

Chapter 4: The Research Problem

Published Examples of Research Concepts

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The Research Hypothesis

Cheating

As a final illustration of important issues surrounding the research hypothesis, consider a study investigating the relationship of self-esteem, need for approval, and cheating among 10- to 12-year-old students in Israel (Lobel & Levanon, 1988). In this study, cheating was measured in three different situations: (1) promising a tangible prize to the highest achieving students, (2) telling students their performance would be made public, and (3) telling students their performance would be known only to the researchers (a control group). The researchers tested several hypotheses and predicted that cheating would be lowest in the control condition and among children with both high self-esteem and low need for approval. They stated very clearly their prediction, or what most would call their research hypothesis. Research hypotheses in the form of a prediction (“Therefore, we predicted that . . .”) are very common in the published literature. Good hypotheses, or predictions, are not vague or without direction. There should be no doubt, given the outcome, whether or not the hypothesis was supported.

Many research studies, if not most, test more than one research hypothesis. The first research hypothesis tested by Lobel and Levanon was derived from past research and appears to be a type of replication. We have seen that researchable ideas are not born in a

vacuum, nor do they arise from dreamlike states (usually). They typically follow a replication and extension model and are closely tied to the research literature and personal observation or are derived logically from theoretical underpinnings. Prior research has shown that cheating is affected by situational variables, hence these researchers substantiated this claim by measuring cheating under three different situations (conditions). Sometimes researchers include a hypothesis that is far stronger than a “hunch”; indeed, it would be surprising to find that cheating was *not* affected by these situational variables. This hypothesis functions more like a “double check” (or “manipulation check”), a way of assuring that their procedures and instrumentation are functioning as they should be. If cheating was not found to be greater in the public performance condition, as the literature suggests it should be, then the results of the more interesting hypotheses related to self-esteem and need for approval would probably be put in doubt. By contrast, if the hypothesis relating to situational factors was supported as expected, then the test of the second hypothesis would be more believable. In this sense, the situational hypothesis (three conditions) is a type of “circuit test” to make sure all is functioning properly before modifications are made or extensions are added.

The more interesting portion of this study, and a common reason for conducting research in the first place, centers on the seemingly ever-present inconsistencies in the literature. In this case, these researchers believe that the constructs of self-esteem and need for approval might be related to cheating in a complex way. This idea was developed by personality theories as well as prior research in this area. It appears that this idea was the primary reason for conducting the research, and the support for such a relationship would be the unique contribution of this study.

Research hypotheses, of course, must be researchable. This means that it must be possible to collect data that will answer the question. Self-esteem and need for approval, then, must be measurable in order for researchers to collect data on them. Collecting measurable data is possible after operationally defining the constructs. Doing so with the use of questionnaires that can be objectively scored enabled these researchers to collect the data directly relevant to their second hypothesis related to self-esteem and need for approval. You will see in Chapter 7 that these operational definitions may not necessarily be reliable and valid measures of the underlying construct; if they are not, then a serious problem with the study becomes obvious.

Proposed research must conform to standard legal, ethical, and moral guidelines. Approving boards (committees, panels, etc.) have been set up for this purpose, and they guard against unethical practices such as coercion and harm. They are usually centralized and local; therefore, permission must often be obtained at several levels, as was the case in this study. Many studies in education warrant an “expedited” review, a speedy one where the procedure leaves no doubt that ethical guidelines are in place. Studies which use tests that are, for example, a regular part of the classroom routine (especially when students’ identity cannot be revealed to the researcher) are usually sped through the review process.

Nevertheless, many studies in education raise interesting ethical dilemmas. The practice of deception is one such dilemma. The research procedure in the Lobel and Levanon study indeed “tricked” the research participants to some extent. Details aside, they were led to believe that they could copy five forms when in fact they could only copy two. Any score reported by the students that was greater than two was clear

evidence of cheating. One could argue that these children were deliberately encouraged to cheat, hardly compatible with goals of character education. Most reasonable people would see no harm resulting from this experimental setup and would grant approval to study cheating in this benign and inoffensive manner. By contrast, leading subjects to believe they have failed a high-stakes test or lost a loved one in order to study their reactions would clearly be ethically controversial. It is this outrageous type of harmful deception that must be avoided.

Students in the Lobel and Levanon were *debriefed*, as they should have been according to ethical guidelines, so that they could learn about the study after its conclusion. Debriefing usually involves explaining the entire study to subjects for their benefit. This debriefing process could not have been too pleasant for many students in the Lobel and Levanon study; some had clearly been caught cheating. This might arouse fear of reproach; some may worry this will become part of their record, despite what the researchers may have told them, or that their parents might scold them. Measuring high on a cheating task may be embarrassing for some and clearly is not compatible with feelings of self-respect. Others, most likely, may not care and be totally unaffected.

What makes the study of ethics so interesting is the complex weighing of pros and cons. Deception and its potential to harm as practiced by researchers should always be weighed against the potential benefits accrued by the research. Will our understanding of this problem be sufficiently advanced so as to offset any embarrassment or harm experienced by subjects? Could the very act of debriefing, an important ethical guideline, *itself* be responsible for negative reactions among students? Might it be more ethical *not* to debrief students in some situations? These are not easy questions to answer. (It is

unclear in the Lobel and Levanon report whether subjects were *fully* debriefed. I suspect that they were told about the cheating task but were debriefed in a sensitive manner, and hence not negatively affected.)

Deception in research should never be practiced without thoughtful discussion of ethical issues; deception that results in harm should be avoided. Recall from an earlier discussion that premiere, highly reputable journals such as the *Journal of Educational Psychology*, in which the Lobel and Levanon study appeared, do not publish studies unless the editors believe that the researchers adhere to the highest ethical as well as methodological standards. (The Lobel and Levanon study of cheating was cited here not because of its ethical dilemma but to illustrate other important facets of the research hypothesis. It does, however, provide a context for discussing the importance of ethics.)

Reading Disability

Leach, Scarborough, and Rescorla (2003) observed that much knowledge and understanding has surfaced from research on early reading disability, the type that is usually apparent by the first or second grade. But what about the “second wave” of students, those who experience a “fourth grade slump”? What do we know about them? Very little, according to Leach and colleagues, despite the fact that students with late-emerging reading difficulties probably represent a significant proportion of all students. A problem exists because little is known about the cognitive and achievement profiles of these understudied students. Without an understanding of these disabilities, the design of instructional materials and specialized instructional strategies for these students is likely to be hit-and-miss.

To help overcome this problem, Leach and colleagues asked three research questions: (1) How different are students with late-emerging reading disabilities with regard to strengths and weaknesses in their reading skills? (2) Compared to early-emerging cases, do late-emerging students with reading disabilities have less severe or less broad profiles of abilities?, and (3) Is late-emerging reading disability a function of overlooking early weakness, or does the disability truly emerge later? To answer these research questions, Leach and colleagues sought permission and information from the parents of 2,300 fourth- and fifth- grade students from 12 schools. The permissions process was a requirement for assuring the ethical conduct of the researchers. If a signed consent form (with an explanation of the purpose of the study) was not returned from a parent, then the student would not be eligible to participate. The researchers used a questionnaire completed by the parent and school records to classify students into one of several groups for comparison purposes (the early- versus late-emerging classification was one attribute variables with two “conditions”). Students were also administered an extensive battery of standardized and researcher-developed tests of reading skills and cognitive abilities. Four group comparisons (a second attribute variable with four “conditions”) enabled the researchers to answer their research questions. These groupings were: (1) No Reading Difficulties, (2) Disability in Comprehension, (3) Disability in Word-Level Processing, and (4) Disabilities in both. Leach and colleagues were also able to use records of reading tests from earlier grades (a criterion for being in the study included enrollment within the district during the early grades).

Comprehensive analysis with a wealth of measures (questionnaires; standardized diagnostic, achievement, intelligence, and aptitude tests; and researcher-made tests)

enabled these researchers to answer each question, and the answer to each carried clear implications for practice. Overall, they found that students with late-emerging reading problems are “heterogeneous with regard to their skill deficits,” suggesting that intervention programs should be targeted toward specific deficit types (rather than overall grade level in reading). With regard to the second research questions, they found, generally, that “the two groups differing in time identification [early versus late] were quite similar in their profiles, providing only limited support for the severity hypothesis” (p. 221). Leach and colleagues’ third research question was answered more definitely: “The available data are thus not consistent with the notion that the schools had overlooked or disregarded earlier signs of reading difficulty in late-identified cases. In short, these children’s reading disabilities appear not just to be late identified but actually late emerging” (p. 221).

In short, the Leach and colleagues study posed questions that were clearly researchable since data (representing a large variety of measuring devices, hence types of data) were collected that, once analyzed, yielded findings that provided answers. Yet, like all high-quality research reports, Leach reminded readers that the conclusions “cannot be considered definitive in view of the many limitations” (p. 222). The limitations were related to the sample size and possible bias due to the research participants being volunteers. A representative sample of students drawn randomly from a much larger pool, of course, would be desirable as far as generalization is concerned. But ethics in research prohibits the use of coercion of any type in sample selection. Consequently, the use of volunteers in educational research is nearly always a limitation that introduces possible bias. You can assume that all other facets of this study were conducted in strict adherence

of ethical guidelines. This assumption is safe since it was published in a premiere journal, the *Journal of Educational Psychology*, a flagship publication of the American Psychological Association. No reputable journal will publish a research report without solid evidence of conformity to all ethical and legal guidelines.

Whether or not you consider the Leach and colleagues study meaningful is a personal judgment. Most researchers would undoubtedly believe this was indeed a meaningful study using the criterion of potential impact. Presently, there is great emphasis on very early identification and prevention of reading problems (as early as pre-kindergarten), yet the Leach and colleagues study suggests that these prevention efforts will probably not “inoculate” students against late-emerging reading problems. This, in turn, suggests that students would benefit from screening procedures during the later years in elementary school. The Leach and colleagues study may well be the impetus to reexamine reading skills in the population of fifth graders with a new light. If so, the impact of this study would be great.

References

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