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(Module) Research Methodology　　　　　　(Grade) Senior Undergraduate

(Major) Sciences of the Language　　　　　　(Instructor) Dr. Ahmed Bashar

Introduction to Research Process

Outcomes: By the completion of the following tutorial, you will be able to:

1. *identify* the various steps of the research process;

2. *examine* each step;

3. *point out* to its components;

4**.** *identify* key terms and jargon pertinent to research process;

4. *raise* your awareness of the importance of the systematicity of each step;

5. *undertake* readings regarding research process in education.

> Systematisation is common in all research (p4).
>
> **Olsen W. (2012). Data collection: Key debates and methods in social research.**

Food for Thought Questions: *Discuss the questions with peers and teacher.*

1. What is the research process?

2. Is there one single process for all research methodologies?

3. Do qualitative research rely on statistics? If not, then is it the quantitative?

4. How can a research problem be identified and developed?

5. Where do good ideas for research originate? (Johnson and Christensen 2010:60)

6. How can you tell data analysis from data interpretation?

7. What is after all a good research?

Terms to be Mastered in this Tutorial

Make sure you grasp the meaning of each of the constructs

Research process- research problem- review of literature- research questions- data collection-data analysis- data interpretation- primary data- secondary data- reporting findings- hypothesis testing

Point to Ponder & Wonder

Peruse the following passage, then discuss it with your peers and teacher.

"I did not invent penicillin. Nature did that. I only discovered it by accident."

Fleming's legendary discovery of penicillin occurred in 1928, while he was investigating staphylococcus, a common type of bacteria that causes boils and can also cause disastrous infections in patients with weakened immune systems. Before Fleming left for a two-week vacation, a petri dish containing a staphylococcus culture was left on a lab bench and never placed in the incubator as intended. Somehow, in preparing the culture, a Penicillium mold spore had been accidentally introduced into the medium—perhaps coming in through a window, or more likely floating up a stairwell from the lab below where various molds were being cultured. The temperature conditions that prevailed during Fleming's absence permitted both the bacteria and the mold spores to grow; had the incubator been used, only the bacteria could have grown.

Fleming's laboratory notebooks are sketchy, and his subsequent accounts of the discovery are contradictory. The evidence of the first culture, which he photographed, indicated that he observed lysis, the weakening and destruction of bacteria—as in his lysozyme studies. But sometimes he described the key observation as an instance of inhibition or prevention of bacterial growth in areas affected by the mold "juice," evidenced by a clear zone surrounding the mold. Although these two effects occur under quite different conditions, Fleming probably forgot which observation came first, for in the months subsequent to the original observation he conducted many experiments while varying conditions systematically.

He discovered that the antibacterial substance was not produced by all molds, only by certain strains of Penicillium, namely, Penicillium notatum. Although he could not isolate it, he named the active substance "penicillin." He studied methods of producing the impure product and determined its stability at different temperatures and over various lengths of time. He investigated its effect on many microbes, curiously omitting the familiar spirochete that causes syphilis (which Salvarsan controlled but did not eliminate). He tested its toxicity on a laboratory mouse and a rabbit. Forever after, it has been a puzzle why he did not inject these or other laboratory animals with staphylococcus or other disease-causing bacteria before injecting them with the fluid containing penicillin. Perhaps the explanation lay in his belief that cures come from within the body itself, rather than from an external agent. So he was not looking for a curative agent but rather focused on his new find as a topical antiseptic. In later years he claimed that the difficulties he had experienced in isolating and stabilizing penicillin, let alone the problems of producing sufficient quantities for clinical trials, had prevented him from realizing the full fruits of his research.

In fact, in the 1930s, little notice was taken by the scientific community of his paper published in the British Journal of Experimental Pathology (June 1929). Those few scientists who sent for samples and tried to gain more understanding of the properties of penicillin did not or could not capitalize on Fleming's discovery.

https://www.sciencehistory.org/historical-profile/alexander-fleming

Introduction

Research follows a flexible if rigorous pattern usually referred to as *research process*. Paul (2012 : 7) corroborates ''research should not be treated as if a rigidly sequential process''. Different phases of the research process could be undertaken

> ... most scientists would probably prefer to comment on research product rather than the research process.
>
> **Haslam and McGarty in Research Methods and Statistics in Psychology**

simultaneously, which it should be interesting to make an analogy here, research process may be likened to a train made of a locomotive and many compartments. If they do not go on the same line while they are in motion, they go *loco*. The logic of research process is to achieve two main goals : reliability and validity of the research findings. The more the results are accurate, the more they are accepted by the scientific community.

Description

The present tutorial eases you into the ABC of the research process in both qualitative and quantitative research methodologies. The main concern of the tutorial, hence, is to help you undertake research on firm bases, which will eventually add to your meaningful experience as novel researchers. On score of that, the current tutorial covers a wide range of topics with a special reference to the way research is initially undertaken, processed, and concluded.

Definition of Research Process

By definition, a *process* is a sequence of operations which work together to produce a result. Research process, therefore, is a sequence of operations that lead to the successful realization of a research project. Research process can also be understood to be the logical, systematic operations undertaken by researchers to answer the questions concerning a particular topic of interest to the researcher himself and to the scientific community. Mligo (2016 :17) defines the research process as follows ''The research process describes the way you begin your research, the way of proceeding with it, and the way ending with it''.

Johnson (1986: 30) proposes the following four questions, which underpin the framework of any research :

> 1. *What are you going to do* ?   (The **subject** of your research)
>
> 2. *Why are you going to do* ?   (The **reason** for doing research)
>
> 3. *How are you going to do* ?   (Research **methods**)
>
> 4. *When are you going to do it* ?   (The **design** of the work)

Overall, a good quality research process needs to define the research problem/ question, justify for such selection, design the research methodology, and the deadline of the research study.

Steps of the Research Process

Each research methodology seems to be characterized by its definite operations and/ or steps.

Identification of the research problem

Researchers see the world as a set of problems to be researched and fixed. A research problem is generally understood to be what frustrates the fulfillment of a policy or project. If the research topic is assessment, then a research problem could be whether or not assessment methods and marks are reliable and valid because of cheating. Johnson and Christensen (2008 :74) identify research problem in the following terms :"an

education issue or problem within a broader topic''. Research problem lends itself, therefore, to be a topic within a topic. Creswell (2012: 59) identifies research problems as "[...] educational issues, controversies or concerns that guide the need for conducting a study". Overall, research problem targets an **informational void** that the researcher intends to fill in.

Research Topic vs. Research Problem

Modern research tendencies prefer to study particular "things" (usually referred to as variables) within a broader realm and how these "things" influence one another. Hence, the differentiation between research topic and research problem becomes necessary.

Research topic refers to the **broad subject** or **area** of research. Creswell (2012: 60) corroborates "the broad subject matter addressed by the study" is referred to as research topic. Consider the following topics: EFL assessment, critical reading, ICTs, and feminism in Arabic Literature.

Research problem refers to the **research gap** that the researcher intends to fill in through research. Research problems are pervasive and evasive at the same time, which may be what frustrates most particularly novice researchers. Research problem originates from:

> **a.** the researcher's own observation(s)

> **b.** the researcher's own experience

> **c.** the researcher's readings of the academic literature, attendance of as well as participation in conferences, or watching documentaries, etc.

> **d.** suggested by an authority such as supervisor and/ or other researchers.

The aim of the research problem is primarily to disclose an information gap in research. On score of that, research problem need be expressed accurately, comprehensively, and concisely. The problem need be relevant stimulating intellectually, and engaging (i.e., researchable). Creswell (2012: 62) notes "One important reason for engaging in research

> From a research standpoint, specifying a research problem in your study is important because it sets the stage for the entire study p.59
>
> **Creswell, J. (2012).**

> It is important that the question for investigation hold deep interest or be one about which the researcher is really curious. The choice must necessarily be personal [...] p48.
>
> **Ary, D. *et. al*. (2013). Introduction to research in education.**

> Choosing a research question is the first step in the research process
>
> **McBride in The Process of Research in Psychology**

is to add to existing information and to inform our educational practices". Thus, filling the information gap reduces ignorance area and expounds knowledge area.

Nature of the Research Problem

Research problem/ question could be **causal** or **descriptive**. A causal question seeks to establish a cause-effect relationship between variables such as the more you read, the better you write or test anxiety results from the fact that exam paper does not resemble classroom practices. A descriptive question, on the other hand, attempts to establish the existence of a research problem and how it manifests itself. Consider the following example: *A motivated class achieves better* or *implementation of ICTs facilitates learning*.

> In any field, find the strangest thing and then explore it.
>
> **John Archibald Wheeler**

Statement of the Research Problem

Both qualitative and quantitative research problems seem to differ on the focus of the research. According to Johnson and Christensen (2010: 71), while quantitative research problem puts emphasis on the need to provide an explanation, prediction, or even statistical description of a phenomenon, qualitative research problem targets to take an insider's (i.e., participants' in the study) perspective to understand an event or issue. Consider the following:

> Questions based on opinion, personal philosophies or beliefs are generally not researchable p. 24
>
> **Morrell and Carroll. (2010). Conducting educational research**

Quantitative	Qualitative
EFL students with a long history in reading tend to read better, spell better, have richer vocabularies, and better grammatical structures.	*Students have developed negative attitudes toward term examinations; they think that the period of examination is so stressful that the possibility of cheating becomes evident.*

Phrasing/ Formulation of the Problem

The art and science of phrasing the problem go through different phases as the research proceeds. The statement of the problem, which aims to outline the research study, includes five (05) components according to Creswell (2012:64):

1. *The Topic*: Stimulating introductory sentences to "lure" potential readers to "read beyond the first page" (*ibid*.). A narrative hook, first statement that serves to catch readers' eye", may be used. It could be statistical data, provocative data, a clear need for research, purpose of the research.

2. ***The Research Problem***: A statement or couple of statements in which the information is explicitly stated. For instance "Research on boredom in Algerian tertiary EFL classes is virtually inexistent".

3. ***Justification of the importance of the research***: The rationale for the study's worth need be clearly stated. Subjective (i.e., personal) and objective reasons can be outlined.

4. ***Deficiencies in the existing knowledge***: To spell out what is missing the previous studies as far as the research problem is concerned.

5. ***Targeted Audience***: Research studies are not meant to be put on library shelves. Rather, they are meant for different stakeholders such as decision makers, researchers, teachers, students, and parents, etc. (Op. Cit., 70)

Review of Literature

Literally, literature review or review of literature refers to the process of ''revision'', i.e.,

> The literature review is one of the most important parts of any piece of academic writing.
>
> **Oliver Paul, 2012.**

reading and evaluating what has already been written about the topic of interest. Efron and David (2018: 2) define literature review as ''a systematic examination of the scholarly literature about one's topic''. Therefore, literature review is an orderly detailed study of the specialized literature on the topic of research, which has been published by scholarly journals and academic circles.

> … a good quality literature review is a piece of research in its own right.
>
> Avery, H.

Literature review is by its very nature an evaluative study of previously published research. It aims to provide ''… a justification for research (Jamison 2006 :7). In other words, literature reviewers need to provide an answer to why they conduct research in that particular topic. It is a quintessential part of research because it provides thorough if succinct summary, analysis and evaluation of the consulted literature. It is important because it situates the current research in comparison with previous research and how both are interconnected and/ or overlapping. In so doing, the research makes clear his

intentions and potential contribution to knowledge, which is the essence of scientific research.

According to Hart in *Doing a Literature Review : Releasing the Social Science Research Imagination* (1998 : np), literature review needs to fulfill the following :

    1. *Distinguishing* what has been done from what needs to be done.

    2. *Discovering* important variables relevant to the topic.

    3. *Enhancing* and acquiring the subject vocabulary.

    4. *Establishing* the context of the research problem

Overall, literature review enriches, matures, and guides the current research, which in the long run adds to its reliability and validity.

Literature review involves both critical reading and critical thinking. The literature reviewer needs to answer the following questions:

    1. Who is the author?

    2. What kind of evidence does s/he put forward?

    3. What kind of research design does s/he follow?

    3. What types of research techniques and tools does s/he use? And do they correspond to the nature of the research problem?

    4. Are the samples relevant to the nature of the research?

    5. How accurate and conscientious is the author in collecting, analyzing, and interpreting data?

    6. Are the conclusions convincing?

    7. In the final analysis, is this research an authentic contribution to knowledge in any way?

Types of Literature Review

In drafting the literature, primary and secondary sources can be reviewed *chronologically* or *thematically*. First-hand information and second-hand information can be traced in terms of *time of publication* or in terms of *themes*, i.e., research topic/ subject. In so doing, Literature review can be claimed to adhere to one of the following according to University of Southern California (USCal):

    1. Argumentative Review

    The argumentative review targets to accept or reject the arguments provided by the research.

2. Integrative Review

The integrative review blends different perspectives (evaluation, analysis, and synthesis) to come up with a consistent framework.

3. Historical Review

The historical review traces back throughout period of time a topic or theme with a view of placing the research problem in a historical context.

> Your research questions [...] are at the heart of your research design p.65
>
> **Maxwell, (2005). A qualitative design: An interactive Approach (2nd ed.)**

4. Methodological review

The methodological review questions the methodology, method, and data collection tools in an objective way.

5. Systematic Review

The systematic review undertakes to outline the clarity of the research questions, collect, report, and analyze data.

6. Theoretical Review

The theoretical review, as its name suggests, targets to examine related theories with a view of establishing a theoretical gap.

3. Research Design/ Methodology

The choice of the design depends on the nature of the research: quantitative and/ or qualitative. Research that targets calculations, i.e., numerical data, has certainly a quantitative orientation. By way of illustration, implementing take-home exam as a strategy to reduce test anxiety and eventually cheating (on tests) appears to be oriented toward the quantitative design. Research that investigates **participants' perceptions of the world** is *necessarily* **qualitative**. Gauging students' attitudes toward cheating in the examination seems to suggest a qualitative research design. Morrell and Carroll (2010: 26) note "[...] the type of methodology you ultimately choose to use is determined by your question". Neither the supervisor's whims (viz. claiming no expertise in either design) nor the researcher's wishes (viz. accessibility to samples) should be the underlying reasons for the selection of a particular design/ methodology.

4. Research Question(s)

Research questions are the query that the researchers targets to address in order to come to grips with the information gap. According to Maxwell (2005: 65), research questions

are concerned with "[...] what you specifically want to understand by doing your study". Research Questions are formulated by using Wh-questions and/ or auxiliary questions; they usually precede hypotheses. Salskind *et. al.* (2015: 75) identifies research questions as "[...] a more specific, testable version of a hypothesis".

Quantitative and qualitative questions seem to differ at the level of **structure** (Johnson and Christensen 2010: 74). Whereas quantitative questions are **specific** and target causation (cause-effect), **qualitative** questions appear to be **generic** and aim at understanding a phenomenon.

Research Hypothesis

Salkind (2015:13) considers research hypotheses " [...] if-then statements that are an important part of the scientific method". It should be noted that quantitative studies, which are interested in producing numerical data, tend generally to be phrased in conditional "if something is applied, something occurs". On the other hand, qualitative studies, which seek meaning and understanding, could be couched in declarative sentences.

> Data is another word for bits of information p. 65
>
> **Walliman, N. (2012). Research methods: The Basics**

The formulation of hypotheses follows a certain protocol:

4. 1. **Quantitative hypothesis** is formulated in the form of **if-then**; If close reading is implemented regularly in EFL classes, learners' critical reading skills will be significantly enhanced.

4. 2. **Qualitative hypothesis** could appear as a **declarative** statement such as: It is hypothesized (or predicted) that students resort to illicit means to cheat in examinations may be due to lack in training to respond positively to examination papers.

5. Data Collection

Data collection, literally refers to the process of gathering data, is an important, an above all, inescapable phase in the research process. This logistical process, if duly, dutifully, ethically and methodically conducted, will determine the reliability and validity of the whole research. During this crucial phase, the researcher attempts to address the following questions :"How best are the intended data collected? And thanks to what techniques?" To fill in the information gap, a special "care" need be, therefore, taken to design and select the most appropriate techniques and tools to collect the data in question. It is, in the final analysis, a daunting undertaking particularly so for novice researchers..

Data are generally understood to be the numerical and verbal information. Olsen (2012: 11) succinctly notes " data could be words or numbers". Numerical and verbal data are

factual in the sense that they provide concrete or tangible information and according to which decisions are made. Consider the following example:

Last Name: Johaina

First Name: Adnani

Date of Birth: October 26, 2000.

Address: 28, Shahid Abulfida St, Tolga 07003, Biskra. ALGERIA

Gender: Female

Height: 1m69

Weight: 50

Mobile Phone Number: 0542153289

Email Address: j.adnani20@hotmail.fr

These data could be categorized as follows:

Numerical Data	Verbal Data
26.10.2000	Johaina Adnani
28	October
07003	Shahid Abulfida
1.69	Tolga/ Biskra/ Algeria
50	M(eter)
0542153289	j.adnani@hotmail.f

Data could be primary or secondary. **Primary data** are data firsthand collected by the researcher himself/ herself whereas **secondary data** are found in the literature. Walliman (2012: 69) states:

> Data that has been observed, experienced or recorded close to the event are the nearest one can get to the truth, are called primary data. Written sources that interpret or record primary data are called secondary data, which tend to be less reliable.

Firsthand data, therefore, prove to be more convincing than second-hand data. Walliman (*ibid*.) claims that primary data has four basic types, which are illustrated in the table below:

Types	Examples
Measurements	Voting polls, exam results, car mileage, oven temperature
Observation	Five senses recording and recording instruments such as tape recorder, camera, etc.
Interrogation	Asking and probing people's convictions, likes, dislikes
Participation	Data from one's experience such as decoding and encoding messages.

Table 1. Basic types of primary data (drawn from Walliman 2012: 69)

This *source-based identification* of data (where data are obtained) distinguishes it from the other *characteristics-based identification*, i.e., quantitative and qualitative data. While quantitative data are numerical information, qualitative data are verbal.

Data are measured in quantitative and qualitative research on nominal, ordinal, interval, and ratio scales. Interestingly, it was Stanley Smith Stevens who, in 1946, who developed those scales. Table below illustrates the aforementioned scales

Scales	Definitions	Examples
Nominal	Placement of objects and individuals into mutually exclusive categories (Ary *et al.* 2019:101)	10% of male students feel bored in class while 90% of female student feel motivated to learn.
Ordinal	[...] the numbers [...] indicate only the order of the categories (Ary *et al.* 2019: 102)	A is taller than B

The number Female respondents is larger than that of male respondents |
| *Interval* | Regular (equal) differences on a scale | Temperature, blood pressure (Gray 2009: 556) |
| *Ratio* | Regular interval differences starting up from zero. | Sales costs (Gray 2009: 556) |

Qualitative data lend themselves to nominal and ordinal while quantifiable data tend to be interval and ratio (Gray 2009: 556).

Data collection instruments vary according to whether the researcher is engaged in quantitative or qualitative research. As the former is particularly interested in quantifiable, i.e., numerical, data, it favors experimental instruments such as surveys, questionnaires, scales, interviews, observation, etc.

6. Data Analysis & Interpretation

Once raw data are collected, classified, and sorted out for exploitation, a corollary phase takes place, that which targets to transfer data into figures and meaningful implications and insights. It is assumed that the researcher has taken every pain to collect data ethically and dutifully applying accurate techniques and instruments. Analyzing and interpreting data seem to be the phase where the researcher discloses

> The best research uses data in an original way or offers some new and exciting interpretation of existing data p.3
>
> **Olsen, W. (2012) Data collection: Key debates and methods in Social Research**

his/ her critical reading and critical thinking skills and know-how beside his/ her ability to efficiently utilize calculating and/ or software programs to transform raw data into numbers and/ or meaningful insights . Mikkelsen (2005: 151) confirms "[t]he broad aim

of data analysis is to look for meaning and understanding". In wide brief, truthful data begets truth.

Data could be approached from three perspectives: literally, interpretively, or reflexively. According to Mason (2002: 150) in *Qualitative researching* (2nd ed.), the deciphering of the collected data could be treated from three-dimensional perspective.

> This is the age of "evidence" and all around claims about the need for all to make evidence based decisions p.vii
>
> **Teo, T. (2013). Handbook of quantitative methods for educational research.**

    6.1 **Literal Reading of Data** (LRD): LRD refers to the interest in their literal form, content, structure, style, layout, and so on.

    6.2 **Interpretive Reading of data** (IRD): IRD is concerned with the construction or documentation of a version of what might be the meaning and representation of data. "Whatever form of interpretive reading you adopt, you will be involved in reading through or beyond the data in some way [...]" (2002:151).

    6.3 **Reflexive Reading of Data** (RRD): RRD may be taken to mean that the researcher becomes a part of the data s/he has generated and seeks to explore his/her role in the generation and interpretation of those data.

Data analysis and interpretation is an arduous task that involves a great deal of thinking and planning. Mertens and McLoughlin (2004: 191) claim "Interpretation of data is a thoughtful exercise, requiring much more effort than simply checking levels of statistical levels in the results". Calculations (i.e., analysis) can be accurately achieved through special software programs while interpretation is, to a fair degree, problematic. Interpretation requires all the stakeholders (researcher, supervisor, participants, etc.) involved in the research study. Mertens and McLoughlin state (*ibid*. 192):

> The empirical world is a chaos of observation, until we impose an order on it p. v
>
> **Lewis-Beck in *Series Editor's Introduction* in Coxon, P. M. (1999). Sorting Data: Collection and Analysis**

For both quantitative and qualitative analyses, there is a two-step process involved: First, we conduct the analyses, and second, we interpret the data to develop finding. The analyses are mechanistic; the interpretation is a human process that should engage the researchers and participants, as well as other groups.

Subjectivity is the enemy of a sober, convincing interpretation. Data interpretation depends upon addressing the following question: What do these numerical analyses really mean?

7. Reporting and Dissemination of the Findings

In a world defined by technology and competition, the publication of scientific research findings could be taken for an indicator for power and scientific advancement. Authoritative researchers are those who publish regularly to make the expression "publish or perish" truer than ever. Coolican (2009: 14) notes:

> People are considered charlatans …claim to demonstrate effects … yet will not publish clearly, or at all, the predictions, the methods, and the results of their research work so that the research community, the public, can check whether outcomes support declared claims.

Researchers compete to participate in conferences and write in well-known journals to disseminate their research findings and by the same token confirm their status.

Parson *et al.* (2013: 130) suggest four questions that need to be considered whilst reporting findings:

1. What assumptions do you bring to your work?

2. How do these assumptions shape how you construct your narrative and insights?

3. What will you do with what you have come to know?

4. How will you represent the answers to the three questions to the public?

Stringer (1999. cited in Parson *et al. ibid*.) proposes four items that need to appear in reporting the research findings:

1. *Introduction*: identifies the problem or presents the question

2. *Literature Review*: details what is known about the problem.

3. *Methodology*: discusses research design and data collection

4. *Results*: identifies the practical implications of the study.

> Report writing is (should be) a creative process [...] Report writing is also a skill [...] it must be learned through practice p. 632
>
> **Gray, D. E. (2009). Doing research in real world.**

Reporting findings establishes the researcher's expertise and know-how. Leedy and Ormrod (cited in Mligo 2016: 97). comment " Ultimately what you put on paper and how you put it there reveals your knowledge, the quality of your thinking, and the standards of your excellence more eloquently than anything else". As a final analysis, a sound research process leads to a high-quality research report.

Summary

Research process is a consequential series of stages through which a serious academic and scientific work is begun and completed. The first stage is the identification of a researchable problem or question wherein an information gap or void need be located. A research problem is best be personally motivated and it is either causal or descriptive. If it is causal, it requires an experimentation to uncover cause-effect relationships. A descriptive research problem is concerned with inquiring insiders' perceptions of the social world (or reality). The second stage is reviewing relevant literature: A critical reading and summary of previously published works. Designing research by selecting the design that best answers the research problem comes next. Qualitative or quantitative design can be selected to address the research problem and test the hypothesis. Once data are collected, analyzing (i.e., calculating) and interpreting data (namely, what the numbers really mean) are undertaken. Writing up with a view of disseminating results is the final stage to avoid being "charlatans" to put it in Coolican's terms.

A researcher may have conducted the most ground-breaking research ever known but it will not add to the knowledge base unless it is communicated clearly to a wide audience p.160

Vialle and Kervin (2006). Research for educators

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(https://libguides.usc.edu/writingguide/literaturereview):

TASKS/ QUIZZES

Task One: Are the following statements true or false? Write T/F in the space provided.

1. _____ . Quantitative research targets participants' perception of the social reality.

2. _____ . A causal research problem is concerned with the establishment of cause-effect.

3. _____ . Primary data has three basic types observation, measurements, and participation.

4. _____ . Data analysis aims to look for meaning and understanding to take informed decisions.

Task Two: Read definitions on the right and insert right terms in the space provided.

1. _____ . Data that have been observed, experienced or recorded close to the event are the nearest one can get to the truth.

2. _____ . The researcher becomes a part of the data s/he has generated and seeks to explore his/her role in the generation and interpretation of those data.

3. _____ . Researchers use these scales to provide response options where participants check one or more categories that describe their traits, attributes or characteristics (Creswell 2012: 165).

4. _____ . This scale is concerned with Regular interval differences starting up from zero.

5. _____ . These materials are available in the previously published literature.

Task Three: (Cloze Test)

Task Four: (Jumbled Statements). Re-order the following statements to make a coherent paragraph. Use the grid to insert the letters.

a. Reviews of literature are well planned out, typically starting at the broadest part of the topic and gradually refining and narrowing the discussion down to a more focused perspective.

b. The main purpose of the literature review is to report the state of knowledge on your topic and place your proposed study in a research context by providing an overview of past research studies, published articles, documents that relate to your topic.

c. For the purpose of this textbook, the word literature is defined as all published articles, records, and documents that are related to the topic of the study.

d. The literature reviews in proposals and published studies are held to different standards.

e. This includes empirical research, reviews of literature, theoretical articles, and even opinion pieces (although a good literature review for a topic with ample empirical research will keep opinion pieces to a minimum).

Lodico, M. G., Spaulding, D.T. and Voegtle, K. H. (2006). Methods in Educational Research: From Theory to Practice.

1	2	3	4	5

Task Five: *Read the text then answer the questions*

Following data analysis, the researcher is ready to write the final report. A research project is of little value unless the findings are communicated to others. The final report will tell what you did, what you found, and how your study is related to the body of knowledge in your area. Writing the final report is not as difficult a task as a beginning researcher might think. Much of the introduction, literature review, and methodology has already been done in the initial proposal. Only minor revisions and switch to the past tense should be needed on these preliminary sections (p.605).

Ary,D., Chesser Jacobs, L. and Sorensen, C. (2006). Introduction to Research in Education.

1. When is the final report written?

2. How important is the dissemination of research findings?

3. What does the final report specify?

4. What tense is favored in writing up the final report? Why?

Task Six: *Compare and contrast*

1. Research topic vs. Research Problem

2. Literal Reading of Data and Interpretive Reading of Data

Task Six: *Write an argumentative essay on the following topic.*

Topic One:

"For a beginning researcher, the difficulty is not developing answers to questions, but coming up with questions to ask yourself" (Creswell: 59).

Topic Two:

It is important that the question for investigation hold deep interest or be one about which the researcher is really curious. The choice must necessarily be personal [...] p48.

Ary, D. *et. al.* (2013). Introduction to research in education.