

UNDERSTANDING ACADEMIC RESEARCH PLAN: AN OVERVIEW

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Abstract

The goal of all scientific studies is to explain, predict, and control phenomena. The goal is based on assumption that all behaviors and events are orderly and that they are effects which have discoverable causes. Progress toward this goal involves acquisition of knowledge and the development of testing of theories. Dealing with this idea, typical research traditions are exposed in this article aimed at providing insights for the students in order to become knowledgeable about how to systematically and logically construct academic research plan.

Key words: research components, concept and variable, research traditions

RESEARCH: WHAT DO WE SEARCH FOR?

It goes without saying that we generally like to think that it is human nature to be curious since everyday in our lives, we ask ourselves questions, for instance, what makes birds sing, why some people speak almost in a monotone, what signals people use to show that some things they want to say are new and important. It is basically curiosity that derives research. However, the ways we search for answers will, of course, differ. The way we search differentiates simple curiosity from research. This stands to reason for research is basically the organized, systematic search for answers to the questions we ask (Hatch and Lazaraton, 1991).

In some fields, a place to look for answers may be existing texts or transcripts ((Underhill, 1987; Oller, J et al, 1980). More confidence is also placed in answers where researchers have been able to manipulate or control the many factors that might influence or affect outcomes. In other words, when researchers have possible answers to questions, they can manipulate variables in different ways to make certain that the variables truly act in they think they do (Kirk, E. R, 1968).

Ultimately, research is a way of convincing ourselves and others of answers to questions, it is important to know *where* to for an answer and *what* counts as evidence. For example, in linguistics, it has been common practice to pose a question about acceptability of particular language forms and then answer it by the so called native speaker intuition. If, for instance, we think the sentence '*He suggested me to take advanced statistics*' is unacceptable that is evidence

enough. Somehow, the use of example in the form of sentence is also considered acceptable in support of answer to research questions even though those sentences created by the researcher rather than actually used by native speaker. This is reasonable because some field consider typical examples as evidence depending on whether or not typical example is precisely defined (Hatch and Farhady, 1981). Research is basically a means of balancing confidence and anxiety. The balance grows out of the need to answer a question and the fear of giving or accepting inaccurate answers. Thus, a well – designed research project will allow us to offer answers in which we can feel confidence. The first thing is, of course, to convince ourselves to establish confidence in providing relevant answers for ourselves. That is, we posed the questions in the first place and so we are the first evidence for our answers (Hatch and Lazaraton, 1991).

In disciplines that are engaged in search for an overriding theory, questions are defined as worthy of research only if they contribute to theory formation. All other questions are held abeyance (not on tract) or considered irrelevant. For example, linguists, wishing to construct a theory of *competence*, have considered research on such *performance* factors as hesitation markers or such system components as turn – taking which are irrelevant and uninteresting (Wallizer et al, 1987).

CONSTRUCTING RESEARCH WITH CONCEPTS AND VARIABLES

The most basic distinction between scientist and others seeking information is actually the manner in which they experience their environment. A scientist is the one objectively ‘oversensitive’ to what goes on in the environment (Walizer et al, 1987). This attitude is reflected in the fact that scientist use a great many concepts, techniques, theories, beliefs, and practices, not commonly used by most people. Above all, the most fundamental process of science is first of all *abstract conceptualization* leading eventually to the process of making sense out of one’s experiences and observations. More precisely, conceptualization is the mental process of organizing one’s observations and experiences into meaningful and coherent wholes (Oller JR et al, 1980). This idea will lead the researchers to read all possible information of a theoretical, methodological, or practical nature that has been written about the subject. With this insight, one may better judge the adequacy of the expertise’s figured out in the written research. In addition, in the case of exploring a relationship, for example, it will certainly necessary to check the source of the researcher’s expertise. This kind of evaluation will positively determine the credibility of the research question (Hatch and Farhady, 1982).

The basic questions surrounding the pursuit of either published or non-published academic materials are concerning *What?*, *Why?*, *Where?*, and *How?* (Hatch and Lazaraton, 1991).. It is now reasonable to ask exactly ‘What are we looking for in published or academically written materials? The overall objective of reviewing previous researches is to become expert so that the better research

can be achieved. The most common things to enumerate specific types of research are (1) research traditions, (2) theoretical development, (3) hypothesis, (4) definitions, (5) specific findings, (6) paraphrase and quotations respectively.

RESEARCH TRADITIONS

A particular research, very often, does not stand in isolation since there have been previous studies which concern the same topic fit together into a research tradition. To the researchers and to the reader of research reports, it is undoubtedly useful to view a particular study in the context of previous work because the provision of the context of a particular study allows the further researchers to investigate the study in question with other information. This certainly will better enable one to form an overall conclusion. In addition, particular types of methodology or procedures might have been developed in the past that a researcher may wish to continue or to build upon. By describing the way in which the previous study has been done, research traditions can accordingly and objectively be continued (Oller JR et al, 1980; Walizer et al, 1987).

The best thing to do this is that we consider the data collection procedures used by researchers who have carried out studies similar to our own. The method that we use will of course be influenced by that used by previous researchers. For example, we may want to copy Labov's "*danger of death*" technique to elicit narratives. For investigations of grammar, we could use grammaticality judgments, sentence repetition, or translation. While for vocabulary, we might want to adopt a card sort method to test the outer limits of core vocabulary items, e.g., pictures of various boxes, bags, chests, baskets, etc), to analyze how subjects move from *box* to some other lexical items. In addition, we could make use of a "*spew test*", i.e., subjects spew out as many examples of a core vocabulary items or words that rhyme or start with the same sound or whatever as possible in a given time period. Likewise, to study communication components described as "*foreigner talk*" we could tape teachers in beginner classes or set up dyads where one person has information, for instance, how items arranged in a doll house or how geometric shapes are arranged in a grid, etc, which must be logically conveyed to another person who cannot see the arrangement (Hatch and Lazaraton, 1991).

Furthermore, to investigate the reading or the composing process, we may ask subjects to "*think aloud*" as they work. In the case of checking comprehensibility of input, for instance, we may ask subjects to listen to one of their taped instructions and tell the class as accurately as they can just what was happening. This strategy theoretically is called a retrospection method. In the mean time, to study speech events, we may want to set up role – play situations where subjects return defective items to a store (a complain situation), issue

invitations to parties which can be in the forms of inviting and accepting/rejecting invitations, give or accept advice, offer or receive compliments, etc.

Thus, the range of possibilities is, in fact, never – ending. The most important thing is nonetheless that the procedures work for us and give us data that can be used to answer our research question. Apparently, previous research that relates to our research questions will, ultimately, give us the best ideas as to the most appropriate methods to use to gather data of the study. That is to say, once we have completed the literature review for the study, we should be well versed in the variety of techniques previously employed, and also be able to select from among those applicable strategies or be ready to offer even better alternative.

THEORETICAL DEVELOPMENT

In general, most researchers think that it is desirable for research to contribute to theoretical development. Therefore, studies should further our systematic understanding of phenomena under investigation. In the search for relationships, one of the goals is to construct sound theories to explain whatever is being studied. In teaching English as a foreign language, for instance, assume we were about to design materials to teach relative clauses and we wanted to know whether the *noun accessibility hierarchy* is correct. Actually, we do not care about the more esoteric types shown in the hierarchy but only relative clauses that follow (1) subjects, e.g., The team *that wins the series* will advance to the finals, (2) objects, e.g., I always like the team in *that the game*, or (3) the object of a preposition, e.g., The series tickets are in the envelope *that is on the table*) since these are the three types that must be sequenced for teaching purposes. Thus, to find the relative clauses in the sentences, we need to use relative pronouns comprising *that, who, which*, etc as prompts. We sort through the example that, in fact, the computer lists to get rid of example where the prompt word is not a relative pronoun, for example where *who* is a question word rather than a relative pronoun. Theoretically, then, we categorize the relative clauses by position (Hatch and Farhady, 1982; Underhill, 1987).

Theories are actually sets of interrelated propositions since propositions are statements about the nature of the relationship between variables. In this vein, a review of previous research can be used as the attempt to identify theoretical trends which can be enhanced by the study in question. It is, therefore, desirable for research to contribute to theoretical development. In addition to these general goals, previous research often provides the foundation or starting point for particular studies. In other words, a review of previous studies can lead us to form the basis for new research because it may leave a question about whether a particular hypothesis is suggested or it refines understanding that a new hypothesis is brought forward more logically (Walizer et al, 1987).

DEFINITION

The review of related literature involves the systematic identification, location, and analysis of documents containing information related to the research problem, such as, periodicals, abstracts, reviews, books, and other research reports. The major purpose of reviewing literature is to determine what has already been done that relates to our problem. This knowledge not only avoids unintentional duplication, but it also provides the understandings and insights necessary for the development of a logical framework into which our problem fits. In other words, the review tells the researcher what has been done and what needs to be done. Logically, studies that have been done will provide the rationale for our research hypothesis, indications of what needs to be done will form the basis for the justification for our study and being familiar with previous research also facilitates interpretation of the result of our study. The results can be discussed in terms of whether they agree with, and support previous findings or not; if the results contradict previous findings, differences between our study and the others can be described, providing a rationale for the discrepancy. That is, if our results are consistent with other findings, our research should include suggestions for the 'next step'; if they are not consistent, our report should include suggestions for studies that will resolve the conflict (Gay, 1987).

Most importantly, previous research is often used as a source of conceptual definitions. Consistency in the definition of variables leads to findings that are more easily compared and findings that can be combined directly to arrive at a coherent conclusion. Consequently, without consistency in definition the search for relationships becomes problematic. Apparently, by relying on previous definitions, consistency in conceptualization can be maintained (Walizer et al, 1983).

SPECIFIC FINDINGS

Research findings are often compared to the conclusions of previous study. If current findings are similar to past findings, then there can be increased confidence in research results. If, on the other hand, current findings are different from previous ones, then new questions can be raised about either the methodologies employed or the theories being tested. Advances in scientific understanding are often the consequence of differences in research findings. In other words, if current results are not compared to specific previous research results, this progress may be impeded. In addition, present findings can be integrated with previous results to obtain a more complete picture of the phenomena under study. Research results that stand in isolation from other scientific research outcomes, in point of fact, have less utility than those presented in the context of previous science (Underhill, 1987).

PARAPHRASES

When preparing written reports of research, it may be helpful to refer to entire sections of some previous scientific writing since a previous author was particularly creative in constructing theory, or was innovative in constructing operational definitions, or in some other way, wrote something of particular note.

Thus, it might be useful to paraphrase a particular section from a previous research report. It can be inferred that a paraphrase is a statement that attempts to capture the essence of a section authored by another person. In this perspective, paraphrases serve to emphasize, highlight, give credibility to, or to integrate present study with previous research efforts (Walizer et al, 1983).

QUOTATIONS

Broadly, some researchers are well known in a particular field that quoting them may lend more credibility to research. In either case, the writing of research results may be enhanced by furnishing quotes from previous research. If quotations would enhance a research report in terms of style, or give credibility to research or integrate findings and results, it is perfectly appropriate to seek such quotations from previous study findings. If, for any reason, previous research is directly utilized to write a research report, appropriate credit must given to the author whose work is used (Oller, J et al, 1980; Hatch and Farhady, 1982).

COMPONENTS OF RESEARCH

Gay (1987) asserts that although they may go by other names, research plans typically include an introduction, a method section, a description of proposed data analyses, and a time schedule. Each component will be discussed in detail, but basically the format for a typical research plan consisting of: (1) Introduction comprises: (a) *statement of the problem*. Since the problem sets the stage for the rest of the plan, it should be stated as early as possible and accompanied by a description of the background of the problem and a rationale for its significance, (b) *review of related literature*. The review of related literature should present the least related references first and the most related ones last, just prior to the statement of the hypothesis. The literature review should lead logically to (i) a tentative and testable conclusion, (ii) our hypothesis. The review should conclude with a brief summary of the literature and its implication. (c) *statement of the hypothesis*. Each hypothesis should represent a reasonable explanation for some behavior, phenomenon, or event. It should clearly and concisely state the expected relationship or difference the variables in our study and should define those variables in operational, measurable terms. Finally, each hypothesis should be clearly testable within some reasonable period of time. Above all, be certain that all terms in the introduction are either common-usage terms or are operationally defined. Usually the person reading our plan may not be

as familiar with our terminology as we are (Hatch and Lazaraton, 1991; Gay, 1987).

Statement of the Hypothesis

Each hypothesis should clearly and concisely state the expected relationship or difference between the variables in our study, and should define those variables in operational, measurable terms. Also, each hypothesis should be clearly testable within some reasonable period of time. Above all, be certain that all terms in the introduction are either common-usage terms or are operationally defined. Usually the person reading our plan may not be as familiar with our terminology as we are (Hatch and Farhady, 1982; Gay, 1987).

Method

The specific method of research of our study will surely affect the format and content of our method section. The method section for an experimental study, for example, typically includes a description of the experimental design, whereas a descriptive study may combine the design and procedure into one. In general, however, the method section includes: (1) *a description of the subject* which should clearly define the population from which the sample will be selected. This should indicate the size and major characteristics of population, e.g., where are the subjects going to come from? What are they like? How many do we have to choose from? The technique for selecting the samples may be described in the procedure section of the plan, (2) *measuring instruments*, which in education, is primarily indirect because the measuring instrument we select or develop really represents an operational definition of whatever construct we are trying to measure, e.g., *intelligence may be defined to be scores on the Wechsler Intelligence Scale for Children*. Validity and reliability data should also be presented; the degree, to which the instrument for collecting data is invalid, is directly related to the degree to which the study is invalid. If we are going to develop our own instrument, we should describe how the instrument will be developed, what it will measure, and how we plan to evaluate its validity and reliability before its utilization in the actual study. For example, a description might include the following; *The Stanford Achievement Test: Arithmetic Test (level 7.0 – 9.9) will be utilized as the data-gathering instrument. Split-half reliability coefficient are reported to range from 86 to 93 and reviewers are in agreement concerning its high content validity*, (3) *design* which its design indicates the basic structure of the study. The nature of hypothesis, the variables involved, and the constrain of the *real world* – all contribute to the design to be used, e.g., a design involves two groups. The *real world* might determine whether those groups could be randomly formed or whether existing groups would have to be used; these two alternatives dictate distinctly different designs. The nature of variables also may affect the design. That is, if the dependent variable involves

measurement of attitudes, then, use of a design involving a pretest may be precluded.

Administration of a pretest of attitudes may alert students to what is coming, to what the study is all about. Subjects then may react differently to a treatment intended to change attitudes. Thus, the design typically indicates the number of groups to be included in the study, whether the groups will be randomly formed or whether there will be a pretest conducted, and (4) *procedure section* which describes all steps that will be followed in conducting the study, from beginning to end, in order in which they will occur, in other words, how the design selected for testing will be operationalized. The procedure section typically begins with a description of the technique to be used in selecting the samples for the study, e.g., *In this 2nd semester of 2012, prior to the assignment of students to classes, a list of all students scheduled to take English. Using the list, 60 students will be randomly selected to participate in the study. These students will then be randomly assigned to one of two general English classes, one class to receive programmed instruction and one class to receive lecture – discussion class.* Occasionally, an entire population is used and simply randomly assigned to two or more groups. Hence, this situation might be described as: *The entire eight – grade population (approximately 200 students will participate in the study. All students will be randomly assigned to one of six classes, three of those classes will randomly be designated as experimental classes, and three as control classes.* From this point on, the procedure section will describe exactly what is going to occur in the study. In an experimental study, this will basically involve a description of how the group will be the same and how they will be different. How they will be different should be a function of the independent variable only, i.e., major differences between groups should be intentional treatment differences.

While how they will be the same, then, will be a function of control procedures. Commonly, variables that typically need to be controlled include: *teacher skill and experience, materials, time on task, instructional environment, and testing condition.* The procedure section should also include any identified assumptions and limitations. Such assumptions are actually probabilistic in nature; the reader can determine whether he is willing to “buy” this assumption. Whereas a limitation is some aspect of the study that the researcher knows may negatively affect generalizability of the results but over which he probably cannot do anything about it. Unavoidably, this section should be constructed as detailed as possible, and any new terms introduced need to also clearly be defined. The key to writing this section is *replicability*. That is to say, it should be precise to the point where someone else could read our plan and execute our study exactly as we intended it to be conducted (Blalock, 1972; Gay, 1987; Oller J, et al, 1987; Walizer, et al, 1978).

Data Analysis

Walizer, et al, further states that the research plan must include a description of the statistical technique that will be used to analyze study data. Actually, the hypothesis of the study determines the design, which in turn, determines the statistical analysis. Which available analysis technique that should be selected depends on a number of factors, such as, how the groups will be formed, how many different treatment the groups will be involved, how many independent variables will be involved, and the kind of data to be collected, e.g., interval data will require different techniques than ordinal data.

Time Schedule

A realistic time schedule, as observed by Gay, is equally important for researcher working on a script, a thesis, or dissertation and even for experienced researchers working under the deadlines of a research grant or contract. Basically, a time schedule includes a listing of major activities or phases of the proposed study and a corresponding expected completion time for each activity. Thus, such a schedule in a research plan enables the researcher to assess the feasibility of conducting a study within existing time limitations. Our schedule will not necessarily be a series of sequential steps, i.e., while the study is being conducted, we may also be working on the first part of research report. Comparatively, a very useful approach for constructing a time schedule is to use what is called the *Gantt chart method*. Needless to say, such a chart permits the researcher to easily see the *big picture* and to identify concurrent activities.

CONCLUSION

A research plan is naturally a detailed description of a proposed study designed to investigate a given problem. It includes justification of the hypothesis to be tested, a detailed presentation of the research steps that will be followed in collecting and analyzing required data, and a projected time schedule for each major step. After we have completed the review of related literature and formulated our hypothesis, we are ready to develop the rest of the plan. Since our study will be designed to test hypothesis, it must be developed first. This stands to reason for the nature of our hypothesis will determine to a high degree the sample group, measuring instruments, design, procedures, and statistical techniques used in our study. Basically, a research plan serves several important purposes. First, it makes us think; it forces us to think through every aspect of the study. The very process of getting it down on paper usually makes us think of something we might otherwise have overlooked. A second purpose of a research plan is that it facilitates evaluation of the proposed study by us and by others because certain problems may become apparent or some aspect of the study may be seen to be infeasible. A third major purposes of a research plan is that it provides a guide for conducting the study. Detailed procedures need only be thought through once and then followed, not remembered. Also, if something unexpected occurs that alters

some phase of study, the overall impact on the rest of the study can accordingly be assessed.

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