the idea of being away with your parents can present another negative reinforcement, and may present a detrimental view of the viability of school attendance."

In this example, prominent theories made from other authors are cited. Also, include an explanation on the significance of your theory in this research.

Conceptual Framework

"Chronic absenteeism can be associated with different factors that may or may not affect the child's incentive to go into school. Aside from the negative perception of the students in going to school, probably we can explore the possibility of the lack of challenges and interesting course work that the work or student curriculum can offer. Also, the low self-esteem of the students can be attributed to the increase in the negative interest of the students in the school, who would rather opt to not attend classes instead of being around with people who they perceive to be bringing them down."

Concepts such as "lack of challenges" and "Low self-esteem" may not be explained in the theories but it can guide you in formulating your plan for the study. It is important to have your preliminary library work in formulating your conceptual framework.



Research Paradigm

In a research paradigm, arrows are very important. In this particular example, the arrow points from the independent variable box to the dependent box, illustrating that the independent variables cause the changes in the dependent variables.

HYPOTHESIS

A hypothesis is an "educated guess" or a statement that presumes the relationship between two or more variables (Alto, 2009). These guesses aim to assist the researcher in solving the research problem through assuming a definite scenario. Furthermore, the hypothesis aims to be dependent on the acceptance or rejection, which will depend on the revelation of the facts. It is also a guide for statistical interpretation, particularly in the inferential statistics.

Null Hypothesis: The null hypothesis assumes that there is no existence, interactions, relationships or difference between two or more variables.

Alternative Hypothesis: Expressed as the opposite of the null hypothesis.

Example:

Null hypothesis: "The following factors do not influence school absenteeism among the students"

The words DO NOT assumes that there is no relationship between the prevalence of school absenteeism and the factors associated with it.

Alternative Hypothesis: "The following factors influence school absenteeism among the students"

Omitting the words DO NOT radically changes the hypothesis into the other direction, in which it now assumes that there is a relationship between the prevalence of school absenteeism and the factors associated with it.

Take note that the null and the hypothesis should be stated together, and the rejection of the other could be the acceptance of the other. You cannot accept or reject both hypothesis.

SIGNIFICANCE OF THE STUDY

The significance of the study suggests that the researcher will be useful to its target audience. Identify the persons that will benefit the study most, and explain the foreseen benefits that they might gain if ever your results get published.
Example

'This study can be beneficial to the school administrators because with an enough knowledge on the factors that causes absenteeism among students, they will be able to design new policies and guidelines that will take into account the various feedback from the students. This can also improve administrative efficiency and program effectiveness, opening to more opportunities for improvement in both the school and the student"

DEFINITION OF TERMS

The definition of terms is important because there are varied interpretations on the terms commonly or specifically used in the research. It is important that as a researcher, one is capable of distinguishing the real definition of the concepts and terms used in the study among the ones being interpreted by others.

Usually, the terms in the research title are the ones included in this section. Do not attempt to modify all the terms that you see as relevant in this section. Better place them in the "Review of Related Literatures" part.

In the definition of terms section, two parts are commonly used.

Conceptual definition: A conceptual definition uses the official definition as stated in technical books, dictionaries and other. Word of advice: The hierarchy for the sources in the definition of terms is as follows: (1) Technical Books > (2) Dictionaries and Encyclopedias > (3) Wikipedia and other unverified internet sources.

Why is it that we have to use Wikipedia sources the least? Simple, Wikipedia sources are editable which may not sit well with academics because the reliability of the facts is questioned. For unquestionable sources, always refer to technical books. For example, if you define education terms, better use books on educational development or history. Operational Definition: The operational definition discusses on how you use a certain term in the research. In other words, it is how you understand, interpret and incorporate those terms into your research. The use of the words parallel to the conceptual definition is not required. What is important is that you, as a researcher, understand these terms according to what your research requires. It usually starts with the phrase "In this study/research…"

E*xample*

School absenteeism (conceptual definition)-absence in the school for more than 20 days, or a month, which includes both excused and unexcused absences (Balfanze, 2012)

School absenteeism (operational definition)- In this research, school absenteeism refers to the factors that hinder or demoralizes the student to enter the school and attend his required classes for at least 20% of the time.

In these examples, you can see that the term defined by the source can mean differently on your research (with the former hinged on the numerical equivalence of absenteeism while your research would suggest attributes that contribute or affect it). This solidifies the importance of an operational definition.

Scope and Limitation

The scope and limitations, on the other hand, assures the readers that the research is within its established boundaries. Some elements that should be included in this section are:

a. Scope- This describes the coverage of the research. While some may like to re-state their objectives, some would offer an assurance that the research will cover the identified areas of study.
b. Location- describe where you will conduct your study
c. Respondents/Participants- describe in brief the respondents of the study
d. Dates Covered- Describe the duration of conducting the study from conceptualization to the final phase of submission. If it is still a proposal, indicate the target date.
e. Limitations- describe the possible limits, or the barriers, that this research might encounter. For example if you are conducting a study on students, you may want to include all students but specified numbers or types of students only. Also, indicate an assurance that your research will not go out of the expected guidelines.
f. Other ethical considerations- Say if you, for example, will do a research on animals, the research should mention the tests and the requirements that you have applied in order to assure the safety of both you and the subject. Also, be frank about the methodology that you will use (although this one will be discussed in detail in chapter 3)

SUMMARY

Ideally, the Chapter One of the Research should include the following sections.

I. Background of the Research
II. Statement of the Problem
    a. Theoretical and Conceptual Framework
    b. Research Paradigm
    c. Objectives/Research Questions
    d. Hypothesis
III. Significance of the Study
IV. Definition of Terms
V. Scope and Limitations

The outline indicated is just a prescribed format of how a Chapter One of a Descriptive Research may look like. However, the final format will still depend on your research adviser. Constantly seek their consultation on their required format.

REFERENCES

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Colombo Plan Staff College (2009). Research in TVET made easy. Manila: Colombo Plan Staff College.

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CHAPTER 5
WRITING THE REVIEW OF THE RELATED LITERATURE

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INTRODUCTION

Research is all about gathering the necessary information on the certain topic. It is very important that the researcher connects this research to an existing paper or piece of information to achieve its purpose of validating the findings of the research. It is also needed to prove that a previous research was not repeated or duplicated. Thus, the review of the related literature becomes an essential part of a research paper since it provides the link to the future findings and the existing "facts".

Many researchers see this section as a collection of the readings, information and write-ups concerning about the topic related to the research problem. However, it goes beyond that since the ultimate goal of this section is to gather as much information as possible without having to plagiarize, copy or misquote the source of information. In this, certain processes are being followed.

This section talks about the techniques in gathering information from other sources and incorporating it to your research paper. It further includes the correct arrangement of the topics and the composition/format of the references to be cited. At the end of this theme paper, it is expected that the participants are able to grasp or at least understand how to correctly cite, paraphrase and add the information for their own research papers.

THINGS AND TECHNIQUES TO REMEMBER WHEN CITING INFORMATION FROM EXTERNAL SOURCES

Some of the helpful tips when looking for external sources whether in the library, internet or in other online journals:

Do's:

1. Bring a notebook, paper or a laptop for your convenience. Sometimes, the library does not allow certain titles to be checked out from the premises.
2. Make an outline for you to be guided of the topics that you need to research.
3. Try to check the table of contents. You can also try the glossary since it sometimes provides the location of your desired topic within the book.
4. Paraphrase a certain entry. Copying word-by-word does not only consume time and effort, it also becomes a ground for plagiarism.
5. Bring a separate notebook or an index card indicating the: (1) Author/s, (2) Date/Year of Publication, (3) Topic, (4) Title of the Literature, (5) Page Number, (6) Edition of the Book, (7) Place of Publication and (8) Remarks/Other notes. This is to help him/her remember the literature in case of some omissions and

clarifications. Also, this is very helpful when citing the references at the last part of the paper. For the websites or online sources, the notepad or index card should cite: (1) Author/s or Institutions, (2) Topic, (3) Year Website was published, (4) URL or the web address and (5) Date where the information was retrieved.

6. Open yourself to possibilities of modifying, adding and changing the information.
7. Follow the PPAs: Patience, Persistence and Accuracy in looking for information in the internet or library.
8. Explore other sources like newspapers, CDs, videos or even television shows.

Dont's

1. Using articles, books and information that are outdated. For websites, the minimum requirement is at least 10 years. Also the same is followed for library entries except for those books that states theory or facts (which does not require an update, since they are accepted already as factual) or those doing historical and genealogical researches.
2. Plagiarizing, or copying/lifting/ improperly citing an information. The author deserves the credit of owning the information. As a researcher, it is his/her responsibility to recognize the author's contribution to your output. Plagiarism is also synonymous to cheating, and is a big no-no in research.
3. Copying the whole article or information. It is more efficient to paraphrase and include only the important thoughts.
4. Incorrectly citing the author is also considered as plagiarism. There are existing formats in which researchers can refer.

PARAPHRASING

Paraphrasing, according to Duke University Libraries (2009) involves the changing of the wording of a certain phrase or sentence. This may vary according to length, but what is important is that it is you who totally composed the words with the most accurate thought as possible.

If it can't be helped, quotations can be used. This is like a sort of a license, in which the researcher can lift the exact words from the text provided that he/she places open and close parenthesis on the start and end of the quote. This is important for those authors famous for their own words (Ex. "If you plan to do, you plan to fail"- Anonymous) or if the researcher desires to refer directly to the author's own words. This has to be used sparingly, as the research paper is not a dictionary of quotes but a composition made by the researcher, himself.

Some of the examples of paraphrasing are the following:

CSE Style

Original

However, although humans are comparatively poor sprinters, they also engage in a different type of running, endurance running (ER), defined as running many kilometres over extended time periods using aerobic metabolism.

Bramble DM, Lieberman DE. 2004. Endurance running and the evolution of Homo. Nature 438:345-52.

Paraphrase

Having limited success in sprinting compared to other mammals, humans perform better in endurance running, which is a form of aerobic running over extended distances and periods of time (Bramble and Lieberman 2004).

APA Style

Original

In the current paper we will be examining responses to a particular type of imposter; the vegetarian who eats meat. We chose this example because the core norm of the vegetarian is very clear (to not eat meat), and violation of the norm is easily recognized.

Hornsey, M.J. & Jetten, J. (2003). Not being what you claim to be: impostors as sources of group threat. [Electronic version] European Journal of Social Psychology, 33, 639-657.

Paraphrase

Hornsey and Jetten (2003) investigated group responses to impostors. For the purposes of their study, the impostors were defined as vegetarians who go against the norm by eating meat. The “violation of the norm” in this particular situation is easily noticed (Hornsey and Jetten, p. 641).

MLA Style

Original

In The Sopranos, the mob is besieged as much by inner infidelity as it is by the federal government. Early in the series, the greatest threat to Tony's Family is his own biological family. One of his closest associates turns witness for the FBI, his mother colludes with his uncle to contract a hit on Tony, and his kids click through Web sites that track the federal crackdown in Tony's gangland.

Fields, Ingrid Walker. "Family Values and Feudal Codes: The Social Politics of America's Twenty-First Century Gangster." Journal of Popular Culture 37.4 (2004). Expanded Academic ASAP. Gale Group. Duke U Lib., Durham. 8 Dec. 2004.

Paraphrase

In the first season of The Sopranos, Tony Soprano's mobster activities are more threatened by members of his biological family than by agents of the federal government. This familial betrayal is multi-pronged. Tony's closest friend and associate is an FBI informant, his mother and uncle are conspiring to have him killed, and his children are surfing the Web for information about his activities (Fields).

Usually, the APA style is used for consistency. This format is also popularly used for citing bibliography and references (which can be found at the end of the research proposal/thesis).

CITING SOURCES AND BIBLIOGRAPHY

The crucial part of making the review of the related literature is the citation of the sources. As part of the ethics for being a good researcher, he/she has to recognize the works of the other researchers by mentioning them not only in the references, but also in the actual paper itself. There are several techniques to cite your sources in the paper as pointed by the Bates College (2008), which will be discussed below.

Standard Text Citation Formats (Scientific Journal Style)
The simplest form is the citation using the surname of the author and the year enclosed in a parenthesis. For example:

Single Author (for Journals)

Standard Format:

Reference	How to Cite in Paper
Bugjuice, B. 1970. Physiological effects of estrogen on mouse courtship behavior. J Physiol 40(2):140-145.	Bugjuice (1970) OR (Bugjuice 1970)

Author (Year). Journal Title. Name of Journal. Journal Name, Issue Number (Volume Number): Pages
Example:
Some things to remember

1. Abbreviation of the first name was used
2. The first letter of the next line should be indented 4-6 spaces (or one tab) under the first letter of the first line
3. Use the sentence case, capitalize the words in the title
4. Placements of periods is standard
5. Abbreviate the names of the authors. For organizations like UN, UNESCO or those that are popularly known on their abbreviations, a complete spelling is required.
6. Book/journal title is not underlined, although some formats suggest that it should be italicized

Two Multiple Authors in a Journal

Authors (Year). Journal Title. Name of Journal. Journal Name, Issue/Publication Number (Volume Number): Pages
Example:

Reference	How to Cite in Paper
Timm, T. and B. Bugjuice. 1989. The role of whisker length in mouse nose-twitch courtship behavior. J Physiol 61(3):113-118.	Bugjuice (1970) OR (Bugjuice 1970)
Bugjuice, B., Timm, T. and R. Cratchet. 1990. The role of estrogen in mouse courtship behavior changes as mice age. J Physiol 2(6): 1130-1142.	Bugjuice et al. (1990) OR Bugjuice and others (1990) OR (Bugjuice and others 1990)

Journal with Unknown Authors

Reference	How to Cite in Paper
Anonymous. 1979. STD's and You: A Survival Guide for College Students in the 20th Century. Publ.#12-1979, Waazah County Health Department, Popville, Maine. 6 p	Anonymous (1979) OR (Anonymous 1979)

Book (Single Author)

Author (Year). Book Title. Number of Editions. Place of Publication: Publisher. Pages

Example:

Reference	How to Cite in Paper
Gumwad, G. 1952. Behavior patterns of mice. 2nd ed. New York: Harper & Row. 347 p.	Gumwad (1952:224) OR (Gumwad 1952:224

Book (Multiple Authors)

Author 1 and Author 2 (Year). Book Title. Number of Editions. Place of Publication: Publisher. Pages

Example:

Reference	How to Cite in Paper
Huth, J., Brogan, M., Dancik, B., Kommedahl, T., Nadziejka, D. Robinson, P., and W. Swanson.1994. Scientific format and style. The CBE manual for authors, editors, and publishers. 6th ed.Cambridge: Cambridge University Press. 825 p.	Huth et al. (1994:625) OR Huth and others (1994:625) OR (Huth and others 1994:625)

Book (Authors Contributing to a specific chapter)

Author 1 and Author 2 (Year). Chapter Title. In: Author Name, editors. mber of Editions. Book Title. Place of Publication: Publisher. Pages

Example:

Reference	How to Cite in Paper
Kuret, J. and F. Murad. 1990. Adenohypophyseal hormones and related substances. In: Gilman A, Rall T, Nies A, Taylor P, editors. The pharmacological basis of therapeutics. 8th ed. New York: Pergamon. p. 1334-60.	Kuret and Murad (1990:1334-60) OR (Kuret and Murad 1990:1334-60)

Websites

Standard Format (popularly used):

Author 1. (Year Published). Title of Article. Retrieved from: URL. Retrieved Date:

Example:

Reference	How to Cite in Paper
Landsberger, J. (n.d). APA Website Citation. Retrieved from: http://www.studygs.net/citation.htm. Date Retrieved: August 4, 2011	Kuret and Murad (1990:1334-60)

Standard Text Citation Formats (APA Style)

The APA (American Psychological Association) style is usually used for social science researches. It is popularly used as a formatting style in many of the research books that deals with descriptive studies. In this section, only the most popular usages will be given.

An entire book

Author (Year). Book Title. Number of Editions. Place of Publication: Publisher.

Example:

Reference	How to Cite in Paper
Majumdar, S. (2010). Emerging challenges and trends in TVET in the Asia-Pacific region (2nd.ed). Rotterdam, the Netherlands. SensePublishers.	Majumdar (2010)

A chapter in an edited volume

Author 1 and Author 2 (Year). Chapter Title. In: Author Name (Eds. Or Ed) , editors. Book Title (Page Number). Place of Publication: Publisher.

Example:

Reference	How to Cite in Paper
Nadel, L., & Zola-Morgan, S. (1984). Infantile amnesia: Aneurobiological perspective. In M. Moscovitch (Ed.), Infant memory (pp. 145-172). New York: Plenum	Nadel & Zola-Morgan (1984)

Website (recently updated):

Author 1. (Year Published). Title of Article. In Title of Website. Retrieved From: URL

Example:

Reference	How to Cite in Paper
Landsberger, J. (n.d.) APA Website Citation. In study guides and strategies. Retrieved from http://www.studygs.net/citation.htm	Landsberger, (n.d)

Article from a Newspaper

Title of Article.(Date Published). Newspaper Number. (Page Number)

Example:

Reference	How to Cite in Paper
Strong peso taking toll on exporters. (August 4, 2011). Philippine Daily Inquirer, p.B1.	Philippine Daily Inquirer (August, 4, 2011)

Article from a Magazine

Author 1. (Year Published, Month Published). Title of Article. Magazine Name, Edition/Magazine Number, Page Number

Example:

Reference	How to Cite in Paper
Jones, R. (2011, January). 2011 Time people of the year. Time., 133,p.50-61.	Jones, R. (2011, January)

Research Articles (Unpublished)

Author 1. (Year Published). Title of Paper or Manuscript. Unpublished manuscript/ Manuscript submitted for application/Unpublished raw data.

Example:

Reference	How to Cite in Paper
Colombo Plan Staff College (2010). A study on challenges and issues in TVET in CPSC member countries. Unpublished manuscript	Colombo Plan Staff College (2011)

Things to Remember:

1. If you cannot find the year of website publication, just place “n.d” or “no date
2. The Title of the article can be italicized to differentiate it from the article title.
3. The hyperlink of the URL for websites must be removed. It should be converted into standard text without the underlines and the blue font color
4. Uniformity is encouraged. Usually, for social science researchers the APA format is being used while for technical researches, the scientific paper journal is the most common. Use only one, standard format.
5. The list of Bibliography/References is always placed after the body of the research. It is a indicated on a separate part of the paper
6. Always arrange the entries in your bibliography alphabetically. You can also divide your bibliography/reference section by indicating the sources and classifying your references according to those.

CONCLUSION

In an academic paper, it is equally important to pay attention into citing the sources used in the study. In this way, readers will have the confidence to actually read your paper and validate its findings. Aside from building the validity and the accuracy of

your paper, this can be used as a basis for you to form substantial and founded findings, conclusions and recommendations based from the literatures you have reviewed.

Since building confidence and trust is important in research, review of the related literature with the correct, accurate and substantial cited information serves as a proof that your paper is well-guided and is valid as an input for future resources.

REFERENCES

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Landsberger, J. (n.d.) APA Website Citation. In: Study guides and strategies. Retrieved from: http://www.studygs.net/citation.htm

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PART II

WRITING PRACTICAL REPORTS AND PROPOSALS FOR SPECIFIC NEEDS

PREAMBLE

The succeeding chapters discuss the different formats and recommended compositions of academic papers commonly used for research reports. It starts with the formulation of a tracer study, training needs analysis, product and process evaluation, case study and the accreditation report specifically for APACC.

The chapter aims to equip the readers with formats, styles and suggestions to ensure that these outputs, when done by them, will be credible, well-thought off and verifiable.

CHAPTER 6
TRACER STUDY: A WAY TO MEASURE OUTCOME OF TVET PROGRAM

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INTRODUCTION

A tracer study is a survey of graduates to identify the relevance of training /educational programs, employment status of graduates, and measures to develop or revise courses for future. According to ETF/CEDEFOP/ILO (2016), "a tracer study or graduate survey is a standardized survey (in written or oral form) of graduates from education institutions, which takes place sometime after graduation or the end of the training. The subjects of a tracer study can be manifold, but common topics include questions on study progress, the transition to work, work entrance, job career, use of learned competencies, current occupation and bonds to the education institution (school, center, university)."

There are different terms used for tracer study:

- Graduate survey/study;
- Alumni survey/study;
- Graduate (career) tracking;
- Follow-up survey/study;
- Transition survey/study;
- Tracer survey/study;

Standardized surveys are usually conducted by means of a paper questionnaire or, more recently, online questionnaires.

In other way, we can say that tracer study is an external evaluation of the TVET programs/ institution to measure effectiveness of the output and outcomes. The components of tracer study are in figure 1 below.

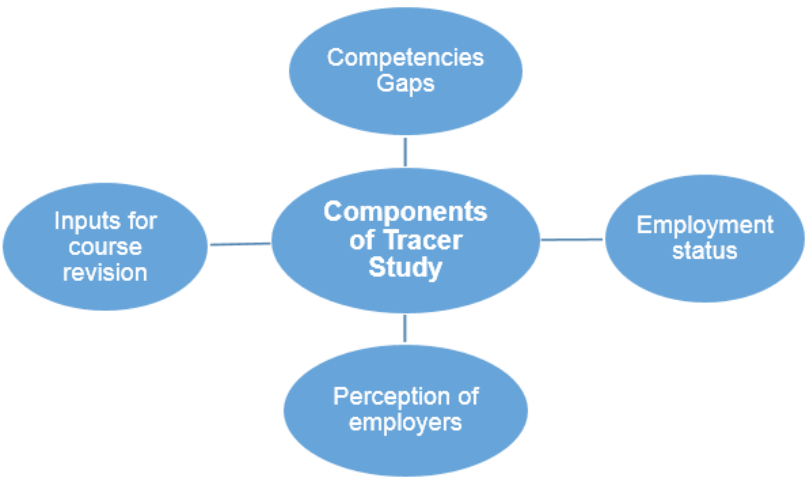

Figure 1. Components of Tracer Study

Tracer study is also a research. Therefore, as other research study, it should have following key elements for the validity and reliability in the labor market.

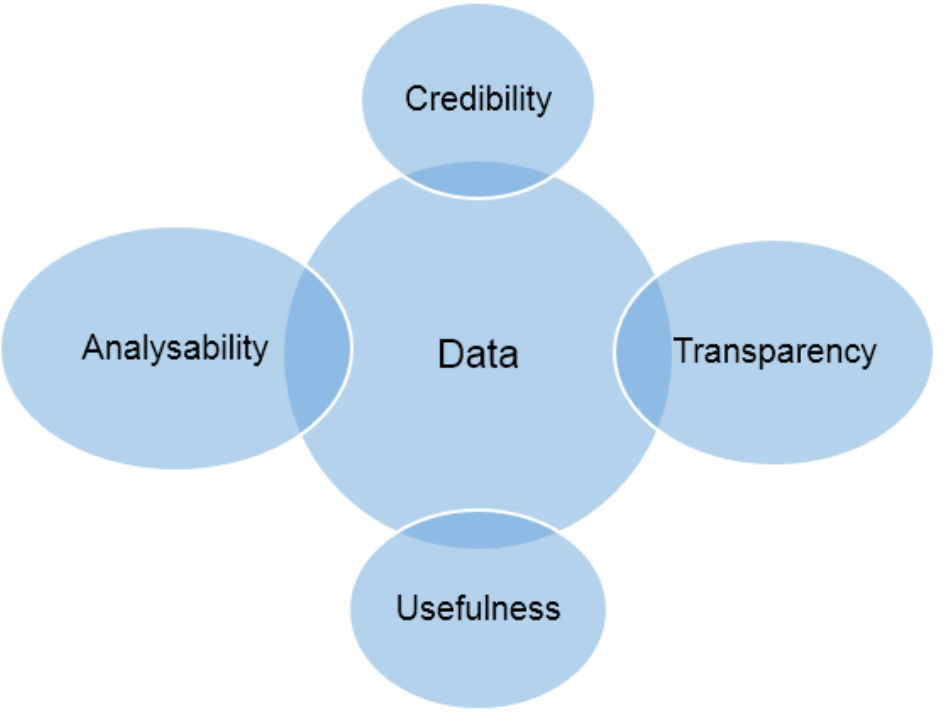

Figure 2. Elements of Quality of Research

Lange (2001) stated that "A Tracer Study is a simple tool, designed to measure the relevance of vocational training. They are seen as a management tool for planning and monitoring of training programs (e.g. which courses to add, to change or to phase out). They provide information for pro-grammatical changes (e.g. adding new elements into your programs) and review of training curricula. They also help to monitor the delivery of training."

Key research questions

After completion of tracer studies, the reports should provide answers to the following questions.

a. What happens to graduates after leaving the education/training institution?
b. Were they able to get relevant paid employment or self-employment or to establish enterprise in an acceptable time?
c. Do they use the skills and knowledge they have gained in the education/training institution? If not, what are the reasons?
d. What are the skills and competencies demanded in the labor market?

OBJECTIVES OF CONDUCTING A TRACER STUDY

Basically there are three key objectives to conduct tracer study.

1. To measure the employability and employment of the graduates

Under this objective, following aspects/elements are assessed.

- Information about vacancy
- Who prepare CV and application form
- Time to get the first employment;
- Duration of job search;
- Employment situation
- Position
- Salary/income
- Main work tasks/duties;
- Working time and hours
- Job satisfaction
- Use of competencies and required competencies
- Usefulness of study/training program

2. To collect feedback from graduates and employers to improve the study program (retrospective evaluation)

Under this objective, following topics are assessed.

- Gaps of competencies
- Market standards of the occupation
- Need for further education and training

3. To explore labor market trends of the occupation

Under this objective, following aspects are assessed.

- Job career ladder
- Technology changes
- Scope of work

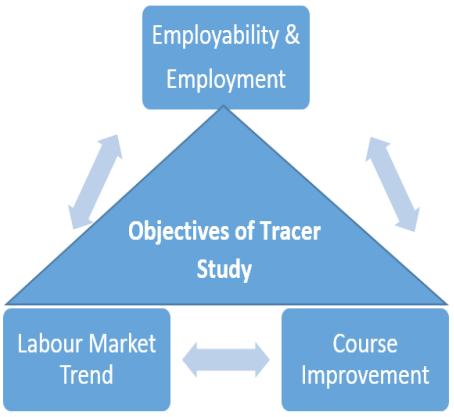

Figure 3: Objectives of the Tracer Study

Figure 3: Objectives of the Tracer Study

HOW CAN WE CONDUCT TRACER STUDY?

Tracer study is a kind of research. As other researches, there are four stages to complete tracer study. The stages are planning, conducting, analyzing and disseminating. In other words, we can say that plan, do, check and act (PDCA). Following are the details of the four stages.

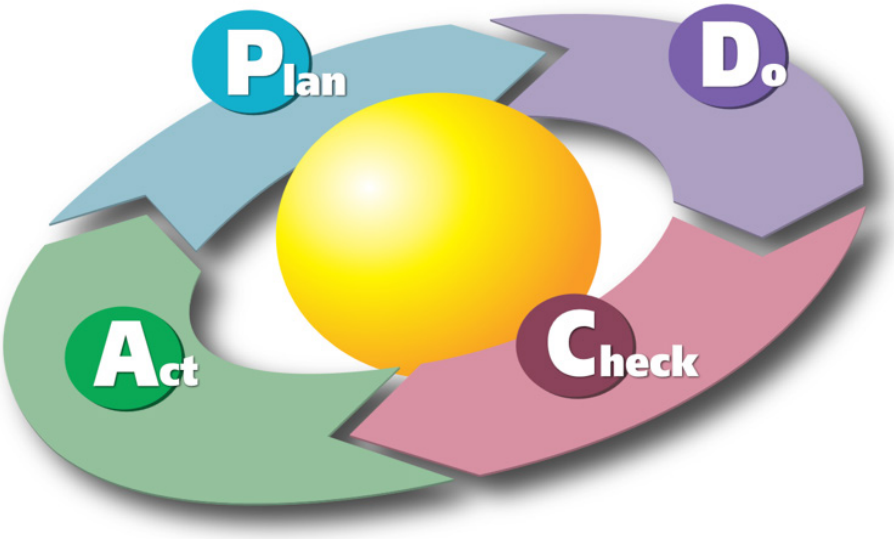

Figure 4: PDCA Cycle

ESTABLISHING THE TRACER STUDY BACKGROUND (PLAN)

Planning is the key stage of the tracer study. There is saying that failure to plan is plan to failure. Therefore, if we couldn't plan well, we will fail to get accurate information from tracer study. Planning is the backbone of any projects/activities. For the effective planning document, we have to consider following elements in tracer study plan/ proposal.

Objectives of the Study

Objectives of the tracer study should be clearly spelled out in the plan. Objectives should have specific, measureable, achievable, realistic and time bond (SMART) elements. There is no limit of the number of objectives, however; two to four is consider as ideal numbers.

Scope of the Study

Scope of the tracer study is the specific points which we want to carry out in the study. For example, graduates of the specified year, batches, subjects, geographical coverage and specific duration after graduation. Therefore, study has to clearly mention about its scope.

Methodology: Basically methodology are designed based on study types such as quantitative and qualitative study.

Population and Sample: It is very important element of the plan document. Based on the scope, population has to mention clearly. For example, all graduates of year 2016 and 2017 for all subjects or only engineering and tourism.

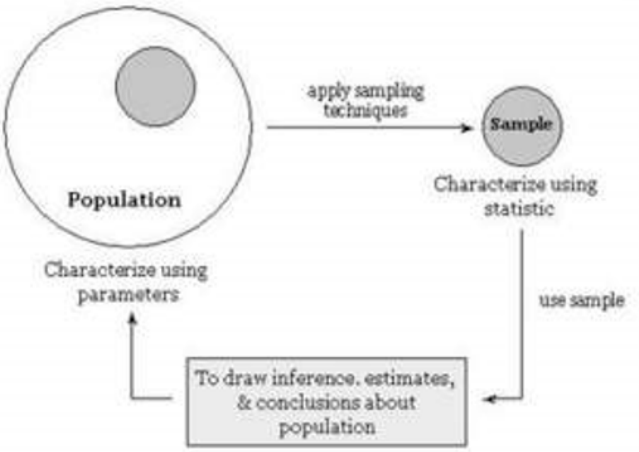

Figure 5: Population and Sample

For the sample, the plan has to clearly mention the percentage of population. Such as 100% or 80% or 20%. It will be better to take 100% sample of the population because nowadays we can use e- survey. Therefore, questionnaire can be send to all graduates easily. The most appropriate sample size is 60% of the population.

Data Collection Methods and Tools

Tracer study plan/proposal has to include methods and tools for the data collection and interpretation. Method can be qualitative or quantitative or both. Similarly, plan has to explain about data collection method such as survey questionnaire, focused group discussion (FDG), interview,

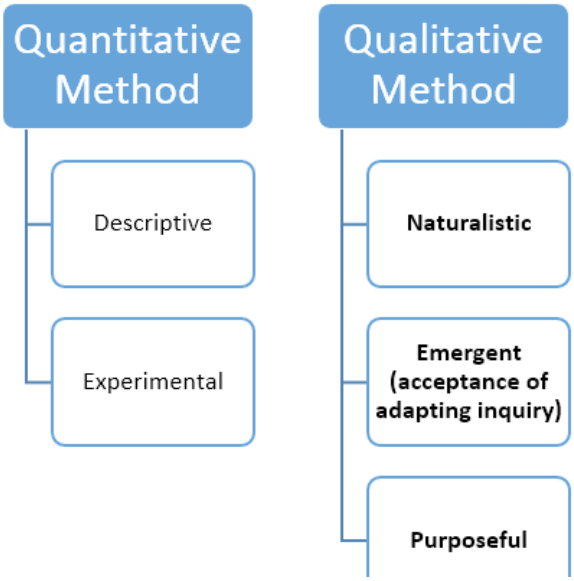

Figure 6: Characteristics of Research Methods

Tips for designing questionnaire

- Ask short and simple questions
- Use open questions
- Ask both quantitative and qualitative questions
- Questions or statement should be related and immediate use
- Apply simple language
- Avoid Suggestive questions
- Make three sections Personal Information, Job

and observation. For survey questionnaire, we can use different approach such as mail, e-mail, online, social Medias etc.

Similarly, plan includes types of program and statistical tools to analyze and interpret data. For qualitative part, we can use case studies, face to face interview, observation, secondary information, and videos.

Data Analysis

Data analysis is very vital task of the research. Therefore, plan has to explain well about the data analysis and use of statistical tools to analyze the data. The most common statistical tools are mean, standard deviation, regression analysis, correlation, and hypothesis test.

IMPLEMENTING THE TRACER STUDY (DO)

This is the main function for the tracer study process. As per the plan, tracer study carried out in this stage. Therefore, this stage is considered as implementation stage of plan. During this stage, following key steps has to be done.

How to contact graduates?

- Invite employers and graduates for open discussion forum
- Organize ex-students reunion programs
- Use social media such as Facebook, twitter, etc
- Use local radio, TVs to give information
- Use email or Viber or Skype. For this institute has to facilitate to create account before their graduation
- Offer incentives to participate in study such as refresher course, token of love etc
- Develop online portal to get information from graduates

1. Make a study team including enumerators
2. Orientation to the team
3. Collect data as per plan. Plan can be changed based on the change situation

For the data collection, it is not possible without meeting or contacting graduates. Therefore, following are the practical tips to contact graduates.

DATA ANALYSIS AND EVALUATION (CHECK)

This stage is known as the analysis and evaluation of the data. After collecting data, it should be analyzed using appropriate tools and techniques. In this stage, researcher has to think carefully about the nature, method of research and appropriate tools to analyze them. Therefore, there should be different approaches or methods for qualitative and quantitative research.

According to Spalding University (2019), following characteristics are need to be considered during the data analysis of qualitative research.

- Unique case orientation -- assumes that each case is special and unique; the first level of analysis is being true to, respecting, and capturing the details of the individual cases being studied; cross-case analysis follows from and depends upon the quality of individual case studies.
- Inductive analysis -- immersion in the details and specifics of the data to discover important patterns, themes, and inter-relationships; begins by exploring, then confirming findings, guided by analytical principles rather than rules.
- Holistic perspective -- the whole phenomenon under study is understood as a complex system that is more than the sum of its parts; the focus is on complex interdependencies and system dynamics that cannot be reduced in any meaningful way to linear, cause and effect relationships and/or a few discrete variables.
- Context sensitive -- places findings in a social, historical, and temporal context; researcher is careful about [even dubious of] the possibility or meaningfulness of generalizations across time and space; emphasizes careful comparative case analyses and extrapolating patterns for possible transferability and adaptation in new settings.
- Voice, perspective, and reflexivity -- the qualitative methodologist owns and is reflective about her or his own voice and perspective; a credible voice conveys authenticity and trustworthiness; complete objectivity being impossible and pure subjectivity undermining credibility, the researcher's focus reflects a balance between understanding and depicting the world authentically in all its complexity and of being self-analytical, politically aware, and reflexive in consciousness.

I. Executive Summary
II. Introduction (Rational, research questions/hypothesis, objectives)
III. Methodology
IV. Analysis of Data
V. Findings
VI. Conclusions
VII. Recommendations

For the quantitative research, based on the research questions and hypothesis, we have to use statistical tools. We have to select as per our plan, but tools can be different than plan if the nature of data pattern found different. The most common statistical tools for quantitative analysis are percentage, mean, regression analysis, standard deviation, correlation, and hypothesis test.

After analyzing data, we have to complete report of the tracer study. Report should cover following contents.

DISSEMINATION AND FURTHER ACTION (ACT)

The fourth or final stage of the tracer study process is disseminating the report to concern parties such as higher authority of TVET, Employers' Council/Committee, Development partners and other related stakeholders. It can be electronic or hard copy. After receiving their feedback, we can evaluate the feedback and take as important inputs for next round of tracer study. Therefore, after making final report, followings actions should be done.

- Share and discuss the findings with staff, institute management committee, and key stakeholders.
- Formulate conclusions and future actions as follows

  Do we need to revise curricula and training approaches?

  What are the new courses to be developed based on market potentials?

  Do we have to phase out programs which show poor employment trends?

  What are the activities need to do for employment promotion?
- Review the previous action plan and prepare new one.

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CHAPTER 7
TRAINING NEED ASSESSMENT: A POINT TO START A TRAINING JOURNEY

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INTRODUCTION

Training is a helping guide to perform well than prior to training. If the training cannot enhance the competencies of the person, the effectiveness of the training is considered as zero. For the effective and efficient training, need to know the competency gaps, appropriate training design, quality training, appropriate time of training, monitoring and evaluation of training and feedback management are essentials. Without proper identification of training gaps and required competencies in the workplace, remaining process of training will be useless. Therefore, training need assessment is key to the success of training.

The process to identify "gaps" between current performance and organizational objectives is called training need assessment. TNA is a process that serves as a diagnostic tool for determining what training needs to take place. This assessment gathers data to determine what training needs to be developed to help individuals and the organization accomplish their goals and objectives. This is an assessment that looks at employee and organizational competencies gaps. Competencies includes knowledge, skills, and abilities, to identify any gaps or areas of need. Once the training needs are identified, then you need to determine/develop objectives to be accomplished by the training. These objectives will form criteria for measures of success and utility.

Therefore, a training analysis is conducted ultimately to identify the competencies that training needs to accomplish with learners. The analysis considers what results the organization needs from the learner, what knowledge and skills the learner presently has and usually concludes with identifying what knowledge and skills the learner must gain (the "performance gap"). Normally TNA also includes appropriate time of training, venue and potential participants. Ideally, criteria are established for the final evaluation of training to conclude if training goals were met or not.

Depending on the resources and needs of the organization, a training analysis can range from a very detailed inventory of skills to a general review of performance results. The more complete the training analysis, the more likely that the employee's training will ultimately contribute results to the organization.

This analysis can be performed by managers who are able to observe their staff and make recommendations for training based on performance issues or gaps between performance and objectives. This analysis can also be performed on an organization-wide level by Training and Development managers who survey the organization to identify needs. Similarly, Training Institute can conduct training need assessment of relevant industries to develop training courses.

PURPOSE OF TNA

TNA helps an organization achieve its goals. It reduces gaps between employee skills and the skills required by the job and department. The training needs assessment survey can also form the basis (benchmark) for determining effectiveness of the training administered. You can re-administer the training needs survey after the training was performed to see if there was an increase in performance/skills as measured by the survey. According to USA Government (2018),

> *"The purpose of a training needs assessment is to identify performance requirements and the knowledge, skills, and abilities needed by an agency's workforce to achieve the requirements. An effective training needs assessment will help direct resources to areas of greatest demand. The assessment should address resources needed to fulfill organizational mission, improve productivity, and provide quality products and services. A needs assessment is the process of identifying the "gap" between performance required and current performance. When a difference exists, it explores the causes and reasons for the gap and methods for closing or eliminating the gap. A complete needs assessment also considers the consequences for ignoring the gaps."*

Basically, TNA has following two purposes

1. Identify the performance gaps and growth gaps of organization and employees
2. Recommend measures to develop training courses

LEVEL OF TNA

There are three levels of a training needs assessment (OPM, USA Government, 2018):

1. **Organizational Assessment:** It evaluates the level of organizational performance. This assessment focuses on what skills, knowledge, and abilities an organization needs. It determines what is required to alleviate the problems and weaknesses of the organization as well as to enhance strengths and competencies. Organizational assessment takes into consideration various additional factors, including changing demographics, political trends, technology, and the economy.
2. **Occupational Assessment:** It examines the skills, knowledge, and abilities required for affected occupational groups. Occupational assessment identifies how and which occupational discrepancies or gaps exist, potentially introduced

by the new direction of an agency. It also examines new ways to do work that can eliminate the discrepancies or gaps.

3. **Individual Assessment:** It analyzes how well an individual employee is doing a job and determines the individual's capacity to do new or different work. Individual assessment provides information on which employees need training and what kind.

BENEFITS OF TNA

Training need assessment plays a key role to achieve organizational goals. It helps to recruit, train and motivate human resource to perform the organizational activities and achieve the objectives and the goals. Basically there are seven benefits from TNA.

1. **Identify the competency and performance gaps of the employee**

TNA identify the both competency and performance gaps of the employees. If we give same tasks or duties to the different people, level of performance might be different with their competence level. The accomplished task or achieved result is the actual performance. There is desired performance of the individual staff and organization which is indicated in job description and organizational plan. The difference between the desired and actual performance levels is the performance gap. This gap indicates the need for training. A successful Training Needs Analysis will help training managers to identify performance gaps and address these gaps with appropriate training solutions.

2. **Provide inputs to develop training courses to minimize the performance gaps and fulfill organizational objectives**

   TNA identified the competency gaps that resulted performance gaps. During the TNA process, experts identify the gaps of knowledge, skills and attitude. Based on the identified gaps in competencies, training institute or organization can develop training courses. The objective of training courses are to minimize the gaps of performance. Therefore, TNA report is the foundation for training design.

3. **Determines the locations, time, components and target groups of the training**

   TNA provides crucial insights on where the training should be directed, who should receive training, and what is the content of that training. These questions

play a key role in designing an effective training for your employees.

Sometimes organizations are unsure whom to train and on what. Offering training to someone who does not need it or giving the wrong type of training turns out to be counter-productive. So a proper Training Needs Analysis will help you address these issues. TNA helps you identify who needs training and what type of training. TNA also enables training managers develop training that is most relevant to the learning needs of a particular group or department of employees. You can also customize your training based on the learning styles and their roles.

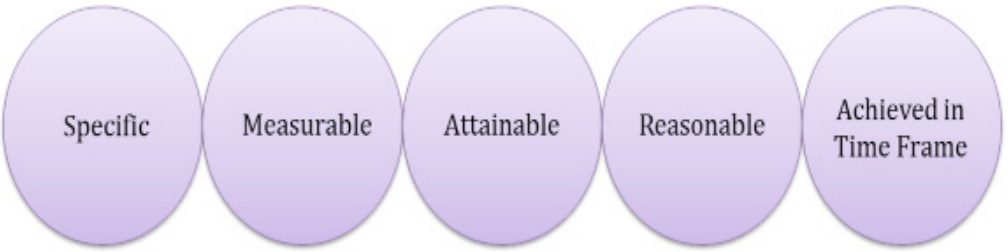


Figure 1: SMART Learning Objectives

4. Provides a benchmark for training evaluation

TNA helps identify training objectives well in advance so that they can be the basis for evaluating training effectiveness. Training analysts should set learning objectives in the TNA stage that are Specific, Measurable, Attainable, Reasonable, and achievable within a specific Time frame (SMART). These five criteria simplify training evaluation.

5. Contributes as a milestone of training success

TNA minimizes the risk and impact of training failure on your business by preparing your employees for future changes and giving them time to be equipped in Knowledge, Skills and abilities (KSAs) through training. Many companies also invest in training programs that may fail to bring returns. This is again because of the mismatch between training efforts and organization goals. A properly performed Training Needs Analysis can minimize these risks.

6. Helps to manage effective and efficient training resources

TNA lets you manage financial resources allocated for training wisely. It helps avoid trainings that bring very little value addition. A well conducted Training Needs Analysis provides a comprehensive picture of the Skills, Knowledge, and Abilities (KSA) of employees so that training programs can be directed in the most needed direction. This allows the organization to allocate budget for training and development in areas where it can have the maximum impact. You can understand that Training Needs Analysis is essential to the success of any workplace training by the discussed benefits. A well

conducted TNA turns out to be an investment for your organization.

7. Build credibility for the development process with all stakeholders

TNA Report should have credibility, reliability and validity. One of the best approach to get credibility, reliability and validity is the involvement of all stakeholders in the development process and get services of credible persons or organization for the development of TNA. If we involved stakeholders in the process, they take ownership of the document and easy to implement it. Therefore, there should be prior process orientation and post report briefing to key stakeholders.

METHODS OF TNA

Training needs assessment can be done by different methods. The selection of methods always influence by time, resources, objectives and size of population. The most common methods are as follows.

Questionnaire

Questionnaires can be classified as both, quantitative and qualitative method depending on the nature of questions. Specifically, answers obtained through closed-ended questions with multiple choice answer options are analyzed using quantitative methods and they may involve pie-charts, bar-charts and percentages. Answers obtained to open-ended questionnaire questions are analyzed using qualitative methods and they involve discussions and critical analyses without use of numbers and calculations.

Questions need be formulated in an unambiguous and straightforward manner and they should be presented in a logical order. Advantages of questionnaires include increased speed of data collection, low or no cost requirements, and higher levels of objectivity compared to many alternative methods of primary data collection. However, questionnaires have certain disadvantages such as selection of random answer choices by respondents without properly reading the question. Moreover, there is usually no possibility for respondents to express their additional thoughts about the matter due to the absence of a relevant question. See the sample of questionnaire in Annex I.

The responses of the questions can be done by directly filled by respondents, using e-technology, and using telephone.

Observation

Observation is considered as historical method for collecting data for more than one hundred years. It is considered as appropriate method for social science related data

gathering. These studies set the standard for how one conducts observations today to answer research questions in many disciplines. Whether you, as a researcher, are interested in studying an educational setting, an observation is the systematic description of the events, behaviors, and artifacts of a social setting. Social scene, organizational processes, individual behaviors, or the culture of a group of people, observation is a primary tool to help you document what is going on in that setting. Observations have proved to be useful to research beyond the field of anthropology and are used frequently in sociology, psychology, education, and other social science disciplines.

There are two major types of observations:

Direct observation:

Involves observing without interacting with the objects or people under study in the setting. The stance of the researcher in the observation setting, that is, how you position yourself as a researcher, is an important consideration for the validity of the study. The quality of the data you are able to collect and your relationship with those who are being observed are affected by how you position yourself within the research setting. Covert observation occurs when those who are being observed are unaware that you are observing them (Kawulich, 2012). Normally, second type of observation in research happened rarely. As a researcher, they observe the competencies of the person to perform their tasks. Then, identify the strengths, weaknesses and competencies to be improved. Normally, researcher uses checklist to collect data through observation. They can use personal notes and interpret during analysis stage.

Interview

The interview is one of the most common methods of the research. For the interview, researcher has to develop interview questions or checklist to collect data. Interview can be conducted face to face, telephone, using social media, and video conferencing. There are different types of interview formats such as structured, semi-structured and unstructured. The more unstructured the interview, the more it is expected that the main issues will emerge from the interviewee, rather than being imposed by the structure of the interview. These different interview formats are not mutually exclusive. It is

possible to combine them effectively in an interview to be flexible and focused when it is appropriate.

The main objectives of interview are as follows.

1. To explore knowledge, skills and attitude of the staff towards occupation
2. To get more in-depth qualitative exploration of an individuals' perceptions is needed than can be obtained from questionnaires.
3. To validate unexpected results or confirm interpretations generated by other methods of data collection and analysis.

The major demerits of the interview method is time consuming and costly. There will be high chances of variation if the different interviewer took interview to different interviewees.

Focused Group Discussion

Focused group discussion (FGD) is one of the methods uses in social research. Under this method, researcher gathers a group of people with similar interests, background and occupation. Therefore, considering the time and resource, we can apply FGD inviting people of similar position and level to collect data on their issues, problems, and trends of the particular job.

Figure 2: Process of Focus Group Discussions

There are three parties in the FGD. They are participants, facilitator and recorder. Following are the key process of FGD.
Normally, FGD can be appropriate to conduct in the following conditions.

- Specific data or answers could not receive from questionnaire survey.
- Supplement or validate the data or information of other methods

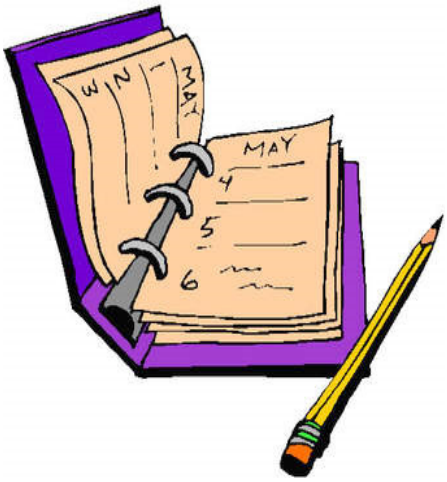
- Obtain data, ideas, or information beyond the box.
- Difficulty to visits different places and organizations. Participants can be invited one place.

The basic principles of FGD are as follows.

- There should be ground rules (time, respect to each other, relevant subject, one person at a time, no repeating etc)
- Researcher as a facilitator not controller
- Create enabling environment to get information
- No close questions. Always open ended
- Consensus on the recorded information at the end.

Supervisor and Employer Feedback

Supervisor or employer feedback is another way of collecting data for the TNA. Based on the performance of the employee, supervisor or employer provides strengths, weaknesses, and competencies gap of the employee. It helps to validate the data received from other methods. It can be drawn from performance appraisal report too.



Personal Diary

Maintaining personal diary by each employ is another method of data collection. Employ can record performed activities, major problems and results everyday if applicable. Then, researcher can analyze the data of diary for the TNA report. It can be more relevant to agriculture, engineering and other technical occupations.

STEPS/PROCESS OF TNA

Planning

Determine Institute Benefits of Needs Assessment- this part of the process will sell and help the decision makers and stakeholders understand the concept of the needs assessment. Needs assessment based on the alignment of critical behaviors with a clear agency mission will account for critical occupational and performance requirements to

help your agency: a) eliminate redundant training efforts, b) substantially reduce the unnecessary expenditure of training dollars, and c) assist managers in identifying performance requirements that can best be satisfied by training and other developmental strategies. To go beyond learning and actually achieve critical behaviors the agency will also need to consider how required drivers will sustain desired outcomes.

1. Identify key stakeholders
2. Solicit support
3. Describe desired outcomes that will contribute to mission objectives
4. Clarify critical behaviors needed to achieve desired outcomes
5. Define required drivers essential to sustain the critical behaviors

Preparing the Proposal

The needs assessment is likely to be only as successful as the planning. The following are the key steps.

1. Set goals/objectives for the needs assessment
2. Evaluate organizational (agency) readiness and identify key roles
3. Evaluate prior/other needs assessments
4. Prepare project plan with methodologies
5. Inventory the capacity of staff and technology to conduct a meaningful training skills assessment and analysis
6. Clarify success measures and program milestones

Conducting Needs Assessment

This outlines the actual implementation of plan. The conduction of need assessment is very vital. Therefore, following points has to be considered.

1. Obtain needs assessment data (e.g., review strategic plans, assess HR metrics, review job descriptions, conduct surveys, review performance appraisals)
2. Analyze data
3. Define performance problems/issues: occupational group/individuals
4. Describe critical behaviors needed to affect problems/issues
5. Determine and clarify why critical behaviors do not currently exist
6. Research integrated performance solutions
7. If training is the best solution, determine best training and development approach(es)

8. Assess cost/benefit of training and development approach(es); build a "business case"
9. Include organizational drivers needed to reinforce the critical behaviors that will affect problems/issues
10. Describe how the critical behaviors will be monitored and assessed after implementation of the improvement plan

Prepare Report

This step is known as output stage. After conducting assessment, a report or document is prepared in this step. This stage is very important because all the previous efforts documented and presented to the top management of the organization.

Reinforce the Recommendations of Report

The results of the needs assessment allows the training manager to set the training objectives by answering two very basic questions: what needs to be done, and why is it not being done now? Then, it is more likely that an accurate identification of whom, if anyone, needs training and what training is needed. Sometimes training is not the best solution, and it is virtually never the only solution. Some performance gaps can be reduced or eliminated through other management solutions, such as communicating expectations, providing a supportive work environment, and checking job fit. These interventions also are needed if training is to result in sustained new behaviors needed to achieve new performance levels, for an individual, an occupation, or an entire organization.

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Annex I
Sample of Survey Questionnaire

Name of Staff: **Position:**

Instruction: Rate these factors according to how you feel about your skill to job level.

Highly Unprepared **Highly Prepared**

1 2 3 4 5

	1	**2**	**3**	**4**	**5**
Interpersonal Communication					
Written Communication					
Public Speaking					
Team Management (Leadership)					
Organizational abilities					
Computing skills and numeracy					

	Not at all	**Slightly**	**Moderately**	**Very**	**Extremely**
Do you feel qualified to handle your current scope of work?					
Are you given enough mentoring or tutelage on your currenr work?					
How often do you consult an external source (colleagues, Internet) to help with your work?					
Do you feel your colleagues are qualified to handle their work?					
Would you attend training workshops held by the company?					
Do you feel that more training is needed for employees?					

How would you like the training workshops to last? ○ A day ○ 2-3 days ○ 4-5 days
What days would you prefer for training workshops? (Select all that apply) ○ Monday ○ Tuesday ○ Wednesday ○ Thursday ○ Friday ○ Saturday ○ Sunday ○ During work
Are there skills that you feel that is needed to be taught at your workplace? Please list them below: 1. 2. 3. 4. 5.
Are there skills that you would personally like to learn? Please list them below? 1. 2. 3. 4. 5.
Would you like to be updated on training workshop news and events? ○ Yes ○ No

CHAPTER 8
GUIDE IN WRITING FIELD REPORTS FOR THE ASIA-PACIFIC ACCREDITATION AND CERTIFICATION COMMISSION (APACC)

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INTRODUCTION

In Colombo Plan Staff College (CPSC), report preparations are essential to document proceedings during visits. Usually, field visit reports are being prepared after institutional visits in connection with a training program or after institutional visit for accreditation purposes.

Under the umbrella of CPSC is the Asia Pacific Accreditation and Certification Commission (APACC) which aims to accredit and certify technical and vocational education and training (TVET) institutions in subscribing countries. It also aims to establish linkages with national accrediting agencies of member countries and be a source of good practices for the promotion of quality in TVET systems.

APACC has developed its own accreditation criteria, based on the standards set by the participating countries. The seven APACC criteria are the following with corresponding scores:

	Criterion	Score
1.	Governance and Management	46
2.	Teaching and Learning	120
3.	Human Resources	74
4.	Research and Development	50
5.	Image and Sustainability	50
6.	Other Resources	110
7.	Support to Students	50
Total		**500**

As seen above, institutions will get quantitative feedback, however, APACC reports are also qualitative in nature. Qualitative indicators are in the form of Commendations, Affirmations, and Recommendations.

Commendations are noteworthy practices that are over and above the APACC requirements. It may be in the form of best practices that are unique to the institution and are proven to be doing well with the wide participation of industry, students, staff, parents, alumni, and other stakeholders. These can also be outcomes and impact of programs and activities that are far beyond the plans and expectations. Samples of commendation are special achievements such as winning in Skills Olympics, campus-wide utilization of advanced technologies in teaching and learning, and patenting of research and development outputs.

Affirmations are acknowledgements of adequacy of provisions to comply with APACC requirements. Samples of affirmation are placement of safety signage in laboratories and workshops, regular updating of curriculum to suit current trends, and provision of adequate number of guidance counsellor based on number of students.

Recommendations are suggested measures to address gaps in order to comply with APACC requirements. Samples of recommendations are conducting staff development programs based on training needs analysis, observance of Plan-Do-Check-Act in all aspects of the institution, and implementation of programs based on strategic plan.

Preparation of qualitative indicators constitutes the bulk of report preparation in the case of APACC.

PARTS OF ON-SITE VISIT REPORT

On-Site Visit Report

Dates	Name and Address of Institution

Member Accreditor		Documentation Officer	

Lead Accreditor	

Summary of Evaluation			
Criteria	Accreditation Results		
	Weighted	Earned	%
1. Governance and Management	46		
2. Teaching and Learning	120		
3. Human Resources	74		
4. Research and Development	50		
5. Image and Sustainability	50		
6. Other Resources	110		
7. Support to Students	50		
TOTAL/LEVEL	500		

Member Accreditor

Name of Member Accreditor

Documentation Officer

Name of Documentation Officer

Lead Accreditor

Name of Lead Accreditor
Date Signed:

First Page: Team Members and Summary of Scores

Executive Summary

EXECUTIVE SUMMARY

INSTITUTIONAL PROFILE

Name of Institution	
Status of Institution	
Law/Ordinance to Establish Institution	
Date of Commencement	
Head of Institution/ Designation	
Vision	
Mission	
Goals/Aims	
Teaching and Non-Teaching Staff	
No. of Teaching Staff	
No. of Non-Teaching Staff	
Total Area	
Built-up Area	
Programs	
Enrollment	
Ave. no. of students per annum	-
Student Housing	
Quality Management Systems Adopted	

- Name of Institution
- Status of Institution
- Law/Ordinance to Establish Institution
- Date of Commencement
- Head of Institution/ Designation
- Vision
- Mission
- No. of Teaching and Non-Teaching Staff
- Area of Institution
- Programs
- Enrollment
- Student Housing
- Quality Management Systems Adopted

On-Site Visit Activities

- Objectives
- Report of Opening and Closing Programs [Special Guests, Speeches]
- Facilities Toured
- Other important events

This part discusses in summary the important details of the onsite visit. It should be as concise and as descriptive at the same time. It should also obhserve proper guidelines and recommended format in summarizing an artlcle..

It i is also important to pay attention to the details of the onsite visit, especially if the institution invited guests of honor during the opening or closing ceremonies.

Summary of Findings

- Strong and weak criteria
- Total Score
- Other general observations

Also report, in a very brief summary, the general findings of the team during the onsite visit activity. The details will be reserved in the succeeding pages. The score and the equivalent accreditation level must also be stated.

Acknowledgment

Annex A

Summary of Commendations, Affirmations, and Recommendations

Commendations are noteworthy practices of the institution that are over and above the APACC requirements. It may be in the form of best practices that are unique to the institution and are proven to be doing well with the wide participation of industry, students, staff, parents, alumni, and other stakeholders. These can also be outcomes and impact of programs and activities that are far beyond the plans and expectations. Samples of commendation are special achievements such as winning in Skills Olympics, campus-wide utilization of advanced technologies in teaching and learning, and patenting of research and development outputs.

Affirmations. These are acknowledgements of adequacy of provisions to comply with APACC requirements. Samples of affirmation are placement of safety signage in laboratories and workshops, regular updating of curriculum to suit current trends, and provision of adequate number of guidance counsellor based on number of students.

Recommendations. These are suggested measures to address gaps in order to comply with APACC requirements. Samples of recommendations are conducting staff development programs based on training needs analysis, observance of Plan-Do-Check-Act in all aspects of the institution, and implementation of programs based on strategic plan.

STEPS AND GUIDELINES IN ON-SITE VISIT REPORT PREPARATION

During on-site visits, a team composed of one Lead Accreditor, one Member Accreditor, and one Documentation Officer will validate the documents submitted by applicant institutions.

To prepare a good on-site visit report, the APACC team has to:

1. Study the contents of institutional Self-Study Report, accomplishment reports (for renewal visits), and other documents prior to participating in on-site visits. If time permits, prepare a draft report before going on-site to know which areas to focus on during the on-site visit proper. This draft report shall include pre-evaluation scores (quantitative report) and commendations, affirmations, and recommendations (qualitative report).
2. Gather/validate data or information through interviews with management, teaching and non-teaching staff, students, and alumni; facilities and exhibit inspection; and observation of classes and activities.
3. Collect actual evidences or photos and/or videos of evidences.
4. Provide rating per sub-indicator using the APACC Instrument.
5. Prepare qualitative indicators (commendations, affirmations, and recommendations).

In preparing the quantitative report, the following guidelines must be taken into consideration:

- Item or sub-indicator with perfect score should have an equivalent commendation or affirmation. Recommendations may be formulated for items with less than perfect score for improvement of the institution.
- Add details to support statements.
- Do not use high sounding words to ensure that clients from various countries will understand the report.

In writing recommendations:

- Apart from continuous improvement, ensure that the recommendations would help increase the institution's score next on-site visit.
- Use MAY instead of MUST or SHOULD.
- State current status before the recommendation.
- Don't give specific recommendations since the institute has to contextualize based on their own plan and availability of resources.

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CHAPTER 9
CONDUCTING PRODUCT EVALUATION PROCESS

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INTRODUCTION

Evaluation is assessing, as systematically and objectively as possible, a completed project or program. In education, evaluation is the process of using the measurements gathered in the assessments. Teachers use this information to judge the relationship between what was intended by the instruction and what was learned. They evaluate the information gathered to determine what students know and understand, how far they have progressed and how fast, and how their scores and progress compare to those of other students. Some of the relevant definitions are as follows.

"The process of determining to what extent the educational objectives are actually being realized"
-Tyler (1950, p. 69)

Another accepted definition is: "Evaluation is the process of determining merit, worth, or significance; an evaluation is a product of that process"(Scriven, 1991, p. 53).

Cronbach and associates (1980) clearly rejected the judgmental nature of evaluation advocating an approach that recognises the evaluator as: "an educator [whose] success is to be judged by what others learn" (p. 11) rather than a "referee [for] a basketball game" (p. 18) who is hired to decide who is "right" or "wrong".

Evaluations should help to draw conclusions about five main aspects of the intervention:

- relevance
- effectiveness
- efficiency
- impact
- sustainability

COMPARISON BETWEEN MONITORING AND EVALUATION (M & E)

M &E looks similar and always come together in writing. However, there are differences between monitoring and evaluation. The key differences are stated in Table 1 below.

IMPORTANCE OF EVALUATION

Evaluation is a backbone for the quality assurance of education programs. In TVET, it has vital role because each processes and products of learning need to be evaluated. Therefore, evaluation is good for proving, improving, learning and linking of the TVET system. Following are the key benefits of evaluation.

Table 1. Comparison between M & E

Items	Monitoring	Evaluation
Frequency	Regular, ongoing	Episodic
Main action	Keeping track/oversight	Assessment
Basic purpose	Improving efficiency Adjusting work plan	Improve effectiveness, impact,future programming
Focus	Inputs/outputs, process outcomes, work plans	Effectiveness, relevance, efficiency, impact, sustainability
Information sources	Routine systems, field visits, stakeholder meetings, output reports, rapid assessments	Same plus Surveys (pre-post project) Special studies
Undertaken by	Project/program managers. Community workers. Supervisors. Community (beneficiaries) Funders. Other Stakeholders	External evaluators Community (beneficiaries) Project/program managers, Supervisors and Funders

Source: UNICEF. (1991). A UNICEF guide for monitoring and evaluation: making a difference? New York, USA

- Determine success in achieving program objectives.
- Identify strengths and weaknesses in the learning / development process.
- Set priorities for learning / development /department resources.
- Test the clarity and validity of tests, cases, and exercises.
- Identify the participants who were most (least) successful with the program.
- Reinforce major points made during the program.
- Decide who should participate in future programs.
- Compare the benefits to the costs of a program.
- Enhance the accountability of learning / development / process.
- Assist in marketing future programs.
- Establish a database to assist management with decision making

TYPES OF EVALUATION

There are different types of evaluation. For the evaluation of educational achievements, the most common types of evaluation are as follows.

Based on Elements/Components:

There are five types of evaluation based on elements.

Input Evaluation

Evaluation of resources provided in the TVET institutions is known as input evaluation. It includes human resources, financial resources, classrooms, labs or workshops, curriculum, purpose, objectives and other facilities.

Process Evaluation

Evaluation of methods of teaching, processes, use of technologies during the delivery of programs is known as process evaluation. Basically pedagogy and andragogy are assessed with the different applications of teaching method. During the evaluation of students, the process evaluation covers the following of steps to accomplish given project/tasks or assignment.

Product/Output Evaluation

In TVET programs, products and outputs is graduates. Therefore, the evaluation of quality of graduates is known as product or output evaluation. There will be different criteria to evaluate graduates.

During the assessment or evaluation of students, product evaluation means the evaluation of completed products from their project or assignment.
Outcomes Evaluation

In TVET programs, outcome evaluation is related to status of employment. Employment of TVET graduates is outcome level indicator.

Impact Evaluation

Impact evaluation in TVET program is the assessment of direct and indirect impact of TVET programs in the living standard of graduates' family, socio-economic indicators

of the society and nation. For example, quality food, health, education, GDP and other indicators.

Based on Period:

There two types of evaluation based on period as follows.

Formative Evaluation

A formative evaluation (sometimes referred to as internal) is a method for assessing the performance of a program while the program activities are forming (in progress). It can be conducted during any stages of the process. This part of the evaluation focuses on the process.

Thus, formative evaluations can be done without planned schedule. It helps the course developers, learners, instructors, and principals to monitor how well the instructional goals and objectives are being met. Its key aim is to identify gaps and barriers so that the appropriate interventions can take place that allows the learners to master the required skills, knowledge and attitudes. Basically, internal exam, assessment during program and daily, weekly and periodic exams are known as formative evaluation in TVET system.

According to Guyot (1978), “formative evaluation is also useful in analyzing learning materials, student learning and achievements, and teacher effectiveness. Formative evaluation is primarily a building process which accumulates a series of components of new materials, skills, and problems into an ultimate meaningful whole.”

Summative Evaluation

A summative evaluation (sometimes referred to as external) is a method of assessing the performance or result of a program at the end of the program activities (summation). The focus is on the output and outcome. Basically, final exam of the national competency assessment exam is known as summative evaluation in TVET system.

PROCESS AND PRODUCT EVALUATION

In TVET programs, a teacher or evaluator has to evaluate both process and product based on their test items. Process evaluation focuses on the ensuring appropriate steps during completion of projects/exams. Similarly, internal exams are part of process evaluation as well if we considered all examination as a set of evaluation.
Similarly, evaluation of final product or output is called product evaluation. During the assessment, examiner or evaluator assesses final product not the process or steps.

APPLICATION OF PROCESS AND PRODUCT EVALUATION IN TVET

In TVET program, it will be better to apply both methods because of competency based program. Student should learn both process and quality of product. Therefore, for practical exam, internal exam should be process focus and external or final exam should be product focus. Sometimes, it depends upon the module of learnings, a completion of module need to produce a part or product. As a smart teacher, application of evaluation method should select based on curriculum, assessment standard and context.

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CHAPTER 10
TIPS IN WRITING CASE STUDIES

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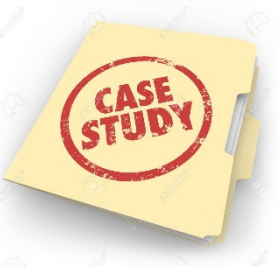
INTRODUCTION



There are many teaching methods available for the TVET instructors to select and apply in the classroom. One of the famous and effective methods of teaching is case study, which is becoming an essential tool in technical education. The construction and use of case studies for teaching can amplify and illuminate the theories presented in the classroom, allowing the students to imagine real-life situations. Formal education rarely allows for experiential learning. Students are presented with theories and philosophies, with rules and guidelines, but they often have little or no time to apply these concepts and see how they work, or not, in practice. Students often do not have the opportunity to follow a realistic event, such as a management or technical problem, from beginning to end. However, in technical education, case study teaching provides the student with the human element that cannot otherwise be explored fully in the limited time available within an educational program. Used independently or comparatively, such studies will not only help students understand their own existing environment but will also illustrate situations beyond the norm.

According to Millar (1999), case studies are not in common practice in the Technical and Vocational Education and Training (TVET) sector. This is due to the understanding of teachers that it may not be exact fit for their teaching technical and vocational subjects. However, this has been proven fact that case studies can be used for teaching technical subjects, entrepreneurial skills, soft skills and greening TVET components as well. Thus, this article is written with aim to maximize the use of case studies in TVET and guidelines are provided to prepare and write effective case studies which will amplify the learning of the students.

DEFINING CASE STUDY

One author of case studies, Lawrence (1953, p.215) defined the case study as follows:

> *"A good case is the vehicle by which a chunk of reality is brought into the classroom to be worked over by the class and the instructor. A good case keeps the class discussion grounded upon some of the stubborn facts that must be faced in real life situations. It is the anchor on academic flights of speculation. It is the record of complex situations that must be literally pulled apart and put together again before the situations can be understood. It is the target for the expression of attitudes or ways of thinking brought into the classroom"*

The purpose of using a case study in a teaching environment in TVET is to present the student with a scenario as close to that which he or she may encounter in real world of work, in order that the student may be able to work through the problem and devise reasonable and workable solutions.

Case study raises questions and allows the student to work through the decision-making process and find his or her preferred solution, however case study does not provide answers. The case study generates an action-oriented teaching environment, where the student must actively participate in the process in order to meet the learning objectives. Through this process, much of the responsibility for learning is naturally transferred to the student. Thus, this is one of a student centered teaching methods.

Case studies can help the student develop the following skills:

- Identify and recognize problems
- Understand and interpret data
- Understand and recognize assumptions and inferences, as opposed to concrete facts
- Think analytically and critically
- Understand and assess interpersonal relationships
- Exercise and make judgments
- Communicate ideas and opinions
- Make and defend decisions

A case study presents a realistic problem, one that might reasonably take place within the normal work environment. The case study will include the complexities natural in the work environment, such as questions of policy or procedure, issues relating to reporting relationships or hierarchies or financial or administrative concerns.

Case studies are often based on actual situations, which may be fictionalized to protect confidentiality. They are usually institutionally organized, dealing with a situation within an organization or agency. In order to make the case study as realistic as possible, the author must report to the best of his or her ability the facts of the case at the time the problem existed.

CHARACTERISTICS OF A GOOD CASE STUDY

Following are the characteristics of a good case study:

1. It makes the learners think sharply
2. The incident entails difficult choices

3. It is open-ended, allowing multiple interpretations and solutions
4. It enhances student learning
5. Gets at issues that require collegial discussions
6. It is related to the important curricular aims of the program
7. The incidence has stayed with you and wants to be told.

USING CASE STUDIES IN TEACHING-LEARNING IN TVET

As per the resources and time available, it is up to the instructor which method to select and decide whether the selected method contribute in achieving learning outcomes. It is also important to consider the time available and subject before selecting the case study. It should be planned thoroughly how and when to use the case study in the classroom. The students also need to orient on case study assignment.

Following are some examples of teaching methods using case studies:

Problem Solving

The case study can be presented to solve problems encountered in different work environment. This will enhance the problem solving skills among the students. The case study should be designed based on real life problems or need to create one.

Class Discussion

The case may be presented to students, either on the spot for immediate discussion, mirroring a real-life situation, or as preparatory work in advance of discussion in a later class. The discussion itself may take place among the entire class, or the class may be divided into small groups, each of which analyses the case and reports back to the larger group.

Role Play

The case study may be presented either in whole or in part as a role play. For example, the students may be given 'parts' as people in the case and asked to present their 'character's' concerns and point of view. Discussion and analysis would proceed either through the role play or at the conclusion, as a class review.

Interviews

The students may only be presented with part of the information and be required to ask particular questions to extract the rest of the data needed and provide their analysis and recommendations. The instructor or other students may serve as 'actors' to present the information and answer questions.

Assignments

The case study can be presented as an assignment, with the student required to write an analysis and recommendations. This may be done as a take-home assignment or as part of an examination, requiring immediate response.

THE LIFESPAN OF CASE STUDY

Case studies can quickly become obsolete. For example, a case based on issues of computer technology will not be a useful teaching tool once that technology has been superseded. Studies involving materials or labor costs may quickly become dated as prices rise, or fall. In the areas most suited to case study work – professional management and practical application of theories – external realities will change so often that case studies will inevitably be out of date within a few years.

Some professional case study writers have suggested that the average life of a case study is two to three years. Thus, when constructing case studies it is worth considering the potential life of the work in relation to the amount of work put into its creation.

TOPICS FOR CASE STUDIES

Because the case study is a subjective document, there is no one 'correct' answer to any problem posed. Each student, each class and each instructor will provide a different interpretation of the issues presented. Thus, case studies are often best used for teaching in those areas that are more interpretive than prescriptive. For example, case studies can be extremely useful to illustrate how to establish priorities, develop strategic or business plans, make arrangement or description decisions or apply theories or principles.

ELEMENTS OF A CASE STUDY

A case study may consist of one scenario or several, and it may take many forms, from a traditional paper-based document to films, videos or audio recordings. The case study document may be as short as two pages or as long as thirty. In table 1 below shows the elements of case study:

The following are the elements' descriptions of a case study:

Element:	Description:
Introduction	The introduction defines the problem to be examined and explains the parameters or limitations of the situation.
Analysis	The analysis provides a scenario of the situation and offers more detail about the various players in the scenario, including the organization, its employees or other people involved with the issue in question and issues can be professional, technical or theoretical. It might also include graphic or visual aids such as budgets, organizational charts, mission statements or technical specifications, as relevant.
Status report	The status report describes the organization's actions, on the issue. It may include statements from managers or employees about their intentions for resolving the issue.
Case problems	In many case studies, the status report may end with one or two case problems, which require the learner to analyze or solve a particular question. Case problems generally take one of three forms: 1. Give a situation and ask learners what they would do next. 2. Set a task, such as asking learners to prepare a report recommending an action for review by a key official. 3. Illustrate a scenario and ask learners to analyze the faults and recommend how it should have been handled.
Appendices/ References	The case study may include as many appendices/ references as necessary to ensure learners understand the case scenario and have the necessary information to solve the case problems, including exhibit copies of documents, charts, technical specifications and so on.

EVALUATING A CASE STUDY

After a case study has been used one or more times, it is important to evaluate its suitability. The instructor should ask the following questions:

- Were the educational objectives achieved?
- Did the discussion remain relevant to the issue or did it transgress into side topics?
- Did the students have sufficient detail to consider the case? or Too much detail?
- Was the case relevant to the work situations students might find themselves in? If not, did it provide a good example of other systems, organizations or cultures?
- Did the students find the case stimulating and informative?

It is useful to prepare a brief memo or document outlining the use of the case and the discussions generated, for reference the next time it is used. Ideally, the instructor will amend or annotate the teaching notes, adding or changing questions or discussion points.

CONCLUSION

A case study is method which brings real world problems to the classroom, which will match with the work context in which students will be placed in the future. A case study will enhance the problem solving skills, analytical thinking skills, and decision making skills of the students, which are critical to the sustain the jobs in the future. An instructor of TVET, if decided to use a case study in the teaching needs to select case study very carefully as it should match with the learning objectives and the case should be relevant to the session topics. Before providing a case study, a clear instruction has to be provided to the students on its intention and what is required to do in order to complete the case study assignment.

RECOMMENDATIONS

The following are the recommendations to use a case study in the TVET institutions:

- The TVET institution management should encourage instructors to use case study and make resources available
- The instructors need to scrutinize their topics to see whether case study fits into it and which type of case study.

- Before providing case study to the students, it is very important to give clear instruction on requirements to complete the case study.
- It is advisable to the TVET instructors to create a pool of case studies, so that it can be selected as per the topics or issues.
- Case study brings the real world of work inside the classroom, thus it gives opportunities for students experiencing work context of the future. This will support in sustaining their jobs in a long run.
- The case study needs revision as it becomes absolute as per the changing time, technologies, and work context.

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The Inter-governmental TVET Leader for Sustainable Development

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Transforming TVET towards Sustainable Societies through Outcome-Based Quality Training, Accreditation, Research and Image Building for stakeholders

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