

**Basics for Project Reporting for Undergraduates or Relations in
Science Education and Relations; An overview**

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Abstract:

This paper specifically aims to provide a simple way of guiding students to present their research report in science education or quasi field using review approach. Mostly, before graduation of a student from a diploma, degree or related course, writing a project report must be ensured. The project is submitted to earn significant marks. However, project writing is tedious and difficult to many. This paper consists of explanation on how to basically report project for science education or related undergraduates. It consists of elucidation of chapter one, chapter two, chapter three, chapter four, and chapter five. Guidance on project report is invariably important for academics and students.

Keywords: *project, science, education, metrology, undergraduates, objectives*

Introduction

Teaching and learning at higher institutions irresponsible of their types follows pattern of science (Mikk, n.d.). Lecturers have to carry out researches to solve problems in the present or future time. Similarly, students have to submit a research project at the end of diploma, undergraduate or related degrees (levels of education) (Patel & Patel, 2018). A research refers to a premediated investigation through application of scientific methods to remedy a given significant problem, while divulging new set of knowledge (Faryadi, 2018). Research involves objective, systematic, recording from a controlled set of observations that potentially incite generalization, research benefits, principles, theories, or prediction of possibly occurring controlled events (Nwaorgu, 2016). Importantly, knowledge, creating new knowledge, drawing conclusions, using facts,

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making projections, ascertaining knowledge, modifying knowledge, and making innovation as well (Degu & Yigzaw, 26; Nwaorgu, 2016).

Indeed, research writing or reporting is a parcel and part of learning, teaching, and education worldwide. There is utmost need to communicate research finding to places of work, conferences, workshops, schools, institutions, etc (Mbamali, 2016). Every organization, field, situation require specific writing report format, albeit, them in principles may be alike. It is important to ensure a concise, clear, complete, accurate report (Mbamali, 2016). Every specific situation may have some specific format of reporting, therefore, the writer (student, teacher, worker) must abide by the specific guidelines; despite the facts are similar (Mbamali, 2016; Fanidis & Fountouki, 2019). This paper specifically aims to provide a simple way of guiding students to present their research report in science education or quasi field using review approach.

Choosing Project or Research Topic

Every society has its problems and challenges that students could carry out a given research to provide a suggested solution. On many occasions, students are facing challenges in the process of selecting a topic of study research. Students should critically observe the happenings around them, should discuss with peers, seniors, supervisor in order to select (Degu & Yigzaw, 206; Mohaja, 2018). Through this consultation and conversation, the student can be able to find a convincing researchable topic. A selected topic is supposed to be clear, researchable, unambiguous. The topic should help to trigger the student to adapt to the challenges ahead during the course of carry out the task of research. Therefore, a topic should be driven by interest, curiosity, and benefits to the society (Yabo, 2017; Faryadi, 2018). Original topic should be selected, not a plagiarized or duplicated. A researcher should choose topic that can be handled due to presence of data, finance, time, and instruments (Grant & Osanloo, 2014).

Project or Thesis Reporting

At the end of carrying out any research work that according to educational institutions curriculum, a research report must be submitted, it can be called as project or thesis or another related name. Mostly, from the beginning, when a topic was selected the students have to be under the guidance of the supervisors, have to submit a research proposal, and the first chapters of potential project report are corrected by the supervisor (Patel & Patel, 2019). The project or thesis reporting is done by categorizing the work into chapters. Mostly, the chapter one is pertaining introduction, chapter two is about literature review, chapter three is concerning methodology, chapter four include results and discussion, and lastly chapter five (conclusion and recommendations) (Yabo, 2017; Kubota et al., 2021).

Chapter One consumed the Introduction Part

Chapter one of a project reporting or proposal constitute the introductory aspect. This part of the report contains the foundation of the work and basis of the study. It shades lights on the forthcoming aspects of the work done or to be done (Roy et al., 2018). The chapter one mostly is consisting of:

1.1 Background of the Study

Background of the study entails what prompted to the work, highlights of the work, highlights of subject matter. This part has to be brief, concise, identify subjects matter, original, introduce the work, and explain the variables involved (Yabo, 2017; Kubota et al., 2021).

1.2 Statement of the Problem

This subsection in chapter on illustrates diagnosis of the problem such as scope, nature, and dimensions. The problems outlined here are the triggers of the study. It may constitute effects of the problem, gravity, justification, genesis of the Problem triggering the work (Yabo, 2017; Satitri et al., 2021).

1.3 Objectives of the Study

In this subsection, the reason for carrying out the work is stated. Objectives listed most be amenable to simplicity, measuring, practicability, observation. The objectives will guide the students in achieving the ultimate findings of the study. Usually objectives are listed in numbers or bullets or numerals, but at the end of the work they are deemed to be achieved (Tiwari, 2023).

1.4 Justification or Significance of the Study

Significance or justification entails the benefits of the work to the society or members. The significance may be listed in numbers or as paragraphs. Significance may be benefits to the policy makers, societies, group, students, scholars, etc (Yabo, 2017; Kubota et al., 2021).

1.5 Research Questions

Questions stated here supposed to be answers to research objectives or the stated problem. In turn, the researcher could easily turn objectives to questions in a bid to bring about research questions (Nwaorgu, 2016).

1.6 Hypothesis of the Study

Hypothesis refers to the "tentative proposition suggested as a solution to a problem or as explanation of some phenomenon" A hypothesis may be seen as a statement illustrating relationship between variables. It is a statement that is tested in the research to find out if it is true or otherwise (false). A hypothesis has to be clear, testable, and consistent. It is a guide to the study, like the objectives. Null hypothesis states that there is no difference or relationship between variables. It is a hypothesis of no difference or effects. For instance, "There is no significant difference between the rise in school attendance and primary school feeding program in Gwadabawa." Alternative hypothesis is the alternative of null hypothesis. It specifies there is a difference which was not anticipated by the preceding null hypothesis. For instance, "There is significant relationship between the rise in primary school attendance and school feeding program in Gwadabawa." (Yabo, 2017; Kubota et al., 2021).

1.7 Scope and Limitation

At this point the covering area included by the work is specified such as location, subjects, participants, period, etc.

1.8 Definition of Terms

Some called this section as "Operational Definition of Terms" involving some technical terms that are being explained because of the utilization in the work (Yabo, 2017).

Chapter Two; Literature Review

This is the second part or section in reporting a research project. Literature review is done by consulting sources of information such as books, journals, notes, conference papers, seminar papers, etc to enable the researcher gain better understanding of the work to be done. It allows the research have knowledge about what was done in the past related to the present research work (Yabo, 2017; Ramdhani et al., 2021). Literature review contain the following;

2.1 Conceptual Framework - entails all the concepts vying to the present work

2.2 Theoretical Review -Entails the theories that are used to comprehend or elucidate the research work. Theories are serving as roadmaps, stepwise summary consisting of factors in designing, implementing, evaluating health behavior of people. It is a vital way to discern how, and why a person, community, family, group, improve or affect health status. Theories elucidate why a given intervention is important, how, and measures for evaluating the successes of the intervention. A theory can be explained as a "succinct summary or presentation that provides an explanation about relationships of variables." Theories help scientists to know "how, why, what, who" regarding health issue. A theory is an understanding of events that occur using systematic approach (Glanz et al., 2015). Theory may consist of items such as definitions, propositions, concepts, that discern or predict the situations or events through explaining relationship involved in variables. Theories are abstracts in their sense, therefore can be in different occasions applicable to many different events. Models are the gathering of some theories to aid in understanding of a given problem arising in a given context or paradigm (Glanz et al., 2015).

2.3 Empirical Framework -Entails the past observational studies performed that can be used to relate the present work, show gaps, show what was already achieved, and show what is supposed to be explored by the present work

- Should mostly done using recent works
- It is divided into subsections
- Includes researcher's understanding
- Compares, interpret, evaluate related works (Yabo, 2017; Kubota et al., 2021).

Chapter Three: Methodology

This section is sometimes termed a materials and methods. However, it is the third part of the work and entails an explanation of how the research was conducted. In a report it is done with "past tense" and in another forms such as proposal " it is done with present or future tense." It gives full detail containing all the needed steps in doing the research. Chapter three may consists of study area, research design, population, sample and sampling technique, instrument for data collection (instrumentation), method of data analysis, etc (Mikk, n.d.; Larsen & Pettnella, 2023).

3.1 Study Area

This describes the exact place where is research was done. Geographic and demographics of the are explained, like other features that relate with the study (Kristin & Lynn, 2022).

3.2 Study Design

This is the type of design embraced in obtaining the data. Some designs include:

Descriptive survey -Involves collecting data to describe, interpret a giving condition, beliefs, etc. Survey collect data at a given time in a given population.

Experimental design - This attempt to establish a relationship between variables involving manipulating the subjects of the study by the researcher. For instance, in a study "Effects of Teaching Biology in Hausa Language Among Some Primary Schools Students in Gwadabawa" is the case where experiment is used. There are many other designs such as case study, cohort study, historical design, prospective design, etc (Degu & Yigzaw, 2006).

3.3 Population of the Study

This entails all the elements or members where the study is conducted. Population is the entire groups or members studied. It is not feasible to study the whole populations, mostly samples are used as representatives (Degu & Yigzaw, 2006).

3.4 Sample and Sampling Technique

Sample is a part of the whole population that is selected to serve as representative, and the results obtained are generalized on the whole. Sampling technique is the methods applied during sampling. Types of sampling include, convenient, stratified, random, cluster, snowballing, etc (Degu & Yigzaw, 2006).

3.5 Instrumentation

Instrumentation is a process that utilized to collect data. Researcher should use a proper instrument to collect data for the work intended. The instrument is depending on the population involved, type of data, sample size, objectives, and other factors. Some major instruments for data collection include:

Observation - Observation involves observing the subjects (samples) using the sense organs or machine appliances to collect data. Observation methods using machines include chromatography, electrophoresis, potentiometry, gravimetry, spectrophotometry, fluorimetry, mass spectrometry, luminometry, and enzyme-linked immunosorbent assay.

Interview - An interview involves a researcher having a conversation with the sample either directly or indirectly. It might be structured or unstructured in nature

Questionnaire - Questionnaire is an instrument of data collection consisting questions about the research that are attended (attempted) by the respondents. Questionnaire can be structured, semistructured, unstructured as well. Questionnaire can be sent directly or through email or other means of delivery. Validity of questionnaire is maintained by experts to ensure that the questionnaire is valid, meant to be used properly for its purpose. Reliability of an instrument test the quality of the instrument. Reliability of questionnaire in a study is ensured using methods of

pilot study (tool administered to some portion of the population in a form of mini research to give room for adjustment), test-re-test (questionnaire is administered to the sample for over many times until reliable) and split-half method (for instance, dividing samples into two allowing them to respond to same questions) (Degu & Yigzaw, 2006).

3.6 Method of Data Analysis

At this portion, the researcher mention the statistical tools utilized to measure the significance of the data statistically.

Chapter Four: Results and Discussion

This chapter entails to deliver the exact result found by the researcher and subsequently performing the explanation of the results using past studies, literatures, and theories. It basically contains:

4.1 Results

This subsection contains the actual results determined by the study. Results may be presented in diagrams, tables, pictures, texts, sketches, etc. Each data presentation tool should be numbered, titled, and source stated, provided the presentation tool is clear.

4.1 Discussion

Subsection describes the data analysis obtained during the research. The researcher is expected to argue the findings by stating negativity, positivity, or in other case indifference, inferring the expected reason for the observation (Degu & Yigzaw, 2006).

Chapter Five: Conclusion, and Recommendations

This section presents the concluding remarks of the study pertaining the finding of the work. It is the summary of the work and outlined the major finding obtained (Degu & Yigzaw, 2006).

5.1 Conclusion

This gives a summary of the work and is a concluding remarks about the entire finding.

5.2 Recommendations

This part states the suggestions according to the finding. Suggestions are possibly potential advice for controlling problem found by the study, or as interventions to help solve a certain issue. Recommendations may be stated to the individuals, communities, government, and other related stakeholders that may be directly or indirectly implicated by the work. Nevertheless, suggestions for making another or similar research could be elucidated here (Degu & Yigzaw, 2006; Yabo, 2017).

The Beginning and Ending of a Report

There are other parts of research reporting apart from the context or body. The beginning of a report consists of mostly, title page (where detail of the topic, writer, school, department, year, are stated), certification page (deals with student and teachers certification about the truthfulness

of the study), dedication page, acknowledgement page (therein, people are thanked because they supported the work), table of content (citing lists and page numbers of items in the body text, others such as table of figures, list of tables, may follow), abstract (an abstract contains summarized version of the entire work. It consists of introduction, methods, results, and conclusion) (Mbamali, 2016).

At the end of every report, references are listed accordingly (all cited works in the body text are included). There are specific formats of references (citation and listing) depending on each institution involved. Every writer must strictly adhere to the tenets of referencing of the institution entertaining the report to be submitted. Other things that are found at the end include appendices. Appendices may have some diagrams, results, apparatuses, etc that are not proper to be included in the main text. Other items could be published papers, questionnaire, consent form, ethical clearance, etc (Degu & Yigzaw, 2006).

Noteworthy, it is strictly important that, every writer should follow guidance and guidelines rendered by supervisor and specific department. Plagiarism is a critical crime in academia, it is stealing someone's work. The writer should paraphrase and properly cite all sources used. Colleagues, experts, seniors will invariably help a researcher (Degu & Yigzaw, 2006; Yabo, 2017).

Summary:

This paper explains the basic ways to write a project report. It gives a simple course to achieve project writing for students and quasi. Teachers (lecturers) should pay more attention on teaching research methodology to students. Supervisors should provide adequate support in order to simplify project writing course.

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