UNDERSTANDING THE NATURE, CHARACTERISTICS, AND ETHICS OF INQUIRY AND RESEARCH FOR BEGINNING PRACTICAL RESEARCH STUDENTS

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ABSTRACT
The research aims to discover evidence, develop an explanatory theory, and create original works of significant creative value through systematic and thorough investigation. A research method must have certain characteristics and properties to be considered good research: it must be regulated, thorough, systematic, accurate, and verifiable. Since research often starts with a problem and finishes with a problem, many of the issues raised in the research recommendations may become new research topics. It is based on direct experience or observation, employs facts and evidence collected through a rigorous investigation, and draws clear conclusions using valid procedures and principles. Furthermore, data collection shows cautious and accurate judgment, as well as the use of validated analytical procedures. On the other hand, study design and methods are repeated for the researcher to draw clear and definitive conclusions. In the research process, ethics elevates the promotion of knowledge, fact, and credibility. It also promotes principles that are important for collaborative work, such as trust, transparency, mutual respect, and justice. The ethical codes and policies for the study include honesty, objectivity, transparency, confidentiality, human subject rights, and intellectual property respect. Researchers should also recognize the following rights of research subjects such as voluntary participation, informed consent, risk of harm, confidentiality, and anonymity. Intentional misinterpretation, misinformation, and false statements must be avoided to prevent cases of plagiarism, and proper credit must be provided when using other people's work.

Keywords: characteristics, ethics, inquiry, practical research, research, students

1. Introduction

Research education and the incorporation of standardized formats of scientific writing encourage greater knowledge understanding, seeking, and implementation of innovative approaches as a means of promoting the uniform behavior, analysis, and outcome to research findings published using recognizable standard formats of scientific writing (Tabuena & Hilario, 2021; Tabuena, 2021c). In this case, this research article takes initiative in research education to help the learners in establishing and maintaining the research skills in understanding the nature, characteristics, and ethics of inquiry and research (Tabuena, 2020b) as one of the K-12 learning competencies among senior high school research courses; and as part of the perceptible and deliberate consideration of...
the learners’ zone of proximal development (Vygotsky, 1978) in the research writing process.

As we encounter things in life - a rare or an ordinary one, sometimes we wonder how things are configured, structured and happened, such as the color of the sky, the climate of one's region, the spread of disease, the effect of political extremism, racism and antisemitism, and many others that give us the way to think and figure out questions in mind. This simple way of thinking leads us to have an idea of a certain thing and/or topic whether it is important or not in our daily lives. Scientifically, this process associated with linking questions to questions in attempting to discover facts about something is called an inquiry. Human beings are curious naturally, and this curiosity leads us to discoveries that aid us in our daily lives.

According to Dewey (2008) in his Logic - The Theory of Inquiry, if a conception of observation is offered where a person/subject observes the object, then it can be determined by what is observed in a certain way. When holding onto a concept involves the process of observation respectively, the concepts which make up the concept are never indeterminate. Otherwise, when topics are held onto they are not recognizable. The relationship between implementation and assessment not just to impart a concrete result but to contribute a wide understanding in bridging the gap to other fields of disciplines.

2. Nature of Research

How do you validate information and knowledge? How do you say that this information is reliable and credible? There are a lot of theories in regards to the inquiry that aims to augmenting knowledge, resolving doubt, and/or solving a problem, and these aims require a thorough and organized process of investigations - the nature of research, which comprises creative and systematic work undertaken to increase the stock of knowledge, including knowledge of humans, culture and society, and the use of this stock of knowledge to devise new applications (Organisation for Economic Co-operation and Development, 2015).

2.1. Importance of Research

The main goal of the research is to preserve and improve the quality of human life (Tabuena & Hilario, 2021; Tabuena, 2020a). There are numerous reports in the science of medicine, technology, education, and others, in which research is evident through those practical applications and advancements; among others are specified as follows: (a) discover and verify facts, (b) enhance man’s basic life, and (c) research advancement.

2.1.1. Discover and Verify Facts

In some research, facts and/or knowledge contribute specific role that might help to improve educational practices, acquire a better and deeper understanding about one phenomenon to another, validate generalizations into a systematic order, and find a solution to problems that are only partially solved (Zulueta & Costales Jr., 2003).

2.1.2. Enhance Man’s Basic Life

The emergence of technology and its constituents brought possible positive outcomes to provide ease in everyday functions of human life, promote health and prolong life, improve or develop new products, and other benefits in the commercial enterprise (communication, transportation, nutrition, etc.) - the application of new knowledge.

2.1.3. Research Advancement

Research advancement not only include processes to verify theories or discover new ideas and technology but also to enhance and deepen the knowledge and skills in their respective field of discipline (e.g. history, culture and tradition, medicine) whether for personal and/or professional
endeavors (Sevilla et al., 1984); other purposes of research is to provide a basis for decision-making in any undertaking and to satisfy the researcher’s curiosity.

2.2. Meaning of Research

Research is the process of finding answers to [specific] questions in a systematic and reliable way in the expansion of knowledge, however, it is much more than a method of problem-solving (Jerusalem et al., 2017; Calderon & Gonzales, 1993). According to Creswell (1994; 2009) and Calmorin (2010), research is defined to include systematic and rigorous investigation directed to the discovery of hitherto unknown facts; the construction of explanatory theory, and, the construction of original works of significant artistic merit; a scholarly activity directed to the construction of analysis or interpretation of existing human products of human, scientific, literary and artistic activity aimed at increasing the accuracy and depth of human understanding - both should result in tangible output.

2.2.1. Important Terminologies in Research

There are some important terms used in research as well as in its process. Take note of the following for you to understand some [operational and conceptual] terminologies that you might encounter along with your research inquiry (Calmorin, 2010; Subong Jr., 2005; Asaad & Hailaya, 2004):

- **Abstract** - refers to a brief and concise descriptive summary of the research.
- **Assumption** - refers to the presumed true statement of facts related to the research problems.
- **Correlational Coefficient** - is a numerical measure of the linear relationship between two variables.
- **Data** - numbers or information gathered in a study.
- **Hypothesis** - is a wild guess formulated and temporarily adopted to explain the observed factors covered by the study.
- **Inferential Statistics** - is a method of making generalizations or inferences about a population based on sample data.
- **Interview** - is a research technique by which a researcher derives information from a respondent face to face (and other means).
- **Item Analysis** - is concerned with analyzing if each test or controlled conditions by isolating the study in a rigorously specified and operationalized area.
- **Population** - is the aggregate or total of objects, persons, families, species, or orders of plants and animals.
- **Population Distribution** - is the distribution of values for the population.
- **Qualitative Data** - attributes or characteristics of the population.
- **Quantitative Data** - numerical information about the population.
- **Questionnaire** - is an inventory of information listed down to which a respondent answers.
- **Reliability** - is a degree of consistency and precision that a measuring instrument demonstrates; also called stability, dependability, and predictability.
- **Samples** - refers to a part of a population.
- **Sample Distribution** - calculated values from given facts with respect to the members of a sample from a distribution.
- **Subjects** - the particular individuals used in the research; respondents (individuals answering a set of questionnaires); participants (individuals directly involved in the research process).
- **Survey** - is the process of asking a series of questions in order to gather information about what most people do or think about something.
Theory - contemplative and rational type of abstract or generalizing thinking, or the results of such thinking; an idea or set of ideas that is intended to explain facts or events.

Validity - is the degree to which the research instrument measures what it intends to measures.

Variable - is a characteristic that has two or more mutually exclusive values or properties.

3. Fundamental Characteristics of a Good Research

The process in research must have certain characteristics and properties to qualify as good research: for some, it must be controlled, rigorous, systematic, valid, and verifiable. The following are the fundamental characteristics of good research in the CLEAR acronym: C - Cyclical, L - Logical (Systematic and Objective), E - Empirical, A - Analytical and Critical, R - Replicable (and Feasible).

3.1. Cyclical

Research starts with a problem and ends with a problem, many problems in the research recommendations may crop as other subjects for the study. In the sample indicated below (Table 1), entitled Validation of the Teaching Situations Inventory (Nava, 2000), from the developmental study, the possible new study could be a comparative study.

<table>
<thead>
<tr>
<th>Table 1 Sample Research for Cyclical Research Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indicators</strong></td>
</tr>
<tr>
<td>Research Title</td>
</tr>
<tr>
<td>Selected Research Recommendation</td>
</tr>
<tr>
<td>Possible New Study</td>
</tr>
</tbody>
</table>

3.2. Logical

Research is based on valid procedures and principles to draw valid conclusions. It is important in research to follow certain guidelines and/or stages to come up with definite results and/or outcomes as shown in the sample research below (Table 2).

<table>
<thead>
<tr>
<th>Table 2 Sample Research for Logical Research Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indicators</strong></td>
</tr>
<tr>
<td>Research Title</td>
</tr>
<tr>
<td>Research Procedure</td>
</tr>
<tr>
<td>Selected Conclusion</td>
</tr>
</tbody>
</table>

In terms of being logical, research should be systematic and objective: (a) systematic - follows
a system of flow, and (b) objective - involves an objective process; never produce results out of nowhere; never be based on biases.

3.3. Empirical

Research is based on direct experience or observation and uses facts and data obtained through a thorough investigation as shown in Table 3.

**Table 3 Sample Research for Empirical Research Characteristic**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Sample Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Title</td>
<td>Quality of Life of Post Myocardial Infarction Patients Admitted at Bulacan Medical Center (Santiago, 2018)</td>
</tr>
<tr>
<td>Investigation: Phase II -Investigation and Experimental Phase</td>
<td>According to the table, angina was the common risk factor noted among the patients with 33 cases or 89.2% followed by hypertension with 30 cases or 81.1%. Other risk factors such as smoking with 21 cases (56.8%), DM with 14 cases (37.8%), and previous MI with 8 cases (21.6%).</td>
</tr>
<tr>
<td>Facts/Data</td>
<td>The three most common risk factors identified among the patients are Angina, Hypertension, and smoking.</td>
</tr>
</tbody>
</table>

3.4. Analytical and Critical

Research exhibits careful and precise judgment and utilizes proven analytical procedures in gathering data as shown in Table 4.

**Table 4 Sample Research for Analytical and Critical Research Characteristics**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Sample Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Title</td>
<td>Literary Appreciation and Proposed Supplementary Asian Literary Selections (Esguerra, 2015)</td>
</tr>
<tr>
<td>Abstract</td>
<td>This study aimed to propose a list of supplementary materials for Asian Literature using literary appreciation as the basis. The researcher used survey questions and a literary appreciation test for students of Centro Escolar University. The findings showed that they were highly capable of relating to the text but can hardly answer literal questions or form questions about the text. Therefore, the use of classic and modern literary titles that manifest values and use simple language was recommended.</td>
</tr>
</tbody>
</table>

3.5. Replicable and Feasible

Research design and procedures may be replicated to enable the researcher to arrive at valid and conclusive results. An example of research design and research procedure replication is shown in Table 5.

**Table 5 Sample Research for Replicable and Feasible Research Characteristics**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Sample Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Design</td>
<td>Inferential Statistical Data Analysis, Experimental Design</td>
</tr>
<tr>
<td>Statistical Treatment</td>
<td>t-test, Standard Deviation, Hake factor &lt;g&gt;, Pearson’s r Coefficient</td>
</tr>
<tr>
<td>Research Procedure</td>
<td>Pre-Implementation Stage, Implementation Stage, Post Implementation</td>
</tr>
</tbody>
</table>
Stage

Possible Study of Same Research Design & Procedures
Effective Music Instructions Integrated to Mathematics Lesson in the Academic Performance of Grade 3 Pupils (Buenaflor, 2018)

Possible Study of Same Variables
Classroom Assessment Techniques in Mathematics for Junior High School Students: An Action Research Report

4. Ethics in Research

Ethics is defined as the rules of behavior based on ideas that are morally good and bad. Ethics promotes the pursuit of knowledge, truth, and credibility. It also fosters values that are essential to collaborative work such as trust, accountability, mutual respect, and fairness (Francisco, 2019). The following are the ethical codes and policies for research: (a) honesty (accuracy of information), (b) objectivity (never be based on biases), (c) openness (clear, accessible, free from concealment), (d) confidentiality (a concept of anonymity - state of being unknown), (e) human subject protection, and (f) respect for intellectual property.

Further, research should contain information about whether, and the extent to which, the studies complied with ethical requirements (Pagulayan, 2019). Have you explained how you complied with all relevant ethical requirements, including those governing experiments on humans and animals? Have you explained how the identity of research subjects was protected and that informed consent was obtained from all those who participated? Table 6 shows an example of ethical considerations in the research writing process.

Table 6 Sample Ethical Considerations in Research Writing Process

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Sample Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Title</td>
<td>Constructing Appropriate Music Listening Response Assessment Tool for Grade 7 Philippine Music Listening Competency (Tabuena, 2019)</td>
</tr>
<tr>
<td>Potential Ethical Issues and Considerations</td>
<td>The researcher will be responsible for the protection, of any risk and harm, of the students involved through following proper procedures of test administration, with supporting documents and letters from the Division of City Schools. In addition, it will guarantee the confidentiality and anonymity of the individual participants. In terms of data analysis, potential miscalculations will be prevented through statistical data management and software. Further, there is no future intimate information being disclosed during the data collection process.</td>
</tr>
</tbody>
</table>

4.1. Intellectual Property Rights

This refers to creations of the mind: inventions, literary and artistic works; and symbols, names, and images used in commerce (Francisco, 2019). There are two categories: (a) Industrial Property, and (b) Copyright. Plagiarism is a violation of intellectual property rights. Intellectual property is protected by Republic Act 8293 or the Intellectual Property Code of the Philippines. The following are the rights of the subjects (participants) in research: (a) voluntary participation, (b) informed consent, (c) risk of harm (principle of non-maleficence, harmless), (d) confidentiality, and (d) anonymity.

4.2. Ethical Standards in Research Writing

Findings should be reported with complete honesty. Intentional misinterpretation, misinformation, and misleading claims must be avoided. In addition, appropriate credit should be
given when using other people’s work. Plagiarism should be avoided by fully acknowledging all content belonging to others (Francisco, 2019).

4.3. Plagiarism

Plagiarism means using someone's idea, their vocabulary, and their processes or outcomes without using what they rightfully deserve credit for. Stealing and plagiarism is the act of taking the thoughts of another and "passing them off" as your own work. Anything really does refer to anything, from term papers to pictures to songs, even ideas.

The following are actions that have been regarded as plagiarism: (a) intentionally claiming authorship of another person's creation or work if no one else can be credited with such work; (b) copying an entire written work (e.g. literary text, research paper, etc.) or a portion of it – including ideas, words, and sentences – without acknowledging the creator or author; (c) failing to put quotation marks to discern a quotation obtained directly from a source; (d) giving erroneous information about the source of the quotation; (e) purely and simply changing the words but trying to retain the structure of the source – which means retaining the structure of the sentences from the original source and the words of the sentences of the original source of the work in the re-ordered sequence; and/or (f) using too many words or ideas from the original source that no indication of the original source of the work can be seen in a re-ordered manner, even if you acknowledge the original author.

5. Conclusion

Research involves systematic and rigorous investigation, aimed at the discovery of facts, the construction of an explanatory theory, and the construction of original works of significant artistic merit. To be considered good research, a research process must possess certain characteristics and properties: for example, it must be controlled, rigorous, systematic, valid, and verifiable. Furthermore, as research may begin with a problem and end with a problem, many of the problems in the research recommendations may emerge as new research subjects. It draws valid conclusions using valid procedures and principles; it is based on direct experience or observation, and it employs facts and data gathered through a thorough investigation. Research also demonstrates careful and precise judgment, as well as the use of proven analytical procedures in data collection. Research design and procedures, on the other hand, maybe replicated to allow the researcher to reach valid and conclusive conclusions.

Ethics encourages the pursuit of knowledge, truth, and credibility in the research process. It also promotes values like trust, accountability, mutual respect, and fairness, which are necessary for collaborative work. Honesty, objectivity, openness, confidentiality, human subject protection, and intellectual property respect are the ethical codes and policies for research. The following rights of research subjects should also be considered by researchers: voluntary participation, informed consent, risk of harm, confidentiality, and anonymity. To avoid plagiarism, intentional misinterpretation, misinformation, and misleading claims must be avoided, and appropriate credit must be given when using other people's work.

References

2. Buenaflor, M. P. (2018). Effective music instructions integrated to mathematics lesson in the
academic performance of grade 3 pupils (Undergraduate research). Philippine Normal University, Manila, Philippines.


