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## THEORETICAL AND CONCEPTUAL FRAMEWORK: MANDATORY INGREDIENTS OF A QUALITY RESEARCH

### Engineering

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### ABSTRACT

Theoretical and conceptual frameworks guide the paths of a research and offer the foundation for establishing its credibility. Though these terms seem similar, they are different from each other in concept and in their roles in the research inquiry. However, many students find it difficult and confusing to distinguish between these two closely related frameworks while defining their roles in their research. Yet, the inclusion of a theoretical and/or conceptual framework is a mandatory requirement in a thesis or dissertation that shows the student's map of the research s/he seeks to undertake. A good comprehension of both frameworks would inure to a good investigation. This article explains the meanings of the terms, their importance in the research process, their difference and similarities while offering insightful suggestions on how they can be constructed and utilized for a particular research.

### KEYWORDS

#### Introduction

The theoretical and conceptual framework explains the path of a research and grounds it firmly in theoretical constructs. The overall aim of the two frameworks is to make research findings more meaningful, acceptable to the theoretical constructs in the research field and ensures generalizability. They assist in stimulating research while ensuring the extension of knowledge by providing both direction and impetus to the research inquiry. They also enhance the empiricism and rigor of a research. Thus, it is no exaggeration for Imenda (2014) to say that both the theoretical and conceptual frameworks give life to a research. Unfortunately, many postgraduate students and faculty staff at universities are confused of the two terms and apply them wrongly in their research papers. As a result, their research findings become weak because of the inappropriate application of a suitable theoretical framework and/or conceptual framework. This blurs the understanding of readers of the research paper who are lost, not knowing the purpose of the study, the importance of the study and the scholars the researcher is in dialogue with, whether in agreement or disagreement (Evan, 2007). A research without the theoretical or conceptual framework makes it difficult for readers in ascertaining the academic position and the underlying factors to the researcher's assertions and/or hypotheses. This renders the research sloppy and not appreciable as contributing significantly to the advancement of the frontiers of knowledge. This article explains with clear understanding, the two frameworks and how they could be utilized efficiently in the research expedition.

theories that underpin the knowledge base of the phenomenon to be investigated. The student is expected to make a unique application of the selected theory so as to apply the theoretical constructs to his/her dissertation study.

#### The Importance of Theoretical Framework in Research

The theoretical framework offers several benefits to a research work. It provides the structure in showing how a researcher defines his/her study philosophically, epistemologically, methodology and analytically (Grant & Osanloo, 2014). Ravitch and Carl (2016) concur that the theoretical framework assist researchers in situating and contextualizing formal theories into their studies as a guide. This positions their studies in scholarly and academic fashion. Moreover, the theoretical framework serves as the focus for the research and it is linked to the research problem under study. Therefore, it guides a researcher's choice of research design and data analysis plan. The theoretical framework also guides the kind of data to be accrued for a particular study (Lester, 2005). The theoretical framework, thus, aids the researcher in finding an appropriate research approach, analytical tools and procedures for his/her research inquiry. It makes research findings more meaningful and generalizable (Akintoye, 2015). Imenda (2014) clearly posits that a research without the theoretical framework lacks accurate direction to the search of appropriate literature and scholarly discussions of the findings from the research. For other scholars in the field of inquiry, the theoretical framework provides a common worldview or lens from which to support one's thinking about the problem and analysis of data (Grant & Osanloo, 2014).

The theoretical framework guides and should resonate with every aspect of the research process from the definition of the problem, literature survey, methodology, presentation and discussion of the findings as well as the conclusions that are drawn. Eisenhart (1991) contends that the theoretical framework helps the researcher in considering alternative theories that might challenge his or her perspective, thereby enriching the strengths of the study. Simon and Goes (2011) as well as Maxwell (2004) aver that theoretical frameworks deepen the essence of the study. Thus, research proposals that require funding must clearly show the theoretical framework that pivots the intended research. It convinces funding agencies that the research inquiry is worth supporting. For scholars in the field and readers, the proper selection and presence of a theoretical framework convinces them that the study is not based on the personal instincts of the researcher but rather is firmly rooted in an established theory selected via credible studies (Akintoye, 2015).

#### How to Select a Suitable Theoretical Framework

There is no one perfect or right theory for a dissertation, though certain theories are popular (Grant & Osanloo, 2014). Yet, the adoption or

#### What is a Theoretical Framework?

It is the 'blueprint' or guide for a research (Grant & Osanloo, 2014). It is a framework based on an existing theory in a field of inquiry that is related and/or reflects the hypothesis of a study. It is a blueprint that is often 'borrowed' by the researcher to build his/her own house or research inquiry. It serves as the foundation upon which a research is constructed. Sinclair (2007) as well as Fulton and Krainovich-Miller (2010) compare the role of the theoretical framework to that of a map or travel plan. Thus, when travelling to a particular location, the map guides your path. Likewise, the theoretical framework guides the researcher so that s/he would not deviate from the confines of the accepted theories to make his/her final contribution scholarly and academic. Thus, Brondizio, Leemans, and Solecki (2014) concur that the theoretical framework is the specific theory or theories about aspects of human endeavor that can be useful to the study of events. The theoretical framework consists of theoretical principles, constructs, concepts, and tenants of a theory (Grant & Osanloo, 2014).

In a postgraduate thesis or dissertation research, all aspects of the research are expected to connect to the theoretical framework (Grant & Osanloo, 2014). The student must tactfully select the relevant theory or

adaptation of a theory must reflect the understanding of the researcher regarding the study and must drive the study (Simon & Goes, 2011). The selection of a theoretical framework requires a thorough understanding of the problem, purpose, significance and research questions of a study. This is important because when the selection is poorly done, it would be as if the researcher is using a wrong bolt to forcibly fix a wrong nut. The chosen theoretical framework must accentuate the purpose and importance of the study dissertation (Grant & Osanloo, 2014). To make an appropriate selection of a theoretical context, the researcher must consider the guiding principles of the study and situate the problem in relation to it. The research questions of the study and the purpose of the study must entail noticeable aspects of the theoretical framework and must agree with the assertions promulgated by the theorists of the selected theory (Maxwell, 2004; LoBiondo-Wood, 2010).

After the entire study has been conducted, the research findings accrued from the study must corroborate, extend, or modify the existing theory that was borrowed for the study (Lester, 2005). The researcher may critique, develop and/or expand the theory that served as a guide for his/her study vis-à-vis the findings gleaned from the study (Grant & Osanloo, 2014). Munhall and Chenail (2008) contend that this critique is often carried out in the data analysis stage of the research before the final conclusions of the study are drawn. Grant and Osanloo (2014) present a checklist that can aid researchers to be able to identify the suitable theoretical framework for their research inquiry. The authors have succinctly put them into questions that must be reliably answered by the researcher to convince him/her that the selection of a theory or theories is appropriate for a particular study.

These questions are:

1. What discipline will the theory be applied to?
2. Does the theory agree with the methodology plan for the study?
3. Is the theory to be selected well developed with many theoretical constructs?
4. Have specific concepts or theoretical principles been selected to meet the objectives of the study?
5. Does the problem of the study, the purpose and importance of the study correlate with the theoretical framework?
6. Can the theory be used hand in hand with the research questions for the study?
7. Does the theoretical framework inform the literature review?
8. Does the data analysis plan agree with the selected theoretical framework?
9. Does the theoretical framework undergird the conclusions and recommendations based on the data analysis?

Simon and Goes (2011) also suggest some points that can help articulate the theory for an informed research. The important keys the researcher have to satisfy include:

1. Knowing the main concern for inquiry into the research
2. Ascertaining the key variables in the research
3. Reading and reviewing current related literature on the topic using key word search.
4. Listing the constructs and variables that might be relevant for the study.
5. Considering how the variables are related to the theory
6. Revising the search while adding the word 'theory' to the key words to find the theories and theorists most in line with the thinking of the researcher.
7. Discussing the propositions of each theory and highlight its relevance to the research.
8. Considering alternative theories that challenge the perspectives of the researcher.
9. Considering the limitations associated with the selected theory which the problem to be investigated can help address or provide logic explanations.

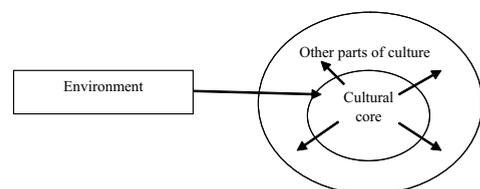
### The Position of a Theoretical Framework in a Thesis/Dissertation Research

Many research instructors and postgraduate students usually wonder where a theoretical framework is supposed to be placed in a dissertation or thesis research. Many scholars suggest that the theoretical framework needs to be shown readers right at the onset of the thesis writing. The student is supposed to select and clarify the

theoretical framework from the time the dissertation topic is initially conceptualized (Dooyeweerd as cited in Sire, 2004). Staunch researchers profess that the researcher's choice of a theory must be stated explicitly early in the writing of a dissertation (Grant & Osanloo, 2014). This popular view is not misplaced because Mertens (1998) argues that the theoretical framework influence every decision made by the researcher in the carrying out of the research. As such, it needs an early mention in a dissertation or thesis writing.

### Example of Theoretical Framework

As it has already been highlighted, the selection of a theory depends on the discipline or field of research. Even within a particular discipline, a specific theory or theories that resonate with the area of inquiry must be selected. The authors illustrate this with an example of a study in Cultural Anthropology. A student is undertaking a research into how the cultures of a group of people influence their attitudes towards the environment. In such a scenario, there are various theories in the field of study that agrees with the problem for investigation. These include the Human Environment Relations Theory, The Culture Theory, The Cultural Ecology Theory, Historical Ecology Theory, Environmental Determinism Theory, Culture Determinism Theory and so forth. Though these theories all postulate that people and their cultures have a relation with the environment, their internal workings and approach to the subject differs. Therefore, it is the student/researcher who has to read and deepen his/her understanding of the theories, including the exponents, historical background information of the theory, its exponents, its theoretical constructs, and assumptions of its proponents, the strengths and weaknesses before s/he can make an appropriate selection in line with the problem and research questions laid out for the study.



**Fig. 1** The Theoretical Framework Cultural Ecology  
**Source:** Adopted from Steward (1968)

### What is a Conceptual Framework?

A conceptual framework is a structure which the researcher believes can best explain the natural progression of the phenomenon to be studied (Camp, 2001). It is linked with the concepts, empirical research and important theories used in promoting and systemizing the knowledge espoused by the researcher (Peshkin, 1993). It is the researcher's explanation of how the research problem would be explored. The conceptual framework presents an integrated way of looking at a problem under study (Liehr & Smith, 1999). In a statistical perspective, the conceptual framework describes the relationship between the main concepts of a study. It is arranged in a logical structure to aid provide a picture or visual display of how ideas in a study relate to one another (Grant & Osanloo, 2014). Interestingly, it shows the series of action the researcher intends carrying out in a research study (Dixon, Gulliver & Gibbon, 2001). The framework makes it easier for the researcher to easily specify and define the concepts within the problem of the study (Luse, Mennecke & Townsend, 2012). Miles and Huberman (1994, p.18) opine that conceptual frameworks can be 'graphical or in a narrative form showing the key variables or constructs to be studied and the presumed relationships between them.'

### The Importance of Conceptual Framework in Research

The conceptual framework offers many benefits to a research. For instance, it assists the researcher in identifying and constructing his/her worldview on the phenomenon to be investigated (Grant & Osanloo, 2014). It is the simplest way through which a researcher presents his/her asserted remedies to the problem s/he has defined (Liehr & Smith, 1999; Akintoye, 2015). It accentuates the reasons why a research topic is worth studying, the assumptions of a researcher, the scholars s/he agrees with and disagrees with and how s/he conceptually grounds his/her approach (Evans, 2007). Akintoye (2015) posits that the conceptual framework is mostly used by researchers when existing theories are not applicable or sufficient in creating a firm structure for the study.

### How to Construct a Conceptual Framework

Conceptual frameworks are always constructed by researchers (Polit & Tatano, 2004). Ravich and Carl (2016) aver that conceptual frameworks are generative frameworks that reflects the thinking of the entire research process. Mostly, diagrams are created to clearly define the constructs or variables of the research topic and their relationships are shown by the use of arrows. Latham (2017) argues that the entire methodology must agree with the variables, as well as their relationships and context. Researchers are at liberty to adopt existing frameworks, but have to modify it to suit the nature of the context of their research as well as the nature of their research questions (Fisher, 2007). Fisher adds that a good conceptual framework must also be expressed in writing for it to be understood clearly. This means that after a researcher has craftily produced a diagrammatic representation of the main variables of the study, s/he has to explain the relations among them and how their complementation helps in answering the major research problem defined.

**Difference between a Conceptual Framework and a Theoretical Framework**

Many students and researchers usually ask whether the theoretical framework is the same as the conceptual framework. Sometimes, researchers develop their conceptual frameworks from the theories that underpin their research. Though these frameworks work hand in hand, they have characteristics that make them different from each other. The differences have been outlined in Table 1.

**Table 1: The Differences between Theoretical Framework and Conceptual Framework**

Theoretical Framework	Conceptual Framework
It provides a general or broader set of ideas within which a study belongs.	It refers to specific or narrower ideas a researcher utilizes in his/her study.
It is based on existing theory/theories in the literature which has been tested and validated by other scholars.	It is based on the concepts which are the main variables in a study.
It is in the form of a model that pivots a study, with its exponents and the results of their studies.	It is a researcher's own constructed model that s/he uses to explain the relationship that exists between the main variables in his/her study.  It can also be an adaptation of a model in an existing theory which a researcher adapts to suit his/her research purpose.
It is well developed, designed and accepted.	Its design is not accepted, but it's a proposal of the researcher's answer to the research problem s/he has defined.
It offers a focal point for approaching the unknown research in a specific field of inquiry.	It is the framework that shows logically how the research inquiry is to be undertaken.
It consists of theories that seem interrelated with their propositions deduced.	It consists of concepts interconnected to explain the relationships between them and how the researcher asserts to answer the research problem defined
It is used to test theories, to predict and control the situations within the context of a research inquiry.	It is aimed at encouraging the development of a theory that would be useful to practitioners in the field.

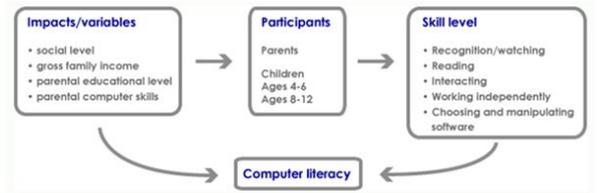
Source: Authors' Construct

**The Position of a Conceptual Framework in a Research**

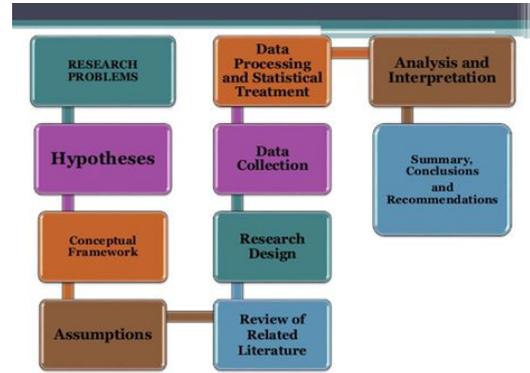
The conceptual framework is mostly placed in the chapter where the literature survey was discussed. It is in this chapter that the theoretical perspectives of the main variables or constructs are rigorously reviewed. In most dissertation or thesis papers, the literature survey is discussed in chapter two.

**Examples of Conceptual Framework**

There are many designs of the conceptual framework that researchers have designed and utilized in their studies. However, the authors present two simple conceptual framework designs from two studies, namely a research on child literacy (Figure 2) and a study on the research procedural steps (Figure 3).



**Figure 2: Conceptual Framework on Child Literacy Research**  
Source: Adopted from [http:// www. monash. edu. au/lls /hdr/ design/2.2.1.html](http://www.monash.edu.au/lls/hdr/design/2.2.1.html) (Accessed 11/8/2017)



**Figure 3: Conceptual Framework on the Research Procedural Steps**  
Source: Adopted from <https://www.slideshare.net/jhim1022/review-of-literature-hypothesis-and-conceptual-framework-65848341> (Accessed 10/8/2017)

**Conclusion**

This paper has thoroughly discussed the importance of theoretical and conceptual frameworks in a research. It has given enough justifications on why their inclusion in a research is indispensable because they heighten the quality of a research. Also, it has thoroughly explained the meanings of the two frameworks, their distinctive roles that they play in the research process, their differences, how they are constructed and where they must be presented in a dissertation or thesis research write-up. Researchers and students must tactfully incorporate theoretical and/or conceptual framework in their research inquires to increase their robustness in all its aspects.

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