International Journal of Applied Research

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What is a research problem in research process: A concise study

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Abstract
The problem formulation from broad research area is a challenging job for an entry researcher. The support of a supervisor or teaching professional is essential for this purpose. The Regular PhD research students and post graduate students can easily manage this, since they are under the guidance of expert personal, but for the freelance author and independent researcher who are making debut may have to follow certain criteria in selecting research problem and proceed in further research and generate a new idea or knowledge in the field of academic arena. This article tends to give a brief knowledge for the novice researchers in getting sources of research problem, creation of research problems and guidelines in creating a good research problem.

Keywords: research problem, research topic, research problem formulation, research theme

1. Introduction
Research is a finding an under-explored area of aspect and prepare research questions, study and formulate solutions in a systematic way. Every research whether it is quantitative or qualitative starts with a problem statement. A research problem is defined as a problem statement about a theme concerned. It is a particular situation that needs modification or alternate measures to nullify difficulty. The disconcerting or disturbing themes will be seen in scholarly papers, previous research work, theoretical study, day to day life, or in a society as a whole. It may be in 'why', 'what' or in any question form. In research problem the solution will not be derived. It is derived after stating the issues, operationalizing the connected variables, devising tools and techniques for proving derivation or hypotheses already assumed. In short, a good research problem should be finally answered through need, objective, method and evaluation stages.

1.1 Research topic and Research problem
In a research process, research subject or topic is a laconic summary of the whole research parts, but a problem statement elucidates the requirement for study that is combined within the frame of research subject or theme. A research problem is an extract from broad research theme, which in turn is a mixture of basic research facts. The statement of problem corroborates the need of deep study that is manifested in the main research theme. So, in a simplest way research problem is small chip in the broad research area or theme.
Let us explain it in through example

1.1.1 Research Topic: The side effects of conventional Radiotherapy in oral cancer patients.

1.1.2 Research Problem: The major side effects of radiotherapy in patients include death of normal cells nearby, blackening of skin, Heat sensation, loss of appetite dry mouth, trouble in swallowing etc.

1.1.3 Need for study: The alternative or reducing or nullifying the side effects without compromising curative treatment.
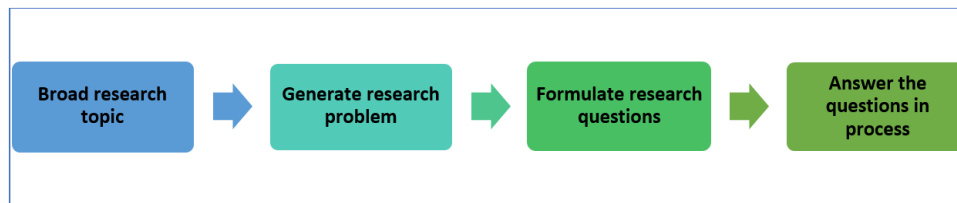
1.1.4 Research Questions: The effectiveness of Image Guided Radio Therapy (IGRT)/ Intensity Modulated Radio Therapy (IMRT) in reducing the side effects.

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1.1.5 Hypotheses
1. The IGRT/IMRT will reduce nausea, loss of appetite, skin tanning etc.

2. Conventional RT has serious side effects compared to IGRT or IMRT

Schematic representation of problem formulation

A good research problem and ability to select according to one's interest is a good start to continue with research process. A novice researcher finds difficult to select a research problem that is manifested in his/her surroundings, but an experienced guide or researcher can pave path for novice to reach near the problem. In social sciences and behavioral sciences, as well as in experimental study related to raw sciences the research area itself is very much sensitive and intertwined with emotions, expressions and it is tangible so, there exists ethics and social limitations to proceed with research. When imagining of any research topic one should also consider the ethical possibilities about research.

The research problem has two values Extrinsic and Intrinsic. Extrinsic value denotes how it can be useful in the field of research topic (Research topic and Research problem are different), can it provide extended knowledge to existing data, Collection of data from the field and availability of data is sufficient for pursuing, further the ethical consideration and research council are consenting finally weather data can be taken without bias. The Intrinsic value denotes the researcher's affinity to study area, his knowledge depth (theoretical and empirical), familiarity with problems and assumptions researcher own interest, time and cost.

2. Objectives of study
The major objectives of this article are to enable researchers in 1) Sources from where which research problems can be formulated. II) How to formulate research problems. III) Guideline for selection of research problems

3. Sources of research problems
The problem finding from the relevant research area is not serious challenging task. We can find numerous problem strings and its connectivity to our study area through a series of systematic methodologies. An important element to remember is to avoid the duplicating the existing works. We can estimate problem and connect it through various unexplored inquiry facts and making it a relatively new idea.

3.1 Conclusions through theoretical knowledge
A process or circumstance that has never been closely scrutinized and we can uncover some equivocal aspects in the theoretical setting. Such a condition or aspects which is troubling can be probed further to find a solution. It can be assumptions made from social belief or inductive reasoning materialized in society and the researcher is well aware of it. Such deductions can be verified through the framework of research The theory is a proved fact but we can operationalize the basic theoretical knowledge to derive

solutions from various questions. For example - Increase in the creatinine level in blood is sign of kidney malfunction and it is theory but one can enquire about why creatinine level is increasing, how can creatinine level reduce, diet that increase blood creatinine etc.

3.2 Multidisciplinary Viewpoints
The inter-disciplinary or multi-disciplinary approach is a recent development in the field of education. Socio-economic factors, socio-environmental conditions, psycho-social conditions etc. can be manipulated blending approach of different field of study. A researcher can use inter-disciplinary viewpoints in topic that are outside main study theme. The relevant literature available in such field of study can be thoroughly examined and resultant research problem can be answered. This approach is relatively new trend and can be used to solve complicated issue and deep understanding of existing gap that cannot be addressed by single field of study.

3.3 Consultation with subject experts/field workers
Another source from where researcher can collect problems are through consultation and sharing of information with experts. Academicians, field workers, scientists etc. This approach can bring researchers knowledge about the practical problems faced and their unorthodox solving of issues which are not theoretically approved or not probed in a researcher's way. It offers researcher an outline and empirical understanding of issues and that can be operationalized for framing research questions

3.4 Individual Practice
In the day-to-day experience, the researcher may encounter with issues concerning to the normal life. It may be societal, economic, health issues and environmental issues or personal issues, similarly researchers' response to such issues in particular situation. On critically analyzing of the problems in everyday experiences can give rise to useful glitches for enquiry.

3.5 Search in related literature
It is the major source for a researcher to get sufficient information. The information will be latest and in systematic manner. The examples of such sources are journals, conference proceedings, Text books, Expert article in popular magazine etc. The researcher can search according to the keywords or similar words through web and media. The knowledge gained will be pertinent and concerned with the subject matter. The researcher can examine the similar literature and correlate to identify the gap in knowledge and where is the area in which further study required. In

research paper also there will be provision provided by author for future research required in larger field or with adding additional questions. The literature survey provides researcher vivid knowledge of methodology adopted by the author in his/her study. The researcher can modify or reuse tools and techniques used by previous researcher and incorporate different strings to derive new area of knowledge.

4. Formulation of Research Problem
Any research is a comprehensive job to accomplish, similarly research needs to be researchable. Primary process of selection of research problem and if it is done twenty five percent of journey finished.

4.1 Selection of research area
Formulation of research problem begins with selection of a broad research topic from personal experience, literature, previous research and theories in which researcher interested. The Research topic and subsequent research problem should be strong and easy to realize. It should not distract people Easy language is a key to success. The use of strong technical words should be done unless it is necessary

4.2 Divide the research topic into sub portions
The subject chosen by the researcher may be broad in that case researcher needs to divide it into small areas or topics. A well and clearly defined topic can only answer through research process. The research problem should not create ambiguity or misinterpretation in readers. The titling the research work should be according to the guidelines of the methodology neither too long nor too short. The research idea should be well defined in title.

4.3 Focus on selection of Areas of interests
Areas of interests of the researcher and selection of research topic should be according to the relevance and validity. The outdated methods and too much probed areas may be avoided, because most of the questions will be answered. So, uniqueness should be maintained in designing area and topic

4.4 Generate research questions
Try to generate as many questions as possible on the selected areas of topic. Research questions may be formulated in such a way that it can be answered using scientific techniques and research procedures

4.5 Decide about objectives
Objectives are possible answers to the research questions or the research problem that researcher formulated. Objectives make you specific, as you conduct your study around objectives that you have decided. The objectives need to be specific, but can generate general objectives

4.6 Formatting final statement of research problem
The researcher may write final research problem in assertive or enquiring language after obtaining significant lead from the theme studied and its implications

5. Guidelines for selection of Research problem
5.1 Readiness of resources
The researcher needs to think of resources available for his/her study, that may be time, fund, resource materials

reference materials etc. Such a problem can only be proceeded further.

5.2 Data Obtainability
The researcher needs to ascertain the relevant data for the research work to be done is easily accessible and can take accurately according to set standards

5.3 Knowledge of researcher
In depth knowledge of the identified problem and applicability of the research problem with theories and assumption is essential for continuing with research work. Research focuses on broad areas of the problem of the agency

5.4 Individual Feeling
Every researcher will have his/her own areas of interest; such interested areas should be taken to consideration during selecting a research problem. Such decision will make research work melodious and fruitful otherwise horrible and failure.

5.4 Local taste
The universe where researcher conduct research has got specific way of living and societal norms. This also influence the selection of problem. The research problem should be suited to the area. As a co-operative process, research is suited to study a group process in determination.

5.6 Relativity
The research problem should be relevant and relative to the present scenario.

5.7 Feasibility and necessity
Another important factor for selecting research problem is its viability and researchers' ability to execute the research work efficiently with available data. If any problem that affects people of area generally, then that need urgent attention should give ample priority.

5.8 Pragmatism
The researcher needs to identify the usefulness and practicality of the research problem. Every research work should be useful to mankind. Research helps student to witness and record the bond of persons and group in authentic working conditions
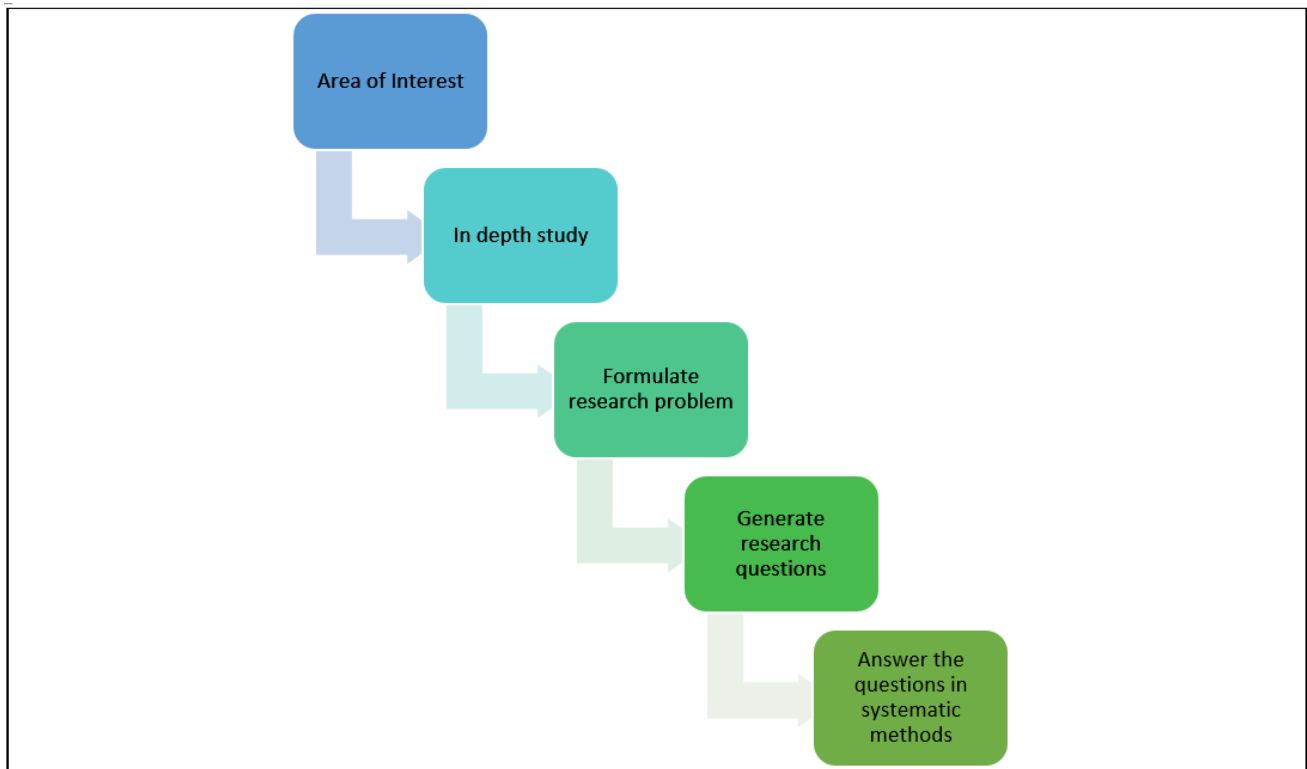
5.9 Redundancy
Before selecting the problem, the researcher should identify the redundancy of the topic. Too much redundant topic invites less popularity of the research matter.

5.10 Time schedule
The problem selected by researcher need specific time gap to finish. The researcher should select problem according to the time schedule and management available for the study.

5.11 Ethical value
The researcher should consider the ethical limitations while selecting research problem, it should not in any way harm the feelings and impinge the privacy of living beings. Investigation involves a sound rational attitude towards research workers.

Flow chart of Problem identification and processes

6. Conclusion

Every research starts with interrogative or assertive remarks and ends up with a solution to the enquiry. It is process problem finding and solving it. There is saying that 'well begun is half done' similarly, In the journey of research saga, problem identification and deriving postulates is the primary and comprehensive job. The entire process can be defined in nut shell, as the vision of research develops in the mind of researcher and then a broad research theme is conceptualized, next derivation of questions from theme for the formulation of research problem and subsequently the systematic and methodical explorations and summarize the findings and prove the generated objectives.

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