Chapter 2: THEORY AND REVIEW OF LITERATURE

CHAPTER LEARNING OUTCOMES

When you have completed this chapter you will be able to:

- Define what is theory
- Explain the role of theory in educational research
- Justify the need for review of literature
- Identify criteria for good review of literature
- Critique a research article

CHAPTER OVERVIEW

- Introduction
- What is Theory?
- Confirming and Disconfirming a Theory
- What is the Review of Literature?
- Importance of the Review of Literature

- Steps in Developing a Review of Literature
- Common Weaknesses
- Evaluating Research Articles
- Summary
  - Key Terms
  - Discussion Questions
  - Readings
INTRODUCTION

Without some viable theory to serve as a guide, many studies address trivial questions or contribute nothing to the slow accumulation of knowledge needed for advancement of a science of education.


Do you agree with the statement by W. Borg and M. Borg? Theory has not been properly understood by some graduate students. Some students are of the opinion that theory is not relevant to practice. Oftentimes, we hear students remark that a particular course is “too theoretical” or they prefer courses that are “practical oriented and not too theoretical”. Some go to the extent to denounce theory as useless! Actually, this reflects a lack of understanding on what is theory and what is practice or practical. According to W. Borg and M. Borg, theory serves as a guide for research to avoid investigating phenomena that is irrelevant and does not contribute to our understanding.

WHAT IS THEORY?

A theory is a large body of interconnected propositions about how some portion of the social world operates (Kidder, 1980). It is statement or set of statements that explain and predict phenomena. It is a statement of a relationship between two or more events. The more ‘powerful’ a theory is, the more events can be explained by it. Theories consist of generalisations and in the physical sciences some of them are called laws (for example, Archimedes Principle, Boyle’s Law).

- According to Social Learning Theory by Albert Bandura; the observer will imitate the model's behaviour if the model possesses characteristics such as talent, intelligence, power, good looks, or popularity, that the observer finds attractive or desirable.
According to the Theory of Meaningful Learning by David Ausubel, learning takes place when the learner subsumes new information with old information or one’s cognitive structure.

According to B.F. Skinner’s Theory of Reinforcement, a learner will repeat performance of a task if he or she is reinforced with a system of rewards or punishment.

Note that each of these theories explain learning and the variables or factors that determines learning. Assuming that each of these theories are true we can predict that learning will take place when a student connects new information with old information, is reinforced through a system of rewards and reproduce a modelled behaviour if it brings pleasure. However, many areas of education have virtually no theoretical foundation and have to rely on other behavioural sciences, such as psychology, sociology, anthropology and social psychology.

Can a theory be ‘true’? Not necessarily. The scientific method makes it impossible to conclude that a theory in the behavioural sciences to be definitely true. It is possible only to disconfirm or confirm a hypothesis or theory. We cannot say that we have verified a theory because there is always the possibility that at some future research will disconfirm it or that some other theory will account for the same results. Theories, therefore, are always tentative. They represent the best of our knowledge for the time being but they do not represent some absolute truth. They await revision of replacement" (Borg and Borg, 1983).

CONFIRMING OR DISCONFIRMING A THEORY

Children at the pre-operational stage are not able to perform conservation task

Five year old children are unable to perform transformation of liquid quantity tasks

Present subjects with 2 identical glasses (A&B) with equal amounts of water. Pour water from glass A into a narrow glass (C). Is A=C?

Accept or Reject the hypothesis. If accept the hypothesis then the theory is confirmed.
Figure 1 Confirming or Disconfirming a Theory

Let us take an example of a theory and examine how we go about confirming or disconfirming it. According to Jean Piaget's theory of cognitive development, "Children at the pre-operational stage (age 0-5) are not able to perform conservation tasks". Conservation is defined as the ability to recognise that an object remains unchanged when its volume or length has undergone a transformation with nothing added or taken away. From this broad theory a hypothesis is derived which is small version of the theory (see Figure below). Then, an experiment is set up in which young children are shown two identical containers (A and B) with the same amount of water. Then, the water from container B is poured into a flat container C (see Figure 2.2). Children are asked whether the amount of water in container A is the same as container C (Is A = C?). Based on these observations, the researcher concludes whether to confirm or disconfirm the theory. If the theory is confirmed, children are unable to perform conservation task. In other words, children replied that container C had more water. If the theory is disconfirmed, than the majority of children answered that the amount of water in container A and C is the same.

SELF-TEST
1. What is a theory?
2. Why are there few laws in the field of education?
3. What do you mean by confirming of disconfirming a theory?
4. Identify some theories in your field of interest.
5. What are the implications Piaget’s theory of children’s cognition in the classroom?
Let us examine another well known theory in psychology which has been used widely in education. David Clarence McClelland developed a theory of motivation in 1988 which states that a person is motivated to do something because of a desire or need for achievement, authority or affiliation or a combination of the three characteristics (see Figure below).

- Achievement Motivation (represented by ‘n-ach’) includes persons who are driven by the need or desire to achieve, attain realistic but challenging goals, and advance in their job.
- Authority / Power Motivation (represented by ‘n-pow’) includes persons who are driven by the need or desire to be influential, effective and to make an impact.
- Affiliation Motivation (represented by ‘n-affil’) includes persons who are driven by the need or desire for friendly relationships and are motivated towards interaction with other people.

ACTIVITY

1. To what extent does McClelland’s Motivation Theory describe your motivation to do something in your daily life?
2. Briefly explain how you would attempt to confirm or disconfirm McClelland’s Theory.

[You can find more information about this theory at this site:

3. Identify some major theories in your area of interest.
As research is focused in testing behavioural science theory, we gain a better understanding of the theory, which in turn leads to modification in the theory and eventually to its acceptance or rejection. It is hoped that this better understanding of human behaviour will inform practice in terms of what teachers do in the classroom, how administrators manage and lead their organisations, and most importantly how students learn and conduct themselves. Theory can provide a rational basis for explaining or interpreting the results of research. Studies without a theoretical foundation often produce results that the researcher is at a loss to explain. Also, studies based on theory enable the researcher to make predictions about a wide range of situations. For example, McClelland’s theory of motivation could be employed to determine what motivates teachers, students and school administrators.

**WHAT IS THE REVIEW OF LITERATURE?**

Until you know what others have done in your area and what has not been done, you cannot convincingly carry out research that will contribute to furthering knowledge in your field. Thus, the literature in any field forms the foundation upon which all future work must be built. If you fail to build this foundation of knowledge provided by the review of literature, you work is likely to be shallow and naive, and will often duplicate that has already been done better by someone else.


The review of literature is usually the a standard chapter of the research report, thesis of dissertation. It is an account of the research done in the field of study. The review forms an important chapter in a thesis or dissertation where its purpose is to provide the background to and justification for the research undertaken. It is usual that the review consists of empirical studies done in the area that is being investigated. It also includes theoretical positions or proposals related to the study which are not necessarily empirical in nature.
Chapter 2: Theory and Review of Literature

The aim of the literature review is to show what has been done in the field and how your study relates to earlier research. It also indicate the approaches, the samples used, the variables examined, the statistical procedures used and most important of all, the findings obtained. The review gives an overview of the findings of various previous studies. The review traces the general patterns of the findings and the conclusions that can be made based on the findings. It also provides an insight into how your study is similar or different from previous studies. For example; Is your study an extension of what others have done? Are you examining variables that have not been attended to in earlier studies? Are you attempting to replicate earlier studies in a different cultural context? Are you applying statistical procedures that have not been attempted by others?

The review of literature requires you to locate, read and evaluate reports of research as well as reports of opinions and proposals. The review must be extensive and thorough because you are aiming to obtain a detailed account of the topic being studied.

THE IMPORTANCE OF THE REVIEW OF LITERATURE

- The review of literature is an important part of the research process because:
  - it forms the basis of any research and puts your work into perspective
  - it gives an understanding of previous work that has been done (seminal works in the field).
  - familiarises you with the personalities doing research in the field and to demonstrate that you can access such works

- The review of literature helps the student in delimiting the research problem by setting the parameters. By setting the limits of your study, you avoid being questioned "why didn't you do this or do that?". You can confidently reply that your study is confined to studying what you had set out to study. Delimiting the research problem can be achieved if you read extensively and intensively the problem you plan to investigate and from the literature specify clearly what is it you want to study.

- The literature also provides insight into the approaches and methodologies adopted by different researchers. A common mistake made by students is to pay attention to only the findings of studies. Besides findings, students should also examine the methodologies used to study the phenomenon you are interested in. There could be unique approaches adopted which you might want to replicate in the Malaysian context. For example, in most studies reviewed the sample used tended to be university students and your study is an attempt to use secondary school students which could be a unique contribution to the field because you are different.

- Some of the research studies include a section on Recommendations for further research which indicates whether you are on the right track in studying something
that has not been explored before. These suggestions are significant because they express the insight of the researcher after having studied the phenomenon.

SELF-TEST

1. What is the Review of Literature?
2. What is the purpose of the Review of Literature?

STEPS IN DEVELOPING A LITERATURE REVIEW

Step 1: Select a Research Topic

- Choose a topic of current interest – your goal is to summarise and evaluate findings of a line of research. Pick a research topic about which articles are continuing to be published.

- Choose a well-researched area – an area that is well-defined and well studied will give you more lines of research to choose from. A line of research is a series of studies by the same individual. An area of major research interest will have several lines of research.

- Narrow your topic – It is far more satisfying, to both the writer and the reader, to restrict your topic and cover it in depth. Comprehensiveness and narrowness of topic go hand in hand.

- Write about what interests you – If you are interested in the topic, you are likely to already know something about it, which will make it easier to gather information.

Step 2: Collect and Read the Relevant Articles

- Do a preliminary search – visit the library or do an online literature search before you even decide on a topic.

- Search for helpful activities – Some articles will contribute more than others to your understanding of a topic. Sometimes you can find a pivotal article that can serve as a foundation for your study (the References will lead you to other similar studies).
• Find readable articles – some areas of research will be harder to understand than others. Scan the research articles in the topic areas you are considering to decide on the readability of research in those areas.

• ‘Read, Read, Read’ That is the bottom line of doing a review. People have different ways of doing a literature review. A common technique used by many graduate students is to use a ‘Note Card’ (see below). It may be a rather old-fashioned technique, but has proven to be most effective. Many graduate students will testify to this, despite advancements in computer technology.

  o Read the easier articles first  
  o Identify (1) the problem statement, (2) the research questions or hypotheses, (3) method used, (4) the findings, and (5) how the findings were interpreted.  
  o Jot down the contents of the article using the following Note Card.

| Title: | ………………………………………………………………………………… |
| Author/s: | ……………………………………………………………………………… |
| Source: | ………………………………………………………………………………… |
| Problem Statement: | ……………………………………………………………………………… |
| Methodology: | ………………………………………………………………………………… |
| Findings: | ………………………………………………………………………………… |
| Conclusion: | ………………………………………………………………………………… |
| Comments: | ………………………………………………………………………………… |

Step 3: Write the Review

• Introduce your research questions (what it is, why it is worth examining). Begin your review with some theme (or point) that you want to emphasise. [REMEMBER YOU ARE WRITING FOR THE READER and not for yourself].
• Briefly outline the organisation of the paper. Organisation is of utmost importance and make the structure known to your reader. For example, tell the reader that you will present research supporting first one side, then the other. Or if you are addressing three methodologies, briefly describe them and state that you will compare the results from the three methods.

• Describe, compare and evaluate studies in terms of the:
  o research assumptions
  o theories
  o hypotheses stated
  o research designs used
  o variables selected (independent and dependent)
  o researcher speculations about future studies

• Discuss implications of studies (your judgement or what the studies show, and where to go from here).

• Most important of all avoid plagiarism. Give due recognition to the works of other people. It does not cost anything to acknowledge sources. In fact, it shows the breadth and depth of your review, and the thoroughness of your work.

**COMMON WEAKNESSES**

In writing the review of literature, beginning researchers make the following common errors:

• The presentation is a mere description of various studies without making an effort to show how the studies are related to the main aim of your study and the research questions of your study.

• The presentation is a mere listing of the studies without an attempt to show how each study is similar or different. Use connectives such as: however, on the other hand, similarly, but and so forth.

• Poor citations. In education it is normal practice to adopt the format proposed in the manual published by the American Psychological Association (commonly known as the ‘APA style’).

• Hurriedly reviews the literature and relies too heavily upon secondary sources.
• At times there is evidence to suggest that students have not read the original works but instead have taken someone's work and cited it as though they had read the primary source.

• There is also evidence of 'cut and paste' which SHOULD NOT be encouraged. You must have read the original works and know in detail every study that you cite.

• Articles or reports that are included are not critically evaluated. Critically evaluate the research questions, the methodology used, the statistics used, the conclusion arrived at and recommendations made by the researcher [Details about evaluation of articles is discussed in 2.7]

SELF-TEST
1. ‘Read, Read, Read’. Comment.
2. What are some weaknesses of graduate students when writing the Review of Literature?

SOURCES

A good literature review requires knowledge of the use of indexes and abstracts, and the ability to conduct exhaustive bibliographic searches. You should be able to organise the material meaningfully, describe, critique and relate each source to the subject of the inquiry, and present the organised review logically, and most importantly to correctly cite all sources mentioned (Afolabi, 1992). Generally, there are two main sources of materials:

• **Secondary Sources**: This includes materials written by an author/s who was not a direct observer or participant in the events described. If you read a textbook on ‘Educational Psychology’, it would be a compilation of the views and empirical works of other authors rearranged into a textbook. The textbook is a review of research done by others and interpreted by the author. This interpretation by the author of the textbook would be classified as a secondary source (Be aware that the interpretation may be biased). Secondary sources are useful because they provide a quick and relatively easy method of getting an overview of current thinking in the field.

• **Primary Sources**: This includes material that is a direct description of events by a person who actually conducted the investigation. Most primary sources are
found in research journals. However, there are also abundant reports of research conducted by individuals, groups of individuals and organisations.

How do I search for research articles, research reports, etc.? You can start by referring to preliminary sources which are references such as indexes and abstracts, that are intended to help you identify and locate research articles and other primary sources of information. The following are well-known indexes and abstract in education:

<table>
<thead>
<tr>
<th>Specialised Areas</th>
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<tbody>
<tr>
<td>• Child Development Abstracts and Bibliography</td>
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<tr>
<td>• Exceptional Child Education Resources (ECER)</td>
</tr>
<tr>
<td>• Education Administration Abstracts</td>
</tr>
<tr>
<td>• Physical Education Index</td>
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| Education Index | provides a list of articles published in education journals and books about education. |
| Psychological Abstracts | contains abstracts of articles appearing in over 900 journals and other sources in psychology and related issues. |
| Educational Resources Information Center (ERIC) | transmits the findings of current educational research to teachers, administrators, researchers and the public. |
| Resources in Education (RIE) | provides abstracts of papers presented at education conferences, progress reports and final reports of projects which may not appear in education journals |
| Current Index to Journals in Education (CIE) | indexes over 800 education journals and includes more than 1000 articles each month |
Another way to obtain information about research done is to examine journals, handbooks and encyclopaedias that locate and review research for particular topics. The following are the more well-known materials in education:

- **Review of Educational Research** - journal published by the American Educational Research Association (AERA) covering critical issues and reviews of research literature on important topics and issues
- **Review of Research in Education** - presents critical essays that survey and synthesize educational research in important problem areas
- **Encyclopedia of Educational Research** – best single source of information on educational research with contributions from among leading educational researchers.
- **Handbook of Research on Teaching** – contains reviews of various aspects of research on teaching such as method and techniques of teaching, teaching specific school subjects, and problems of teaching.

A further source of information are theses and dissertations that have never been published. The following are important sources which provide abstracts of masters theses and doctoral dissertations in education:

- **Dissertation Abstracts International** – compilation of abstracts of doctoral dissertations. Under the education section are subtopics such as adult education, art education, preschool, teacher training and so forth.
- **Master's Theses in Education** – this is a listing of master’s theses in about 40 major educational topics. It includes name of author, title and institution.

**ACTIVITY**

What do you think are some problems graduate students face when doing the Review of Literature for their theses or research project?
As mentioned earlier, in writing your Review of Literature it is essential that you be able to interpret the works of others. How do you go about evaluating research articles? The procedure for evaluating research articles is shown in Figure 2.1. You should keep in mind, that in educational research the findings of previous research tends to be inconclusive as results are often contradictory. This may leave you at a loss to decide which, if any, to accept. However, this problem can resolved through a critical evaluation of previous work in which the strengths and weaknesses of each study are carefully weighed (Borg and Borg, 1983). The procedure proposed below consists of two parts: the first relates to DESCRIBING the research article and the second part relates to CRITIQUING the article or doing a critique of the article.

**Figure 2.2 The Five Step Procedure of Evaluating an Article**

**Step 1: Read the Abstract**

- What is the research about? Was the purpose or objectives of the study specified?
- Was the design used described?
- Rationale or reasons for the research
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Step 2: Read the Introduction

Describe:

➢ Keep in mind that the writer is assuming that the reader is an expert in the field or at least has some background knowledge about the field.

➢ References made may be brief because it is assumed you know the people in the field (e.g. if you are reading about ‘intelligence’ then names like Sternberg, Gardner, Thurstone, Spearman, should be known to you).

➢ Writer assumes you know the concepts in the field (e.g. burnout, metacognition, inductive reasoning, organisational climate).

➢ The rationale given for the study and why the research questions or hypotheses were put forward

Critique:

➢ Is the reason for answering the research question or testing the hypotheses convincing or just attempting to appeal to your emotion or merely seeking endorsement from well-know authorities in the field?

➢ Do the research questions or hypotheses follow logically from theory?

➢ Is there a tendency to oversimplify theories or studies reviewed?

Step 3: Read the Methods Section

Describe:

➢ The writer/s should tell about the background of the subjects used, the number of subjects and the method used to collect data

➢ The design of the study is described in sufficient detail. Justification for the study was given.

➢ Development of the instrument/s is described (or use of someone’s instrument) and there is mention about pilot-testing the instrument/s and reliability and validity figures are given.
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Critique:

- How the subjects were selected is clear?
- How the instrument or treatment was administered is adequately explained?
- Issues of validity and reliability are discussed
- Is the design of the study appropriate? How was it designed to reduce different types of biases?
- What is the independent variable and dependent variable?
- Were the statistical procedures used appropriate?
- Were the variables operationally defined?
- If the study is an experiment, was the treatment explained in sufficient detail? Could it have been done in another way?

Step 4: Read the Results or Analysis Section

Describe:

- Connection between the results and the research questions or hypotheses
- Report results relating to the research questions or hypotheses (whether results are statistically significant)
- Report other statistically significant results

Critique:

- Were the results clearly reported? (e.g. tables, graphs)
- Do the statistics test the predictions made in the 'Introduction'?

Step 5: Read the Discussion section

Describe:

- Lists the main findings
- Relate findings to what was mentioned in the "Introduction"
Speculate about the reasons for the results

Critique:

- Is the author's way the only way to interpret the predicted results?
- Can you explain any of the findings the author's did not explain or were unable to explain?
- What are the weaknesses or limitations identified by the author or which you found but was not mentioned?

**SELF-TEST**

1. What are the major aspects of a study will you examine when describing a research article?
2. When you critique the *Methods section* and the *Results section*, what are you looking for?
DISCUSSION QUESTIONS:

1. Select a research topic in which you are interested and locate a primary and secondary source related to it. Explain why each is a primary or secondary source.

2. Locate full-text journals in your areas of interest that are available free on the internet. Check to see if they are referred journals. Share what you have found with your coursemates.

3. How will you define plagiarism? What constitutes plagiarism?

3. “Who am I to critique the research of experts in the field, I am only a student”. Discuss.
READINGS

Books & Articles


Internet Resources


c) Tools for Preparing Literature Review – A Web Tutorial http://www.gwu.edu/~litrev/