

IDENTIFICATION OF RESEARCH PROBLEM

Systematic research begins with a research problem. In a classic work, John Dewey (1933) spoke of the first step in the scientific method as the recognition of a felt difficulty, an obstacle, or problem that puzzles the researcher. Your first step in the research process is therefore to select a problem for investigation. Selecting and formulating a problem is one of the most important aspects of doing research in any field. Beginning researchers are often surprised to find that this initial stage can take up a large part of the total time invested in a research project. There is no way to do research until a problem is recognized, thought through, and articulated in a useful way.

A researcher must first decide on the general problem area. This step is often difficult for beginning researchers. The difficulty is not due to a shortage of problems but, rather, to the fact that beginners must select a problem very early, when their understanding of how to do research is most limited. They are uncertain about the nature of research problems and how to go about solving them.

The research topic (also called the research problem, or purpose) provides focus and structure for the remaining steps in the scientific method; it is the thread that binds everything together. Selecting and defining a topic should entail considerable thought. An initial topic that is broad and complex often proves unmanageable for study, and the researcher must narrow its scope to implement or complete the study. When properly defined, the research topic reduces a study to a manageable size.

For beginning researchers, selection of a problem is the most difficult step in the research process. Some graduate students spend many anxiety-ridden days and sleepless nights worrying about where they are going to find a problem to address in their theses or dissertations.

The first step in selecting a research topic is to identify a general subject area that is related to your area of expertise and is of particular interest to you. Remember, you will be spending a great deal of time reading about and working with your chosen topic. Having one that interests you will help you maintain focus during the months of conducting your study.

Sources of Research Topics

The four main sources of research topics are theories, personal experiences, previous studies that can be replicated, and library searches. Additional sources are including: RSS feeds, facebook, twitter, blogs, and electronic mailing lists.

Theories

Theories are a good source of problems for research. A theory may be defined as a set of interrelated statements, principles, and propositions that specify the relationships among variables. . A theory is an organized body of concepts, generalizations, and principles that can be

investigated. Educationally relevant theories, such as theories of learning and behavior, can provide the inspiration for many research problems. For Example, Erikson's theory could become the foundation for research on school violence.

Choosing a Theory

Not all theories are equally useful to a beginning researcher. Let us examine some of the characteristics one searches for in a good theory for a research study:-

- An essential characteristic of a good theory is that it is testable.
- A good theory is not only testable but also falsifiable.
- A good theory deals with some significant phenomenon or behavior that needs explanation, such as learning or motivation.
- A good theory provides the simplest, clearest, and most plausible explanation for the phenomenon. A good theory follows the principle of parsimony.
- A good theory has internal consistency

Experience

Among the most fruitful sources for beginning researchers are their own experiences as educational practitioners. Personal experiences may arise from intense personal school experiences or experiences drawn from our childhood or family situations. Personal experiences provide justification especially in those studies with a practical orientation, such as solving a particular classroom dilemma in an action research study. Students who have not had teaching experience can get ideas from discussions and their reading in education courses.

Related Literature

Another valuable source of problems is the published literature in your area of interest. In published research, you will find examples of research problems and the methods used to solve them. A review of related literature may help in the following ways:

- You may find a study that needs to be replicated.
- You may find a question that represents the next logical step in the research on a problem.

Published research can be a great source of ideas for research. With some critical analysis of the research in your field and a bit of creativity, you should be able to find several potentially researchable problems. Reading research will also help you by showing how previous researchers measured variables, selected samples, analyzed data, and so on.

Studies that can be replicated

An additional source of research topics is previously published studies, many of which can be replicated. A replication is a repetition of a study using different subjects to retest its hypothesis. No single study, regardless of its focus or breadth, provides the certainty needed to assume that similar results occur in all or most similar situations. Progress through research usually comes from accumulated understandings and explanations, and replication is a tool to provide such accumulated information.

Library Searches

Another commonly cited source for a research topic is a library search. Libraries are essential sources of information in the research process, but the library is most useful to the researcher after a topic has been narrowed. Then library resources can provide information to place the topic in perspective, reveal what researchers have already learned about the topic, and suggest methods for carrying out a study.

Electronic Mailing Lists

An electronic mailing list is a good resource to consult when you are devising a research question. Examples of electronic mailing lists for educational topics include:-

- a. American Educational Research Association List (lists.asu.edu)
- b. AERA Division K Teaching and Teacher Education Forum (lists.asu.edu)
- c. Educational Administration Discussion List (listserv.wvnet.edu)

NON EDUCATION SOURCES

You can adapt theories or procedures you encounter in other fields to apply to education. Often, movements that originate outside a profession lead people to new paths of research. The women's movement has led researchers to study gender stereotyping in educational materials, the influence of schools on the learning of sex roles, gender differences in achievement and personality, and so forth. The civil rights movement led to many studies about the education of minority children. The AIDS (acquired immune deficiency syndrome) epidemic has stimulated a great deal of research on the best procedures and materials to use to acquaint young people in school with the danger of the disease and how best to protect them from it. The inspiration for much valuable research in education has come from such non education sources.

CHARACTERISTICS OF A GOOD RESEARCH PROBLEM

Selecting a good topic is well worth the time and effort. As mentioned previously, there is no shortage of significant educational problems that need to be studied. Working with an interesting topic helps a researcher stay motivated during months of study. Followings are the characteristics of a good research problem

- The problem is significant (it will contribute to the body of knowledge in education).
- The problem is one that will lead to further research.
- The problem is researchable (it can be investigated through the collection of data).
- The problem is suitable (it is interesting and suits the researcher's skills, time, and available resources).
- The problem is ethical (it will not cause harm to subjects).

STATING THE RESEARCH PROBLEM

After you have selected the problem, the next task is to state the problem in a form amenable to investigation. We cannot overemphasize the importance of a clear statement of the problem. The statement of the problem varies according to the type of research. Thus, we consider quantitative and qualitative research statements separately.

The problem statement in Quantitative research

For a quantitative study, a well-written topic statement generally describes the variables of interest, the specific relations among those variables, and, ideally, important characteristics of the participants (e.g., gifted students, fourth graders with learning disabilities, teenage mothers). An example of a problem statement is "The topic to be investigated in this study is the effect of positive reinforcement on the quality of 10th graders' English compositions." It is clear that the variables in this study are positive reinforcement and quality of English compositions, and the participants will be 10th graders.

Other possible topic statements include the following:

- "The topic to be investigated in this study is secondary teachers' attitudes toward required after-school activities."
- "The purpose of this study is to investigate the relation between school entrance age and reading comprehension skills of primary-level students."
- "The problem to be studied is the effect of wearing required school uniforms on the self-esteem of socioeconomically disadvantaged sixth-grade students."

The problem statement in Qualitative research

Qualitative research topics often are stated in more general language than quantitative ones because in many cases, the qualitative researcher needs to spend time in the research context for the focus of the study to emerge. Remember, the qualitative researcher usually is much more attuned to the specifics of the context in which the study takes place than is the quantitative researcher. Qualitative research topic statements eventually narrow as the researcher learns more about the research context and its inhabitants, and these more precise statements appear in the research report.

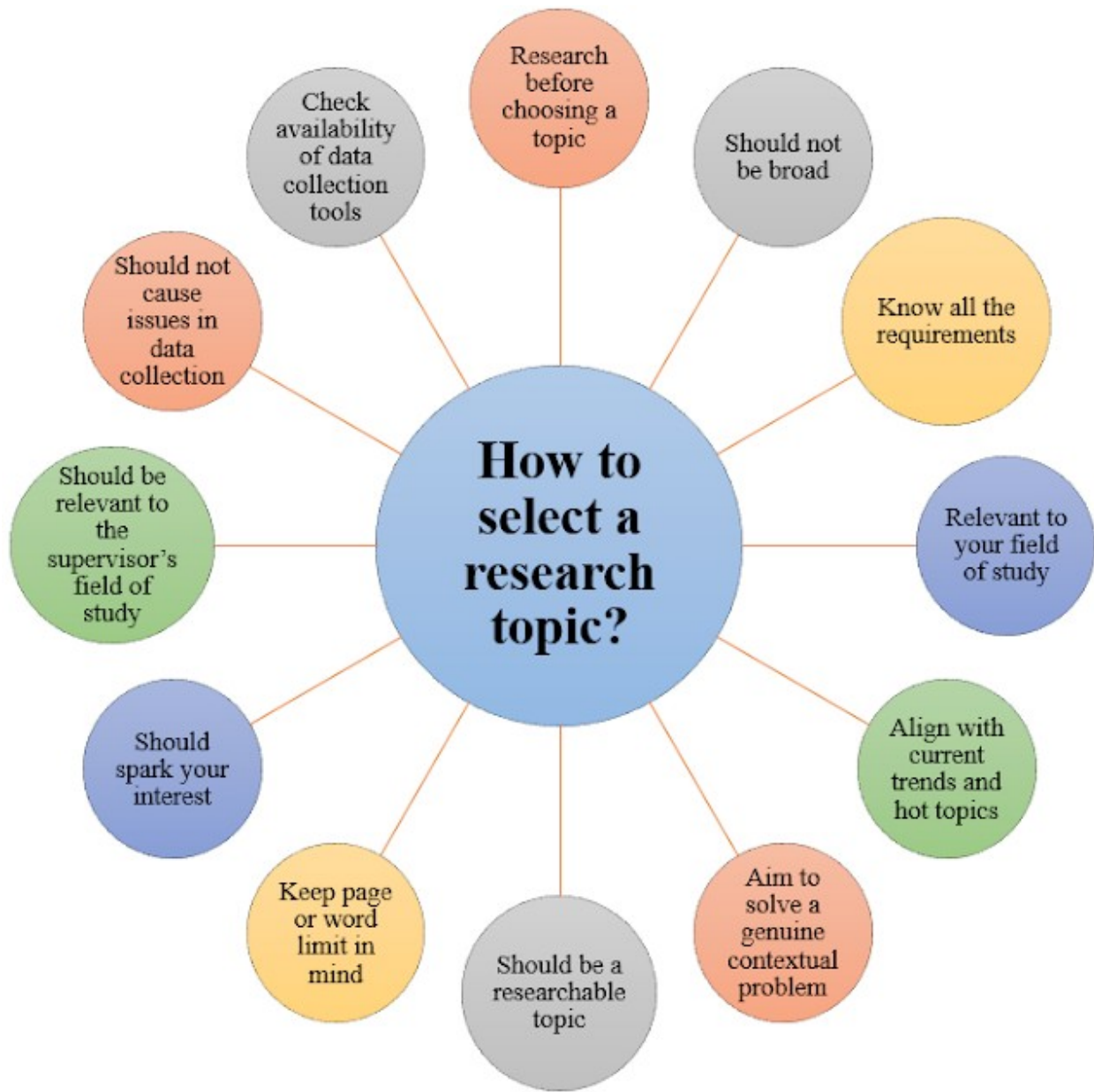
Following are examples of general statements that may be drafted in the early stages of the qualitative research process:

- “The purpose of this study is to describe the nature of children’s engagement with mathematics. The intention is to gather details about children’s ways of entering into and sustaining their involvement with mathematics.”
- “This qualitative study examines how members of an organization identify, evaluate, and respond to organizational change. The study examines the events that members of an organization identify as significant change events and whether different events are seen as significant by subgroups in the organization.”
- “The purpose of this research is to study the social integration of children with disabilities in a general education third-grade class.”

Quantitative researcher always states the problem before collecting data, the qualitative researcher may formulate problems after beginning to collect data. In fact, the researcher often does not present the final statement of the problem—which typically specifies the setting, subjects, context, and aim of the study—until he or she has collected at least some data. In qualitative research, the statement may be somewhat general in the beginning, but it will become more focused as the study proceeds. After exploring the sites, the people, and the situations, the researcher narrows the options and states the research problem more specifically.

Developing Research Questions

Developing research questions breathes life into the research topic statements. To use a teaching analogy, it is like taking the aims of the lesson (the topic statement, broad statement of outcomes) and developing the instructional objectives for the lesson (the research questions, “bite-sized,” narrow questions). These research questions will also validate that you have a workable way to proceed with your research. There is a direct connection between the research question and the data collection strategies the researcher will use to answer the question. The research questions add another level of specificity to the development of the research and provide the researcher with an action plan for the development and identification of research instruments.



Suggested Reading

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