

This article will help you:

1. understand the main elements that comprise a research proposal
 2. prepare a well-structured and well-written research proposal
-

Five minute self test

How long should a research proposal be?

1. 1 – 3 pages
2. 3 – 7 pages
3. 7 – 15 pages
4. 15 – 20 pages

Which of the following is NOT needed in a research proposal?

1. a research question
2. a list of references
3. a detailed literature review
4. a research timetable

How can proposed research be justified?

1. a gap in the literature needs to be addressed
2. an unusual or improved methodology is to be used
3. the research may benefit policy and practice
4. all of the above

The research plan:

1. should commit you to a plan of action
2. should be a substantial part of the proposal
3. should show your project is well organized and achievable
4. is the same as the research timetable

Check your answers at the end of the article

The importance of the research proposal

A research proposal is a document of usually three to seven pages that informs others of a proposed piece of research. This proposed research is usually a Masters or Doctorate by thesis, but it can also be work for a corporate purpose. University students usually write research proposals for academics who may eventually supervise the work based on the proposal.

A research proposal can be rejected as unsuitable or poorly designed and on the basis of this, a piece of research can be rejected. The proposal is, therefore, an important document; one that is worth spending some time on to get right.

Another reason to get the proposal right is that this can save you time in the long run.

If the proposal is well-designed, it can form an outline of the thesis to follow, and ideally, can be mapped onto various parts of the final thesis.

The elements of the research proposal: overview

The Following Elements Must Be Included In Any Proposal:

1. Introduction or background to the research problem or issue, including an identification of the gap in the current research
2. Research question and, if possible, a thesis statement answering the question
3. Justification for the proposal research, i.e., why the research is needed
4. Preliminary literature review covering what others have already done in the area
5. Theoretical framework to be used in the proposed research
6. Statement of the contribution of the research to the general area
7. Proposed research methodology
8. Research plan and outline
9. Timetable of proposed research
10. List of references used in preparing the proposal

The Following Elements May Also Be Included In The Proposal:

1. Limitations of the research (what the research is not intended to do i.e. the scope of the research)
2. Resources to be used in the research e.g. equipment
3. Statement of the means by which the research will be evaluated or tested
4. Statement of where and how results of the research will be disseminated
5. Background of the researcher and their suitability for the task

This Helpsheet addresses the main elements listed above.

The elements of the research proposal: detail

1. Introduction

The introduction should be as brief as possible (a paragraph or two). Whatever you do, don't ramble on for pages; you need to make this part of the proposal clear and crisp.

In the introduction, you need to give a sense of the general field of research of which your area is a part. You then need to narrow to the specific area of your concern. This should lead logically to the gap in the research that you intend to fill. When the gap is identified, a research question can then be raised. The answer to this question is called the *thesis statement*.

It may be helpful to think of these parts in the following way:

1. The general area is a particular conversation among academics in the field of study
2. The specific area is your focus on a particular part of the bigger conversation
3. The gap is what you notice needs to be said in the conversation that has not been said before or that needs addressing in more detail
4. The research question asks something to address the gap
5. The thesis statement is your tentative or proposed answer to this question

Note that the thesis statement may only be tentative at this stage as the research has not been carried out. It is not expected in a proposal that you have an answer to your research question. This is what the thesis provides. However, it helps if you have a tentative answer. A hypothesis is useful for this purpose, though this might only be necessary for more empirical subjects (Economics, for example).

Further points to note:

- Outline any controversies that are in the literature briefly. Further details will be covered in the literature review section
- Use simple and jargon-free language as your supervisor may not be aware of all of the language in your focus area
- The introduction must narrow down, not get wider. You must demonstrate you have command of the issues in the area and that you are focussing on a particular issue
- The introduction generally forms Sections 1.1 to 1.7 of the final thesis

2. The Research Question

This forms Section 1.4 of the final thesis. Note that the research question may not be a question as such, but rather a statement of a problem to be investigated.

Below is an example. Note the move from a general area, to a specific area, to the gap in the research (the first italicised passage) and then to the proposed thesis statement (the second italicised passage):

According to business marketing theory, businesses are more likely to succeed if they utilise marketing management approaches or techniques. For example, the marketing concept, a cornerstone of business marketing thought, stresses the importance of determining the needs and wants of consumers and delivering the desired satisfaction more effectively and efficiently than competitors (Kotler, 1986) *Philosophies from marketing management have recently been applied to almost every industry from insurance to travel and hospital services, but not often to farming.* Concerns have been raised about the distinction which appears to exist between agricultural and business marketing theory (Bartels, 1983; Bateman, 1976; Muelenberg, 1986).

In this research proposal, the role of marketing management in agricultural marketing theory and practice is described. It is argued that the marketing strategies of farmers are not adequately described by either the business or agricultural marketing disciplines, and a methodology for analysing the farm business marketing strategy process is outlined (*Adapted from McLeay* ⁽¹⁾)

Let's look at this more closely:

- The general area is business marketing theory
- The specific research area is marketing management concepts (especially the difference between agricultural and business marketing theory)
- The gap is the application of these concepts to the farming sector
- The research question is whether the distinction between agricultural and business marketing theory is justified in the farming sector (Section 1.4 of the final thesis).
- The thesis statement is that neither agricultural marketing nor business marketing concepts are appropriate in the farming sector and that a new methodology is needed. This is what the research will provide (section 1.5 of the final thesis).

The research question in this case is really a statement of what needs to be investigated. This is a perfectly acceptable way of putting this part of the introduction.

However, it could also be phrased in the form of a question or formal hypothesis.

Justification For The Proposed Research

One page is usually sufficient for this ⁽²⁾, suggests that writers need to tell the reader that the research can be justified along four main criteria:

- The size of the industry/area involved
- The gaps in the literature that demand attention
- The unusual or improved methodology being used
- The benefits in terms of policy and practice Perry ⁽³⁾

The example provided above could clearly be justified along all criteria.

3. Preliminary Literature Review

This is where you provide more detail about what others have done in the area, and what you propose to do. You need to write around two pages in which you cover the following:

- The major issues or schools of thought
- Gaps in the literature (in more detail than is provided in the introduction)
- Research questions and/or hypotheses which are connected carefully to the literature being reviewed
- Definitions of key terms, provided either when you introduce each idea, or in a definition subsection
- Questions arising from the gaps that can be the focus of data collection or analysis

The preliminary literature review eventually becomes Chapter 2 of the thesis.

Perry suggests that potential candidates read a thesis in a similar area to get a feel for what is required in this section

An example of a preliminary literature review:

An examination of textbook definitions of business and agricultural marketing provides the most general guide to theoretical content. Although there is no generally accepted definition of agricultural marketing, it is frequently viewed as part of the economic system (Ritson, 1986; Bateman, 1976) and is widely recognised as involving the exchange process. A typical definition is given by Shepard and Futrell (1982) who state: '...'. By this definition, agricultural marketing theory focuses on the

workings of the distribution system, and is typically viewed as a process that begins after produce leaves the farm gate. ... Thus production planning is frequently excluded from the marketing process. ...

Although, there is no universally accepted definition of business marketing, it is generally accepted that business marketing, like agricultural marketing, involves the exchange process. For example, Kotler (1972, p. 12) defines marketing as: "...". (adapted from McLeay ⁽⁴⁾).

Note how the writer refers to definitions of key terms and makes distinctions to eventually arrive at the contribution of their own research to the debate.

4. Theoretical Framework

The theoretical framework usually forms the final part of the literature review section. It describes the model that you are using in the thesis to demonstrate your point. See Sekaran ⁽⁵⁾

5. Contribution Of The Research

This forms Section 1.6 of the final thesis. In this section, you outline how your research will make a change to an area of study. This is different from the justification of your research. The justification explains why the research should be done. The contribution section explains how what you will do will lead to certain outcomes. You need to outline:

- The importance of the research outcome(s)
- The practical or theoretical nature of the outcome(s)

The outcome could be the extension of a theoretical model to a new area, or it could be something practical such as the development of a checklist for managers.

The limitations of research section, can go in this section. This will become Section 1.7 of the final thesis.

6. Proposed Research Methodology

This section should be about 1-2 pages. It forms Chapter 3 of the final thesis.

You do not have to describe the methodology to be used in great detail, but you should justify its use over other methodologies. For example, you could explain the reasons for using:

- a certain paradigm or theory
- qualitative or quantitative research
- a case study of a specific kind
- surveys, correlational experiments, field studies, specific statistical measurements, etc.
- certain dependent or independent or moderating variables (see *Study and Research Helpsheets: The Research Process* and *Research Essentials*)
- a particular sampling frame and the size of a sample

You could also explain how you are proposing to:

- have access to the data
- analyse the data (this is usually Chapter 4 of the thesis).

You also need to provide *operational*(ie. testable, or at least well-supported in the literature) definitions of key terms (see Sekaran ⁽⁶⁾ ;Perry ⁽⁷⁾).

7. Research Plan

The research plan or outline can be discussed in conjunction with a research timetable. However, be aware that they have a different function.

The research plan or outline lists what will be covered in each chapter or section of the proposed thesis. This helps you as well as the reader as:

- it gives you a framework for the direction your proposed thesis will take
- it shows the reader the project is well-organised and achievable in the time available

You need only provide one or two lines for each. This becomes Section 1.7 of the final thesis.

8. Research Timetable

The timetable should indicate the weighting of each part of the proposed thesis in percentage terms, the topics covered, approximate word limit and, importantly, the approximate length of time it will take to complete them. You might consider providing a graph for convenience.

Chapter	Topic	%	Words	Months
1	Introduction	5	3,500	3
2	Literature Review	30	21,000	6
3	Methodology	20	14,000	4
4	Data analysis	25	17,500	5
5	Conclusions and Implications	20	14,000	6
TOTAL		100	70,000	24

(From Perry ⁽⁸⁾ ; see also Phillips ⁽⁹⁾)

Note that:

- The timetable is approximate only, and things always take longer than you think!
- Extra time needs to be allowed for the start and finish of the project
- The timetable does not commit you to anything (though obviously it helps if you can follow it).

9. List Of References

This must be provided in the usual scholarly fashion. It helps to convince your reader that your proposal is worth pursuing if you can identify literature in the field and demonstrate that you understand it. It makes a very strong impact if you can identify where there is a research gap in the literature that your proposal hopes to fill. This is your contribution to the scholarly conversation.

In-text references should be provided for all sections of the proposal with the exception of the research plan and timetable.

Relationship between the proposal and final project

Note finally that while the proposal can be mapped onto the final thesis, much work needs to be done. The proposal merely provides a shell and the thesis fills in the details. Parts of the proposal are not required in a final thesis (for example, resources and evaluation, and timetable). The order and arrangement of each document is slightly different too as the diagram below shows.

Proposal

1. Introduction

- 1.1 General area
- 1.2 Specific topic
- 1.3 Gap
- 1.4 Research Question
- 1.5 Thesis Statement

2. Literature Review

3. Theoretical Framework

4. Methodology

5. Contribution

6. Research Plan and Timetable

7. References

Thesis/Final Project

1. Introduction

- 1.1 General area
- 1.2 Specific topic
- 1.3 Gap
- 1.4 Research Question
- 1.5 Thesis Statement
- 1.6 Contribution
- 1.7 Thesis outline/Limitations

2. Literature Review

3. Methodology

4. Data Analysis

5. Conclusions and Implications

6. References

7. Appendices

Note that variations in the above are possible.

Answers (5 minute self test)

- b
 - c
 - d
 - c
-

References

Martin Davies (2011), Study Skills for International Postgraduate Students. Basingstoke, UK.: Palgrave, MacMillan. as cited in this [link](#)

I made the following proposal, after reading the useful guidelines:
PhD Research Proposal on Environmental Studies Effect Design Challenges in Architecture

Introduction:

Research issue on environmental studies, addresses research problems in architectural design paradigms related to environmental variables effect. A lot of applied methodologies are being done in this field at research progress. Analytical methods are still in research gaps for better development and readdressing fundamental theories of environmental studies to manage in do- ministration the continuous research problems in need by time factor changes pound to different geographical locations on the globe in respond of architectural design challenges, traced by environmental variables.

Statement research question(s) to fill these gaps, nominates statement research answer(s) from general to specific in a particular focus of well application identifies the research gap formulating a research problem statement in hypos is, or application states. The research problem statement domain is subject to research analysis to threshold of the research problem resolution in focus of the research objectives.

The acquired research results compared by the research objectives statement are expected to justify the need for the research thesis.

Fig 1 – 2: illustrate the study variables relationship, overleaf.

FIG. (1) : MAIN PhD STUDY VARIABLES

REMARKS:

ADJECTIVAL PASSIVE PHRASE FOR RESEARCH QUESTION STATEMENT

AQUIRED BY THE REEARSH METHODOLOGY:

RESEARCH ROBLEM GAP (.....S) STATEMENT:

OBJECTIVAL PASSIVE PHRASE FOR RESEARCH ANSWER STATEMENT

AQUIRED BY THE REEARSH METHODS:

RESEARCH RESULTS COMPARED BY RHE RESEARCH OBJECTIVES

STATEMENT:

FIG. (2): RESEARCH METHODOLGIES; RESEARCH METHODS AND RESEARCH PROBLEM STATEMENT

The Research Proposal Issues:

Research title: DESIGN IN ARCHITECTURE AND ENVIRONMENTAL VARIABLES

ANALYSIS:

Introduction

The environmental variables challenges in architectural design motifs share a considerable ratio, compared with any other disciplinary of architectural design paradigms in rational focus. Design in architecture moreover is mainly environmental in all ages of history and theory of design in architecture.

A research question statement in architectural design gaps for optimization in statement answer related to built environment, is the matter of research management and administration subject to problem formulation.

A research problem statement in architectural design gaps is well deeply related to the following paradigms:

- Environmental design studies.
- Interior design applications.
- Exterior design applications
- .theory and history of architectural contributions.

Methodologies and methods.

Methodologies and methods in architectural design research parameter related to environmental design paradigms resides in scientific research in conceptual generalizations, (methodologies) for any research question elaborated on environmental studies. On the other hand; a research statement answer by resolving problem in specific on do ministration board of the research context gets research methods essential for research management.

No doubt, literature reviewing in methodological systematic concepts affiliates the researcher for his own assessment portion in scientific knowledge contribution.

Research results and outputs:

Research results and outputs in environmental studies related to architectural design and constructional methods; no doubt enrich the design process capabilities, (projects). Feedback of research on environmental studies on paradigms of theory and history of architecture, definitely resolves the design research method assess mentally to statement problem in focus of building methods process and development along historical ages sequentially without cut off.

Research problem statement:

the research is intended to optimize architectural design research matrix through environmental variables in demonstrative applications of the designed space components, related to interior and exterior design elements.

Environmental design variables affect both interior and exterior building elements and components, (roofs-floors-walls-openings...). Interior and exterior design elements, like, (dot, lines, planes, volumes, masses...etc.) are subject to optimization? Hence the statement answer for the research statement question(s) gaps, through conceptual and systematic methodological, and tool method analysis to demonstrate the specific research problems under the thesis title:

Thence, the research problem statement is summarized on: the effect of lighting-acoustic-thermal in interior design limits of an architectural space of a certain building type selected. The application gaps associated with the triple; lighting-acoustic-thermal. (LAT), where each of the triple (LAT),; duple of the triple, or all of the triple in research elaboration method analysis of interesting PhD thesis objectives towards better administration of interior design affected y the exterior design elements and components.

Conclusions of the Research Proposal:

However, the research problem statement in broad field of scientific research contextual to main environmental variables affecting interior design of all building types in architecture in terms of the specific, (LAT) Model compromise of the following paradigms:

- The interior lighting environment.
- The interior acoustic environment.
- The interior thermal environment.

I made the following proposal, after reading the useful guidelines:

PhD Research Proposal on Environmental Studies Effect Design Challenges in

Architecture

Introduction:

Research issue on environmental studies, addresses research problems in architectural design paradigms related to environmental variables effect. A lot of applied methodologies are being done in this field at research progress. Analytical methods are still in research gaps for better development and readdressing fundamental theories of environmental studies to manage in do- ministration the continuous research problems in need by time factor changes pound to different geographical locations on the globe in respond of architectural design challenges, traced by environmental variables.

Statement research question(s) to fill these gaps, nominates statement research answer(s) from general to specific in a particular focus of well application identifies the research gap formulating a research problem statement in hypos is, or application states. The research problem statement domain is subject to research analysis to threshold of the research problem resolution in focus of the research objectives.

The acquired research results compared by the research objectives statement are expected to justify the need for the research thesis.

Fig 1 – 2: illustrate the study variables relationship, overleaf.

FIG. (1) : MAIN PhD STUDY VARIABLES

REMARKS:

ADJECTIVAL PASSIVE PHRASE FOR RESEARCH QUESTION STATEMENT

ACQUIRED BY THE RESEARCH METHODOLOGY:

RESEARCH PROBLEM GAP (.....S) STATEMENT:

OBJECTIVE PASSIVE PHRASE FOR RESEARCH ANSWER STATEMENT SQUIRED BY THE RESEARCH METHODS:

RESEARCH RESULTS COMPARED BY RESEARCH OBJECTIVES STATEMENT:

FIG. (2): RESEARCH METHODOLOGIES; RESEARCH METHODS AND RESEARCH PROBLEM STATEMENT

The Research Proposal Issues:

Research title: DESIGN IN ARCHITECTURE AND ENVIRONMENTAL VARIABLES

ANALYSIS:

Introduction

The environmental variables challenges in architectural design motifs share a considerable ratio, compared with any other disciplinary of architectural design paradigms in rational focus. Design in architecture moreover is mainly environmental in all ages of history and theory of design in architecture.

A research question statement in architectural design gaps for optimization in statement answer related to built environment, is the matter of research management and administration subject to problem formulation.

A research problem statement in architectural design gaps is well deeply related to the following paradigms:

- Environmental design studies.
- Interior design applications.
- Exterior design applications
- .theory and history of architectural contributions.

Methodologies and methods.

Methodologies and methods in architectural design research parameter related to environmental design paradigms resides in scientific research in conceptual generalizations, (methodologies) for any research question elaborated on environmental studies. On the other hand; a research statement answer by resolving problem in specific on do ministration board of the research context gets research methods essential for research management.

No doubt, literature reviewing in methodological systematic concepts affiliates the researcher for his own assessment portion in scientific knowledge contribution.

Research results and outputs:

Research results and outputs in environmental studies related to architectural design and constructional methods; no doubt enrich the design process capabilities, (projects). Feedback of research on environmental studies on paradigms of theory and history of architecture, definitely resolves the design research method assess mentally to statement problem in focus of building methods process and development along historical ages sequentially without cut off.

Research problem statement:

the research is intended to optimize architectural design research matrix through environmental variables in demonstrative applications of the designed space components, related to interior and exterior design elements.

Environmental design variables affect both interior and exterior building elements and components, (roofs-floors-walls-openings...). Interior and exterior design elements, like, (dot, lines, planes, volumes, masses...etc.) are subject to optimization? Hence the statement answer for the research statement question(s) gaps, through conceptual and systematic methodological, and tool method analysis to demonstrate the specific research problems under the thesis title:

Thence, the research problem statement is summarized on: the effect of lighting-acoustic-thermal in interior design limits of an architectural space of a certain building type selected. The application gaps associated with the triple; lighting-acoustic-thermal. (LAT), where each of the triple (LAT),; duple of the triple, or all of the triple in research elaboration method analysis of interesting PhD thesis objectives towards better administration of interior design affected y the exterior design elements and components.

Conclusions of the Research Proposal:

However, the research problem statement in broad field of scientific research contextual to main environmental variables affecting interior design of all building types in architecture in terms of the specific, (LAT) Model compromise of the following paradigms:

- The interior lighting environment.
- The interior acoustic environment.
- The interior thermal environment.

Environmental Studies Effect Design Challenges in Architecture:

A-Abstract of Research Proposal:

Research issue on environmental studies, addresses research problems in architectural design paradigms related to environmental variables effect. A lot of applied methodologies are being done in this field at research progress. Analytical methods are still in research gaps needs better development and readdressing fundamental theories of environmental studies to be managed in specific by research do- ministration. The continuous research problems in architecture are, an obligation of time factor changes, pound to different geographical locations on the globe in respond of, renewable architectural design challenges, traced by environmental variables in general elaborate of research question waiting for research answer resolving research problem gaps. Statement research question(s) to fill these gaps, nominates statement research answer(s) from general to specific in a particular focus of an optimum methodological in research concept, and application method system. Both have to identify the research gap to formulate a research problem statement in hypos is, or case study(s) application states. The research problem statement domain is subject to research analysis to threshold of the research problem resolution in focus of the research objectives for brilliant research results in focus by the researcher.

The acquired research results compared by the research objectives statement are expected to justify the need for a research thesis.

Fig 1 – 2: illustrate the study variables relationship, overleaf.

FIG. 1: THE DIAGRAM OF STUDY PARADIGM VARIABLES

Passive Remarks: How to Rephrase in Statement a Variable of the Study Paradigm Adjectival passive phrase or a sentence for research question statement acquired by the research methodology: e.g. it was said to start a PhD thesis: then literature is acquired.

Research problem gap (.....s) statement: e.g. a distant way from start to an end: then a measurement criteria is required to define a method for reaching end point from start point.

Objectively passive phrase or a sentence for research answer statement acquired by the research results, compared by the research objectives statement: e.g. a purpose(s) for end point reach: task pane and in task pane a: result(s)... End a detective!

FIG.2: RESEARCH METHODOLOGIES; RESEARCH METHODS AND RESEARCH PROBLEM STATEMENT:

#the Research Proposal Issues:

FIG. 6: PARADIGMS OF THE RESEARCH PROPOSAL FRAMEWORK: OVER LEAF.

B-Research Title: Design in Architecture and Environmental Variables Analysis:

C-Introduction:

The environmental variables challenges in architectural design motifs share a considerable ratio, compared with any other disciplinary of architectural design paradigms in rational focus. Design in architecture hence, is mainly environmental predicted in all ages of history and theory of design in architectural record.

A research question statement in architectural design gaps for optimization in statement answer is related for built environment, cornfield the matter of research management and administration subjectively, to problem formulation.

In this proposal, the following themes are in focus for the research problem statement.

- Environmental design studies.

- Interior design applications.
- Exterior design applications
- .Theory and history of architectural contributions applied to environmental variables.

D-Research problem statement:

This proposal is intended for optimization of research in architectural design matrix, (a research question), related to environmental variables, (a research problem.) demonstrated by theory, (methodologies) of interior design elements, and application, (methods) for building components.

Environmental design variables affect both Interior and exterior design elements, (dot, lines, planes, volumes, masses...etc.) mirror to interior and exterior building components, (roofs-floors-walls-openings...) in mapping optimization context?

Hence the statement answer for the research statement question(s) in research gaps, through conceptual and systematic methodological, and tool method analysis to demonstrate the specific research problems under the thesis

title:.....

Thence, the research problem statement is summarized on: the effect of lighting-acoustic-thermal in interior design limits of an architectural space of a certain building type selected. The application gaps associated with the triple; lighting-acoustic-thermal. (LAT), where each of the triple (LAT),; duple of the triple, or all of the triple in research elaboration by method analysis of an interesting PhD thesis objectives towards better administration of interior design affected by the exterior design elements and components

FIG.5: THE PARADIGMS OF THE RESEARCH PROBLEM STATEMENT: OVER LEAF

E-Methodologies and methods:

Methodologies and methods “are different ” as stated by, Mark Davies in architectural design research parameter related to environmental design paradigms resides in scientific research of conceptual generalizations, (methodologies) for any research question elaborated on environmental studies. On the other hand; a research statement answer by resolving problem in specific on do- ministration board of the research context gets research methods essential for research management.

No doubt, literature reviewing in methodological is a systematic concepts affiliates the researcher for his own assessment portion in scientific knowledge contribution.

F-Research results and outputs:

Research results and outputs in environmental studies related to architectural design and constructional methods; no doubt, this enrich of the design process comprehensiveness in capabilities, (projects). Feedback of research on environmental studies subject to paradigms of theory and history of architecture, for definite resolves of the research methods assess mentally to statement problem in focus of building methods process and development along the ages of history of architecture sequentially without cut off.

G-Conclusions of the Research Proposal:

However, the research problem statement in broad field of scientific research contextual to main environmental variables affecting interior design of all building types in architecture in terms of the specific, (LAT) Model compromise of the following paradigms:

- The interior lighting environment.
- The interior acoustic environment.
- The interior thermal environment.

Fig. 3: illustrates a category\series graph method for LAT Model triple variables of: Lighting-Acoustic-Thermal at state reading selection of possibly in endless probabilities in real time-

FIG. 3: LAT MODEL TRIPLE VARIABLES OF: LIGHTING-ACOUSTIC-THERMAL:

Each of the triple series; suggests an independent MSc. Or PhD applied dissertation. Hence the suggested research problem statement for this PhD thesis proposal is expected for mutual broad research results applied for interior design themes. Thence the proposed methodological model of (LAT), deals with the interior design gaps in research question to fill these research gaps in rational compromises towards optimization of the interior design checklists and design application in environmental variables criteria. However the expected research capacity limits is focused in symbolic scientific research in general towards specific broad sampling of experimental selected case studies for each paradigm of LAT as follows:

- A sample case study on: interior space day light factor control.
- A sample case study on: interior space acoustic control.
- A sample case study on: interior space thermal comfort ability control.

The mutual result; “ the case study “focus of the triple series of the LAT Model is subject to minimal simplified representation of the triple series measured by categories of evaluation scale as follows :

The following specific readings are relevant to each series of: lighting, acoustic, and thermal

- Lighting effect and interior design requirements in terms of Day lighting. & artificial, lumen, or lux, etc. respectively for comfortable visual ability for an occupant in task pane in adequately designed interior space
- Sound Path Effect and Design Application Challenges
- Acoustic effect and interior design requirements in terms of sound level (Decibel), frequency control (Hz), etc. For convenient listening condition in adequately designed interior space
- Thermal effect and interior design BTU, etc. responding thermal comfort ability in adequately designed interior space

• Analytical Research Description of: The three above mentioned paradigms of great scientific research in respond, associated with complicated gaps of analysis to cope a mutual result in simplicity of adequate performance in an interior space by occupants in doing their tasks scaled in comfort ability and convenience for instant modes. FIG. 3

FIG. 4: SAMPLE DESIGN WORKS APPROACHED BY THE RESEARCHER ON LAT MODEL ANALYSIS:

- Top: a design proposal based on natural lighting and shading- Ministry of Environment.
- Middle: a design proposal based on natural lighting and acoustic control of interior space of a combined court theatre- comesa H.Q...Building.

- Bottom: a design proposal based on natural lighting and shading for thermal comfort-customs H.Q. Building. Khartoum Airport.

FIG.5: THE PARADIGMS OF THE RESEARCH PROBLEM STATEMENT:

FIG. 6: PARADIGMS OF THE RESEARCH PROPOSAL FRAMEWORK:

FIG. 7: RESEARCH TIME TABLE:

Time scale 12 11 10 9 8 7 6 5 4 3 2 1 اسبوع

duration activities

4 Literature reviews 1

4 Data collection 2

12 Research analysis 3

6 Lab work 4

4 Case study 5

4 Synthesis and conclusion 6

6 Data filter 7

8 Thesis draft 8

REFERENCES:

- Agraa, O.M; AND Ahmed, A.M. HUMAN SETTLEMENT IN ARAB COUNTRIES.KHARTOUM UNIVERSITY PRESS (1983).
- Ahmed, A.M., Agraa. El Kheir, OM, and Haywood, POPULAR SETTLEMENT IN GREATER KHARTOUM. KHARTOUM UNIVERSITY PRESS (1986).
- Ark ell, A.J. DARFUR ANTIQUES: SUDAN NOTES AND RECORDS (1937).
- Ark ell, A.J.AIN FARAH .S.N.R, XXVII URI. SPECIAL RECORDS OF SULTAN'S MOTHER IN DAR FUR AT AIN FARH AND URI: SUDAN NOTES AND RECORDS (1937).
- Barth, H. TRAVEL ON CENTRAL AFRICA VOL.III TO VII.
- Browne, W.G.TRAVELS IN AFRICA, EGYPT, AND SYRIA.UNIVERSITY OF LONDON (1799)
- Creswell, K.A.C HISTORY OF EARLY MO SLIMS ARCHITECTURE, PUBLISHED BY OXFORD UNIVERSITY PRESS.
- ERNEST; ARCHITECTS' DATA
- Fdul.Y.H. HISTORY OF DAR FUR, ARTCLE PUBLISHED BY KHARTOUM UNIVERSITY PRESS.
- Hakim. M.A. MEROETIC ARCHITECTURE PUBLISHED BY KHARTOUM UNIVERSITY.
- Hamid.G.M. RATIONALIZING URBAN AND UTILIZATION GUIDELINES FOR HOUSING
- HUSSEIN; ABU BAKER; – MALAZ MOHAMED ALI, ARTICLE ON JOURNAL BRRI ISSN2015 .VOL. (18), 2015: THE E EFFECT OF NON ORTHOGONAL FORMS ON ENERGY CONSUMPTION IN TALL OFFICE BUILDING.
- HOPKINS ON; LIGHTING
- Lebon, J.H.G and Robertson DAR FUR JABEL MARRA AND ITS REGION GEOGRAPHICAL JOURNAL (1963)

- Margret Shoni. SHORT HISTORY OF SUDAN.P. 10 PUBLISHED BY THE NATIONAL COOPERATION FOR ANTIQUES.
- Nichtigal.C. SAHARA AND SUDAN VOL.III; DEUTSCH NICTIGAL,OP CITP77-78BERLINE (1889)
- Ofahi: HISTORY OF DAR fur, AFRO-ASIAN INSTITUTE LIBRARY. UNIVERSITY OF KHARTOUM(1960)
- Paul,G .B. SULTAN'S PALACE IN DAR FUR AND WADDAIE (1954)
- Pons V.; Abu Sin, M.H. URBAN ISM AND URBANIZATION IN SUDAN- NYALA: A STUDY ON RAPID URBAN GROWTH, PP 352379.PUBLISHED IN ENGLAND(1960)
- Salim,A. EL FUR AND LAND IN ARBAIC EL FUR WA AL ARD KHARTOUM UNIVERSITY PRESS(1984)
- Shadad, M.Y AND AGRAA, O.M.A A RENTALS .KHARTOUM UNIVERSITY PRESS (1988)
- Shogir.N M.I.O. HISTORY OF SUDAN(1960)
- Tounsi, M.I.O VOYAGE TO DAR FUR (1889).
- Raga, A. HISTORY OF ARA AND ISLAM IN DAR FUR IN ARBAIC CIRO UNIVERSITY
- UNCWA HUMAN SETTLEMENT CONFERENCE PROCEDURE NAIROBI (1964)
- WELLS, M. GENTLE ARCHITECTURE MC GROW HILL(1981).