Reseach, as a form of scholarship and creative work, is at the core of the academic enterprise. It is through research that universities contribute knowledge to society. Research provides the basis for what is taught in the disciplines and how members of a discipline understand their professional work. The design of research has a direct effect on what is discovered, the ideas that are created, and what forms of research contain legitimate professional information that is then passed on to the next generation of scholars in a field. The promise of research is that it will give us, as a society, what we need to know to improve our lives.

An axiological question arises for those planning to do research: Is research of value because it is true or because it is useful? Truth, the meaning of which is contested by philosophers, the existence of which is contested by postmodernists, and the use of which is contested by critical theorists, might be unattainable. I use the term “truth” as a shorthand to mean that which is consistent with observation—if observations can be made—and is identified through procedures accepted in the discipline.

The Bright Promise of Knowledge

Basic research emphasizes the search for disciplinary truth, whereas applied research emphasizes finding out something useful. Both goals are attractive, and one does not preclude the other. Conjoined with the axiological question is a metaphysical one: Is there an objective reality out there that we can discover, or is the world a product of the imagination, constructed in the minds of individuals and groups? Researchers design studies based on what they believe knowledge to be. The search for objective truth involves a different path from the one used in the search for individual meaning or a consensus about intersubjective meaning.

In the professions, as opposed to the basic disciplines, utility is necessary. Professionals provide service to a client based on superior knowledge developed from long study of the disciplinary research. According to Shils (1984), what separates academic knowledge from common knowledge is that academic knowledge is developed by a rigorous methodology. Researchers in a pure discipline (Biglan, 1973) attempt to establish truth in that discipline. Researchers in a profession have as their
purpose not to attain pure knowledge but rather praxis, that is to attain the best knowledge that can be applied in service of their clients’ needs. To offer education as a societal good, money is spent, programs are funded, and teachers are trained and hired. If research is to inform these processes, then it is difficult to escape from pragmatism and positivism.

Research that advances methodology is of value to a field by developing better researchers, but such research is not always of direct use to their researchers’ clientele. A field that emphasizes internal debates about philosophy, methodology, and/or definitions can be very lively but is in danger of becoming irrelevant. Well-designed research should deliver new understandings and new theories. The ultimate test of its value to the public will not rest with internal elaboration or with faculty members charming other faculty members; rather, it will be seen with improving understanding, teaching, learning, and organizing in a heterogeneous society. In what follows, I discuss some of the primary considerations that should inform research designs.

Theories

Educational researchers are interested in finding out how one thing is related to another, describing a set of phenomena, and establishing a basis on which to make claims, predictions, and explanations. Braithwaite (1955) writes that the purpose of science is theory and that, by extension, the purpose of research is to contribute theories or refinements of existing theories to science. Theory is a kind of abstraction, a simplification of reality that applies in similar circumstances and not just to the specific case at hand. For researchers, theories focus attention, limit choices, and provide explanations—characteristics that give good theories a central role in research design. For actors in the educational environment, they are practical for the same reasons.

Theories about the social behavior have inherent limits. These are identified by Thorngate (1976) and elaborated on by Weick (1979). Thorngate (1976) developed a postulate of commensurate complexity in which there are trade-offs among a theory being general, a theory being accurate, and a theory being simple. A theory cannot be all three simultaneously; general accurate theories are not simple, accurate simple theories are not general, and simple general theories are not accurate. Weick (1979) provides examples of each. In developing a research design, the theory used, or the one the researcher is trying to develop, has more important effects on research design than does anything except the topic chosen for the research. Theory drives hypotheses. The choice of a theory to use or develop reflects the researcher’s interest in being general, simple, or accurate and shapes the study accordingly.

Theory is emphasized in research because it provides explanation. Without meaningful descriptions of the situation—that is, without identifying new things to be understood and related to each other by theories—research would not move forward. Designing research that identifies the ways in which people in a given situation view their worlds is a sensible starting place for meaningful research. Without important things to be studied, no theories would need to be developed and a rigorous methodology to estimate relationships based on theory would not be necessary.

Topics

How does one go about selecting substantive issues connected by a theory? Texts covering research in education or the behavioral sciences tend to either be mute on the question or provide only minimal advice (Creswell, 2002; Gall, Borg, & Gall, 2002; Kerlinger, 1973; Krathwohl, 1988). The selection of topics for study is neither innocent nor rational. It is not innocent because being selected gives a topic legitimacy, creates the power of knowledge for those affected by the topic, and creates invisibility for those excluded. It is not rational because researchers choose topics to study based on professional interests, not professional mandates, and on self-interest based on what researchers value, are curious about, or perceive they will profit from. What is studied in a discipline becomes what is taught in the discipline. Just like what is included in the curriculum is a political decision as well as an educational decision, what is studied is not neutral; it implies that what is studied is valuable.
It is axiomatic that the most important part of any study is the choice of a topic; that is, research findings depend on what is being researched. A good topic, when well studied, improves descriptions in a field, better explains how theories operate in the discipline, and shows how this knowledge can be applied to benefit clients and society as a whole. The research problem to be addressed and the statement of the purpose of the study focus research activities and limit the scope of the study. If the purpose is too broad, then the research cannot be accomplished with reasonable effort. If the purpose is too narrow, then the study is trivial. The statement of purpose is the most important sentence in a research proposal. Researchers need to avoid making Type III errors—asking the wrong question or not asking the right question—or what I consider to be Type IV errors, that is, studying the wrong thing.

Identifying something as a practical problem usually means that the researcher has found a reason why the topic should be studied. A research problem is the starting place for research. Research problems involve identifying unresolved conditions or situations, and it is the research problem that is nested between the topic and the purpose. Theoretical research problems deal with “we don’t know why,” descriptive research problems deal “we don’t know what,” and practical research problems deal with “we don’t know how.” Researchers are attracted to uncertainty, paradoxes, anomalies, contradictions, and ambiguities in the field. The significance of a problem is often based on the way in which it intersects with theoretical uncertainty and practical importance.

Probably the best way of finding a problem to study is to do extensive reading in an important topical area and find out what is poorly understood. Many articles contain sections that give suggestions for future research, and many articles have glaring shortcomings that suggest a problem should be reexamined from a different perspective. Some researchers choose a methodology and then try to find a problem to match it. This approach creates an unnecessary constraint on what is to be studied, and the foolishness of this sequence cannot be emphasized enough. The cart does not pull the horse.

Some researchers are told what to study by a superior such as an adviser, a provider of resources, an admired scholar in the field, or a co-investigator. So long as the relationship is not exploitative, joining an ongoing research agenda has the clear advantage of closure; the person knows what he or she will study. It has the disadvantage of not learning how to define one’s own research problem. Typically, a study involves the following iterative process: Approach a topic of interest, read in the area, write a brief statement of purpose, discuss this statement with others, reflect, read, write, talk, and so on until closure on a compelling problem with a realistic scope is reached.

A hot topic is one where there is a lot of interest and a great likelihood of getting a project funded, finding others to participate in the study, and publishing the results. Good topics allow young scholars to demonstrate their research skills and increase the likelihood of getting further support for their research and publications in their fields. For better or worse, it usually means becoming more specialized. With luck, a good topic is one the researcher loves. Here, love is a passionate attachment to the research and an enjoyment of the research process. This attachment should not be confused with a lack of objectivity, but it involves caring for an increased understanding of a topic and a willingness to put forward the effort that results in influential research.

After deciding what to study and why such a study is worthwhile, the final part of designing research is to decide on the processes by which the research is to be accomplished. Many people, in thinking about research design, think that they need only be concerned with research methodology (Kerlinger, 1973, cited in Daniel, 1996). The following three questions always affect research design. What will the researcher study? Why is the research important? How will the researcher carry out the research? Only the third question is related to methodology.

Different Approaches to Research

There are many ways in which to study the same topic, and these produce different results. Mitroff and Kilmann (1978) describe four approaches to research based on a Jungian
analysis of our predispositions to approach decision making and obtain information, similar to the Myers-Briggs Type Indicator tests (Myers-Briggs, 1962). They identify four approaches to research: the scientist, the conceptual theorist, the conceptual humanist, and the individual humanist. Given the topic college student retention, consider the way in which each methodology is chosen based on the researcher’s interests, is different from the other methods, and produces different results. Descriptive phrases are taken from tables in Mitroff and Kilmann (1978) on the pages indicated.

For the scientist, the approach should be objective, causal, cumulative, and progressive, emphasizing reliability and external validity and separating the scientist from the observed. It aims at precise, unambiguous empirical knowledge using strict logic (Mitroff & Kilmann, 1978, p. 34). The norms of this approach are known as the CUDOS:

Communism, indicating that scientific knowledge is common property;

Universalism, indicating that scientific knowledge should be independent of the personality of the individual scientist;

Disinterestedness, such that the scientist should observe what happens and not advocate a theory or experimental outcome; and

Organized

Skepticism, where scientists should be critical of their own and others’ ideas. (Merton, 1942/1973, p. 269)

An example of the scientific study of retention would be an organizational experiment based on the hypothesis that higher achieving students are more likely to remain enrolled. Students would be randomly assigned to a treatment group or a control group. In the treatment group, students would participate in a retention program, such as developing study skills, but otherwise would have experiences no different from those of the control group. After a given time period, the researcher would find out whether the retention rate for students who participated in the retention program was significantly different from that for students who did not. This information would be used to support or negate the hypothesis.

The conceptual theorist is involved with research that is impersonal, value free, disinterested, imaginative, and problematic, involving multiple causation, purposeful ambiguity, and uncertainty. The theorist is interested in the conflict between antithetical imaginative theories, comprehensive holistic theories, and ever expanding research programs to produce conflicting schemas using dialectical and indeterminate logics (Mitroff & Kilmann, 1978, p. 56). A theorist conducting retention research would provide at least two theoretical explanations of retention behavior, use survey methods to gather information, analyze the data using statistics, find out whether the data supported one theory more than the other, and use that information to make more theories. Much of the empirical research reported in educational journals is a combination of the scientist and theorist—theory guiding social science inquiry into educational structures and processes.

The conceptual humanist (although I find social humanist to be a more accurate description) approaches research as a value-constituted interested activity, holistic, political, and imaginative, where multiple causation is present in an uncertain and problematic social environment, and with a deep concern for humanity. This approach recognizes the importance of the relationship between the inquirer and the subject and has the aim of promoting human development on the widest possible scale. The normative outcomes of such research would be economic plenty, aesthetic beauty, and human welfare. Similar to action research, the social humanist prefers small group dynamics where both the inquirer and the participants learn to know themselves better and work together to improve the situation (Mitroff & Kilmann, 1978, p. 76). A retention researcher using this approach could develop an ongoing program of action-oriented ethnographic research studies where the researcher better understands how the issues facing students contribute to their leaving, and tries to alleviate those conditions. The purpose is to increase the overall retention rate with the belief that students who complete college lead richer lives.
An individual humanist addresses inquiry as a personal, value-constituted, interested, and partisan activity, engaging in poetic, political, acausal, and nonrational discourse in pursuit of knowledge. Intense personal knowledge and experience are highly valued, aiming to help this person to know himself or herself uniquely and to achieve his or her own self-determination. The logic of the unique and singular has mythical, mystical, and transcendental overtones that operate as counternorms to the CUDOS (Mitroff & Kilmann, 1978, p. 95). A retention study from this perspective would try to develop a detailed understanding of a single student in the full context of his or her life. It could take the form of an “N of 1” case study, a phenomenological inquiry into who the student is, what the student finds at school, and how staying or leaving school would be better for this particular individual.

The purpose of presenting these four perspectives—and many more can be imagined—is that there is no best way in which to study a topic. For different kinds of studies make different kinds of assumptions about what is important to know, serve different needs for different people involved in the studies, and produce different kinds of outcomes. The four perspectives were presented in what was once considered the normative order of acceptability: science-based positivistic research, theory development, action research, and phenomenology. One may be no more correct than the others. Some are more acceptable to certain audiences than to others, and each produces a particular outcome that favors some stakeholders more than it does others.

**Methodology and the Scientific Approach**

Methodology is often considered the core of research design. Kerlinger (1973, cited in Daniel, 1996) described as one of the research myths that research design and research methods were synonymous, even though many researchers held this view. Methodology is the tool used to accomplish part of the study, specifically, how to obtain and analyze data. It is subservient to choosing an important topic to study, matching the research problem and the methodology, and knowing what the results mean and how they can be applied. To do good research, the methodology used should be appropriate for the problem addressed. This is a necessary condition but not a sufficient one. An elegantly analyzed data set that was composed of ambiguously measured data that addressed a question of trivial importance is not likely to enter the annals of great research.

Educational research is part of social science research tradition, a tradition that was influenced by research in the natural sciences. The natural sciences use the scientific method to solve research problems or support a perspective. The method contains a series of sequential steps similar to the following: Identify a problem, gather information from the literature about this question, develop a hypothesis in the context of a theory, collect data related to the hypothesis, analyze the data, and draw a conclusion related to the truthfulness of the hypothesis and correctness of the theory.

Scientists, as logical purists, build arguments on falsifiability and the law of the excluded middle. This law states that $A$ and $\neg A$ cannot exist simultaneously. But if $A$ stands for “this program helps students to learn” and $\neg A$ stand for “this program does not help students to learn,” then both can be true, as in the case of aptitude–treatment interactions; that is, a treatment could be effective for a high-aptitude student but not effective for a low-aptitude student. If both are true, then the law of the excluded middle is violated and falsifiability cannot be demonstrated. This situation is problematic for scientific research in education.

Education is not a scientifically based process, partly because the term “education” is ideological and idiosyncratic, much different from the term “temperature.” At best, scientific research can shed light on narrowly defined educational behaviors, and researchers can hope for—but cannot guarantee—cumulative effect. When a government policy assumes that education is equivalent to improving the score on a test, the society will not have a moral compass and will not be educated. Feyerabend (1993) holds the view that if we do not separate scientific research and the state, as we have separated the church and the state, irreparable harm will be done.
In the same way as social science research has imitated the natural sciences, educational research has imitated social science research. Research in these areas may be separated more by the topic studied than by the rigor of the methodology. As with social science research in general, educational research might pretend a level of control so as to carry out an experiment. Researchers give themselves solace that “other things are equal,” or “other effects are random,” or “spuriousness is not a problem” and proceed as if the social world were simple and understandable in the same way as the traditional world of the pure sciences can be.

A Traditional Approach to Designing Educational Research

Most graduate programs in academic sub-specialties (e.g., history of education, sociology of education, anthropology of education, counseling psychology, experimental psychology, higher education, school administration, curriculum and instruction) spend at least a semester teaching research design appropriate for their field. Postmodern and critical approaches to research continue to challenge the status quo in research methods. These areas are not explored in detail here due to space limitations. My discussion revolves around quantitative and qualitative approaches to research, terms that reify categories that are themselves overlapping and arbitrary.

A simple way of looking at a proposal is to see how it answers the three questions posed earlier. What is this study about? Why is the study important? How will the researcher conduct the study? The study itself covers these three topics and answers two additional questions. What did the researcher find? What do the findings mean? Research designs revolve around a limited number of elements. Their exact use and exposition varies depending on the particular approach taken. The purpose and promise of these elements have been identified and discussed by a number of textbooks such as those of Gall and colleagues (2002) and Creswell (2002). These texts identify many of the issues facing researchers, especially those new to the process.

Although not suitable for all studies, well-designed quantitative research usually addresses the following areas: the introduction to the topic of the research, the background and context in which that topic has been studied, the importance of studying the topic (including the practical value of the study), the research problem to be addressed, the purpose of the study, the objectives or questions to be addressed, definitions and related constructs, assumptions used in the study, limitations of the study, the scope of the study, relevant theories to guide the study or how theories might be discovered, the findings of other researchers, the methodology to be used in the study (including the site, sample, or selection procedure for respondents), how the data will be gathered, how the data will be measured, how the data will be analyzed, and why these methods are appropriate. This information usually completes the design of a research proposal and appears as the first part of a finished study. Finished studies also include a description of the sample actually analyzed in the study, a description of the data (including the treatment of missing cases and possible biases), how the researcher met the assumptions required to use the statistics, presentation of the data, support or lack of support for the hypotheses or theories used, discussion of the findings, and conclusions. The final chapter typically summarizes the study, identifies the practical implications of the study, and identifies areas for future research.

Qualitative research can involve using the five research traditions identified by Creswell (1998)—biography, ethnography, grounded theory, case study, and phenomenology—which can be used singly or in combination. General headings appropriate for qualitative studies include the topic, the focus and purpose, the significance, related literature, the methodology, presentation of the data, interpretation of the data, and conclusions. Detailed headings in the introduction indicate the topic to be studied, the overall interest focusing on what will be explained or described, an organizing metaphor, the mystery and the detective, Hermeneutic elements, the significance of the study, and why the reader should be interested. Next, the author describes getting information away from the source using relevant literature. The author then describes the selected qualitative method (how information is obtained and how sense is made.
from it) and methodological details about site selection, informant selection, data collection, data analysis, and data evaluation, all of which can be in a separate chapter, part of the first chapter, in an appendix, or woven into the chapters that present respondent information. This section is followed by one or more chapters that present the text as natural answers to natural questions in the form of stories, tables, interviews, documents, narratives, photographs, videotapes, vignettes, texts of various kinds, descriptions, and routines (see Schwartzman, 1993, from which some of these headings were taken). Raw data can be presented without comment, presented and interpreted simultaneously, or presented and then interpreted. The study ends with findings, conclusions, and recommendations for others. The structure of the study is more idiosyncratic than the more formal structure of traditional quantitative studies. In qualitative research, the sample is the study, and the reasons for selecting the sample need to be emphasized.

Most researchers, when approaching a topic they care about, have tentative hypotheses about what causes what or predispositions to think that the world operates according to certain principles that also apply in this area. People bias their observations based on their experience. All of us know that we have certain biases, and we can try to counter those biases in our research by looking for evidence that directly contradicts what we expect. In the unconscious, there is a second set of biases of which, by definition, we are not aware. Sometimes peer readers can help the researcher to discover what is missing or what is inappropriately under- or overemphasized in the study.

After analyzing the data in a quantitative study, the researcher presents the findings. Typically, it is rather straightforward because the data to be gathered and the analyses proposed for the data were specified in the proposal for the study. For qualitative researchers, the data, the findings, and the method might not be distinct. The narrative that presents selected questions and answers can represent findings based on data that came from the method by which questions were developed. As the previous sentence suggests, it is a convoluted process. The presentation might revolve around respondents’ experiences and understandings, a chronology of events, or themes supported by respondents’ statements. In ethnographic studies, the descriptions of lives in context can stand on their own (Lawrence-Lightfoot, 1995). Thick descriptions (Geertz, 1973) might provide greater insight into the education of a student in a school than would an analysis of variables. In most studies, some analysis of the descriptions is expected. This predisposition is part of the legacy of pragmatism; researchers in education are expected to identify how knowledge gained from the study can improve professional practice.

In designing a study, the background, context, importance of the topic, and presumed practical value of the study come from the literature written about the topic or analogous literatures in similar fields. For example, the study of college student retention can be considered to be analogous to the study of turnover in work organizations, and the literature in one area can be used to reinforce the literature in the other area (Bean, 1980). The use of literature in quantitative studies, however, can differ substantially from the use of literature in qualitative studies.

In a quantitative study, the literature is used to identify the importance of the dependent variable, relevant independent variables, and theories that bind these factors together to justify the use of statistics procedures and to provide a context for the discussion. In qualitative studies, a premium is placed on the ability to see what is before the researcher. Our ability to observe is both heightened and diminished by our prior knowledge and expectations (Bean, 1997). It is heightened by making ourselves aware of important details to observe, and it is diminished because we focus only on those details. Due to the preconceived notions of the researcher, those factors actually influencing the respondents’ world might not be identified. When the literature shapes the way in which we view the world, what is actually before us is replaced by what we expect to see.

A review of the literature, as a stand-alone section summarizing research in the topical area, makes little sense. The literature, as a compendium of related information, should be used to support arguments related to the importance of the subject. It should identify areas that are either well or poorly understood related to the
topic, identify and describe relevant theories, identify and describe appropriate methodologies to study the topic, describe dependent and independent variables if relevant, provide definitions, and provide a context to discuss the findings from the study.

Dissertation Abstracts International, ERIC Documents, the ISI Web of Science, and the proceedings of relevant professional organizations all can be used to access current research. A condemning retort is that the literature in a study is dated. This phrase has some interesting subtexts. The first assumption is that the most recent research is the best research and that previous research is irrelevant. A second assumption is that all research is of limited generalizability over time so that if it is older than, say, 5 years, it is irrelevant. In either case, dated research is of marginal value. By extension, the research that a person is currently conducting is also of marginal value because it will be useful for only 5 years. This planned obsolescence of research becomes a justification for a frenzied increase in the rate of publication and is counterproductive in terms of identifying important and durable ideas in the field. Literature should not be weighed or dated.

In traditional quantitative research, the topic contains the dependent variable and the factors associated with it identify the independent variables that have been found to have important effects on the dependent variable. In studies that are not codifications—that is, not extensive reviews of the literature for the heuristic purpose of organizing what is known about a topic—citing the literature should be done for the purpose of building an argument, not simply to show familiarity with the canon.

Since the 1960s, the number of statistical analyses available for researchers to include in their designs have increased dramatically. Five commercial statistical packages bear the initials SAS, SPSS, BMDP, GLIM, and HLM. The development of these statistical packages has allowed ever more complex analyses to be performed. National data sets from the National Center for Educational Statistics and other sources have provided the opportunity to bring order to vast amounts of data.

For the description of large-scale phenomena, these data sets can be very valuable. For analyzing the causes of behavior, the attempt to gain a broad vision masks individual or small group differences. Longitudinal studies almost always suffer from decay; that is, measures may differ from year to year and respondents drop out of the study, so the comparisons from year to year might not be the result of what people report; rather, it might be the result of changes in who is doing the reporting.

The availability of data and the means to analyze them raised the level of expectation in some journals that such analyses should be the norm. What is certain is that during the past 50 years, the sophistication of analyses has increased. The literature shifted from normed surveys that reported frequencies, to chi-square, to analyses of variance (ANOVAs) and simple correlations, to factor analysis and multiple regression, to causal modeling with ordinary least squares path analysis, to maximum likelihood used in linear structural relations (LISREL) modeling, and to generalized linear modeling (GLIM) and hierarchical linear modeling (HLM).

The increase in complexity is associated with an increase in agitated exchanges between statisticians about whose method is correct. An improved methodology has not been matched by these studies becoming more influential in policymaking or practice (Kezar, 2000). The debate is sometimes invisible to the public, taking place between the author of a piece of research and the consulting editors who review the research, and sometimes it appears in journals such as the Educational Researcher.

Data

Quantitative studies require data that can be used in statistical analyses. The sources of data can vary widely—historical documents, governmental records, organizational records, interviews, standardized surveys, questionnaires developed as part of the research protocol for a particular study, unobtrusive measures, observations, participant observation, and so on. The quality of the research depends on the quality of the data analyzed; data analysis has only a secondary influence.

The quality of the data varies greatly. Good research design requires that the researcher understand the strengths and weaknesses of the
data. Historical data can reflect the biases and ideological preferences of those who recorded it. People who provide data can intentionally distort it to put themselves in a better light, for example, reporting that they had higher grades than they actually did. Survey data might come from a biased sample reflecting only the experiences of high-socioeconomic status respondents. Questions in a survey might be ambiguously written, or a single item might contain two questions with different answers, for example, “How satisfied are you with your salary and fringe benefits?” Survey data that require a forced-choice response might not represent the real interests of the respondent. A respondent might have no opinion on most of the questions and refuse to answer them. Other respondents might not want to reveal personal information and so misrepresent their actual incomes, whether they have ever plagiarized, or how much they use drugs or alcohol. Although the questionnaire is not missing any data, the data provided might be intentionally inaccurate.

In other cases, respondents might not understand the questions, might not care about the answers given, or might become fatigued while filling out the questionnaire so that the accuracy of the responses are different for the beginning and the end of the questionnaire. A well-written question should reflect one bit of information about the respondent unambiguously and reliably, and the answer to the question should match observable facts.

It is acceptable to use problematic data if the analyst understands and acknowledges the problems that exist in the data. For example, a data set might not be random but might be completely representative of one group in the population studied. The bias in this sample can make conclusions drawn about the well-represented group accurate, but the conclusions would not apply to the whole population. Although not representative, the data might be useful to see whether a hypothesized relationship exists at all, that is, as a test of theory.

Data gathered from face-to-face interviews for qualitative research has the potential to yield a gold mine of insights into the people’s lives and situations. There is no substitute for prolonged and focused conversations between trusted parties to discover what is important to the interviewees and how respondents understand key elements in their own lives. When mishandled, interview data can reflect what the interviewees think the interviewers want to hear, normatively appropriate responses, the fears and biases of the interviewees, and the fears and biases of the interviewers. Data flaws become limitations of the study for which the only response is to caution the reader that the results are far from certain.

**Ethics**

Before proceeding with an examination of research methods, there are some ethical and legal considerations that have obtrusively entered the development of a research protocol. In line with designing research to be useful, it should also be designed to be ethical. The most obvious ethical problems arise when a research procedure causes harm to those who are asked or forced to participate in the process. There are several well-known cases of abuse, including psychological studies where participants were put in unusually stressful situations (Baumrind, 1964; Milgram, 1974) and medical research where participants were given diseases or intentionally denied treatment (Jones, 1993).

The bureaucratic response to these ethical violations was to create rules that would include everybody doing any kind of research that involved contact with living people. Bureaucratic actors, evaluating research they are not conducting themselves, become the gatekeepers of ethical behavior. This responsibility is misplaced; researchers themselves should be responsible for protecting the interests of participants in their studies. I am not naive enough to think that all researchers are ethical or that institutional review boards (IRBs) or protection of human subjects committees will go away. The problem is that ethical judgments about research have been made extrinsic to the research process. Researchers need to design research that does just what the committees want—to protect the participants of a study from harm. If researchers are not socialized to provide these protections, IRBs might not help. The enforcement system used, which involves taking federal support away from ethical researchers because they happen to be at an institution where one
person did not comply with the guidelines, is itself unethical. IRBs have the enormous power of being able to block research, and the potential for abusing power must be kept under constant scrutiny. But who will judge the judges?

For qualitative researchers especially, complying with a written informed consent form can damage the trust required to conduct a study. The study of any group that dislikes authority is made impossible, or at least less reliable, by asking the person at the outset to sign a form that says, “You should know that this researcher does not intend to hurt you.” A journalist and an ethnographer can conduct and publish identical studies. The journalist needs no informed consent from those who are interviewed for the story, whereas the ethnographer at a research institute needs IRB permission to ask the same questions. The journalist is protected by freedom of speech, whereas academic freedom, according to IRB rules, provides no such protection for the researcher.

Research should be designed to protect everyone, designed to benefit the participants in the research, and designed to protect society from ignorance. With few exceptions other than medical studies, research involving human subjects is intrusive but not invasive. Under the current guidelines for research involving human subjects, a certain percentage of the researcher’s time and energy, and of the sponsor’s resources, must be devoted to rituals that symbolically protect the participants in a study from being harmed. Whether these guidelines work or not is a different question. Their intentions are good, and research ethics is a serious issue. I do not know whether the current system of enforcing these ethics as an afterthought, through an outside agency just before the data are to be collected, is effective or not. The costs are real and, during an era of tight resources, should be examined carefully.

Generalizability

Generalizability is the central bulwark of the scientific research in education approach. Shavelson and Towne (2002) observe, “Regularity in the patterns across groups and across time—rather than replication per se—is a source of generalization. The goal of such scientific methods, of course, remains the same: to identify generalized patterns” (p. 82).

Generalizability is a powerful statistical tool that allows researchers to make predictions about patterns of behavior in a population, such as the percentage of people who will vote for Ralph Nader, based on a measure of that behavior taken from a sample of the population. It is attractive to policymakers because it suggests the extent to which a particular solution will work everywhere in the population. As the behavior in question gets more complicated, such as how students learn ethical behavior, generalization is of more limited value. Lincoln and Guba (1985) describe this limitation well:

Generalizations are nomothetic in nature, that is lawlike, but in order to use them—for purposes of prediction or control, say—the generalizations must be applied to particulars. And it is precisely at that point that their probabilistic, relative nature comes into sharpest focus. (p. 116)

Does what works 90% of the time for the participants in a study work for one particular teacher in one particular class dealing with one particular subject? Tutoring generally helps students to learn how to read, but for a student who is acting out against authority, and who views the tutor as an authority figure, tutoring might prevent the student from learning to read.

As a “reductionistic fallacy” (Lincoln & Guba, 1985, p. 117), generalization simplifies decision making and simultaneously reduces the understanding of the particular. Teachers operate in particular environments, and the findings from a “scientific” study with a high degree of generalizability do not ensure a program’s utility in a given classroom. The purpose of scientific research is to eliminate uncertainty so that the operator can predict and control the future. Applied to education, this goal is not a research norm or a teaching norm but rather a political norm.

THE SHADOW OF RESEARCH DESIGN

Research is seductive because it promises to give the participants, as producers or consumers, those things that they imagine they
want. We are seduced by research as a beatific process by which we can glimpse the bright light of pure knowledge. Scholars would have no agenda other than furthering knowledge, a value shared by those who fund research, publish it, and base policy on it. It would be a collegial environment where differences exist only about approach, all participants share the ultimate goals of research, and no ethical problems exist. These utopian goals include a greater understanding of individual and group processes in a given discipline with the potential to apply these findings to improve both individual lives and society collectively. Researchers design their studies for the sole purpose of sharing information to better understand the issues at hand and distribute the knowledge widely so that it can improve practice.

The shadow of research design comes as a series of dispositions and paradoxes when the person designing research must make decisions for which the search for disciplinary truth provides no direction. A researcher has some control, but not complete control, over deciding what research to conduct. A researcher has limited control, or no control, over how research is funded, how it is evaluated, and how it is used. The shadow of research appears when one confronts the lack of creativity in research and psychological barriers to the free flow of ideas. It occurs when a researcher encounters difficulties related to the disciplinary research environment and the primary and secondary social environments associated with the research.

The Loss of Creativity

If the world were static, then creativity would not be necessary; what worked in the past would continue to work in the future. In a dynamic social world existing in a turbulent ecology, the generation of new ideas is necessary for survival. In the natural world, mutation is a random process and selection occurs where the fit to the natural environment of the new form has advantages over existing forms. In the social world, creativity is the source of variation and must be present before selection can take place. Without creativity in identifying problems to be addressed or methods to be used, a field of study would atrophy.

If research has a core more important than anything else, it is creativity. Without creativity, researchers would only repeat themselves. Without creativity, the questions we pose, the starting place for research design, would be endlessly repetitive. Creativity allows the clientele of researchers—the public, practitioners, or other researchers—to bring new ideas into their intellectual or practical lives. They can agree or disagree with their findings. They can find fault in their methodologies. But the new ideas remain as work to be examined, understood, enacted, selected, and retained for use (Weick, 1979).

Getzels and Csikszentmihalyi (1976) describe problem finding as being at the heart of the creative process. Educational researchers who invent the best problems have the greatest chance of contributing to their fields. A good problem implies the way in which it should be studied. A superb methodology will not make up for a poor research problem. Structured processes for becoming more creative that emphasize steps to be followed, have been identified (Parnes, 1992). The content of the steps is not well understood. If it were, then everyone would be creative and have plenty of excellent problems around which to design research.

To be creative, as opposed to simply novel, a researcher should be well versed in substantive knowledge of the topic and the limitations of the chosen methodology. Creativity has at its foundation a sense of play—of suspending normal constraints so as to see new patterns, possibilities, or connections. Play is usually an “idea non grata” in a workaholic environment, although the hermeneutical philosopher Godamer considered play to be an expression of great seriousness (Neill & Ridley, 1995). Play is characterized by just those things that are likely to lead a researcher into creative work, including taking risks, testing new ideas in safety, avoiding rigidity, and suspending judgment (Schwartzman, 1978).

A risk-averse, judgmental, assessment-oriented environment focused on short-term gains will have a negative effect on creativity. If proposals are assessed by published criteria, then how can new projects that do not fit established criteria be funded? We live in a judgment-rich environment where we have been socialized...
for years into viewing work as something that will be graded. Peer reviews, editorial reviews, administrative reviews, and granting agency reviews occur regularly. Faculty work can be assessed on an annual basis with the expectation of products in hand making the time frame for completing work within a year or less. In graduate schools, students are steered out of creative projects because such projects are too risky. It is unfortunate when research is designed not out of the possibility of success but rather out of the fear of failure. In the process, creativity—researchers’ best friend and asset—is shunted to the rear. Academic reproduction (Bourdieu, 1984/1988; Bourdieu & Passeron, 1990) ensures reproduction, not evolution. Creativity suffers in the current context of conducting research, and producing valuable new understandings is ever more difficult.

Fear and the Researcher’s Ego

There are a number of personal factors that affect research design. Morgan (1997) describes “psychic prisons” as a metaphor for the ways in which our imaginations become trapped. Whatever neuroses we have can emerge in the task of developing research. Researchers can fixate on certain ideas, repress others, idealize states, or project their own views on the data. A frequently occurring form of projection occurs when the conclusions of a research study are not connected to the data. Researchers project their beliefs onto the data, concluding what they wanted to conclude before they began conducting the study.

Fear has an unacknowledged influence on research design that manifests itself in a variety of ways. The first is internal censorship. Certain topics and methods are never given serious consideration because to do so would be to invite trouble, at least in the minds of the researchers. For example, during the 1970s many people did not consider qualitative research to be an appropriate form of educational research. Fearing rejection by colleagues, granting agencies, advisers, and/or editors, researchers steered themselves away from the use of qualitative research. It was not surprising that much of the emphasis of Lincoln and Guba’s (1985) *Naturalistic Inquiry* is a justification for, and not an explanation of, this kind of study. Researchers engaged in self-censorship by avoiding black studies, women’s studies, gay studies, and the study of emotional aspects of organizational behavior (Fineman, 2000).

Over the past 20 years or so, there has been a flowering of ideologies challenging the monolithic view of research that existed for the previous 20 years. Postmodern, poststructural, feminist, critical, race, and cultural studies have challenged research orthodoxy both in topic and in method. It is no longer surprising to find titles such as “Whiteness Enacted, Whiteness Interrupted” in the *American Educational Research Journal* (Chubbuck, 2004).

Fear also underlies what has been called the “imposter syndrome” (Harvey & Katz, 1985), where researchers might fear that they are fakes. This problem can show up in an obsessive need to review the literature because a researcher “doesn’t know enough yet.” A researcher might fear not being professional enough or not being thorough enough and might analyze data in an endless pattern of trivial changes. This fear is a pathology, not a motivator.

Research can also be conducted in service to the ego, not the discipline, where the researcher is driven by the extrinsic value of research. This drive results in designing research for maximum visibility regardless of substance. Finding the smallest publishable unit in a data set inflates one’s résumé but clutters journals. The ego thrives on high levels of productivity. The discipline thrives on high levels of quality. The current research market defines what is acceptable, and clever marketing may be more important to one’s ego than a quiet but long-term contribution to the field.

For quantitative researchers, the ego drives not just visibility but also theory vindication. In this instance, deductive quantitative studies start with theories, and the researcher organizes and analyzes the data in such a way as to show that the chosen theory is correct. Not only does this approach allow the researcher to tell himself or herself, “See, I’m right,” but journals also are more likely to publish findings that support a given theory than to publish findings that do not support the theory.

Qualitative researchers’ egos have a similar challenge—categorization vindication. In
qualitative research, when the researcher is going through raw data, the data are placed into ever larger categories that, in turn, reflect broader concepts. The process consumes considerable effort, and changing the concepts requires starting over. The ego defends the first set of conceptual categories.

There is a competitive aspect to designing research. Instead of a “best knowledge for the discipline” model, it involves “I got there first,” “I'm right and you're wrong,” “I win the argument,” “My theory is right,” “I got the grant and you didn’t,” “My university is ranked higher than your university,” and the like. These are the concerns of the ego, extrinsic to the creation of knowledge, casting a shadow on research. From the point of view of designing research to discover knowledge, it is bizarre that information is not shared. From the point of view that research is not about improving knowledge but rather is about supporting the ego, making a name for oneself, and providing research overhead to one’s institution, it makes perfect sense. The impulse is to design research that wins some imaginary (or real) competition, not because it is vital to the field.

Disciplinary Norms and Groupthink

The kind of study a researcher can conduct depends on the development of the field. Mature fields, such as the arts and sciences, medicine, and engineering (Parsons & Platt, 1973), have a long tradition of theories and methods that are thought to be appropriate to use when conducting research. Cultural studies, critical theory, and other postmodern approaches have preferred methods that keep other disciplines vital by challenging their traditions. Research norms become institutionalized through accepting papers for professional meetings and publication. A disciplinary language develops, and a kind of parochialism develops in citation patterns: Cite from journals in the field only. Disciplines within education and in the professions become ever more specialized. Research followed suit and led the way to disciplinary specialization.

Research design reflects this specialization in topic and method. Specialization can have the advantage of accuracy and the disadvantage of triviality. Researchers who venture outside the norms can be transformational if they are lucky or can be ignored or ridiculed if they are not. New ideas are sometimes blocked by the disciplinary equivalent of “groupthink.” Groupthink, first described by Janis (1972), includes many factors that limit creativity and risk taking, including sharing stereotypes that guide the decision, exerting direct pressure on others, maintaining the illusion of unanimity and invulnerability, and using mind guards to protect the group from negative information.

Groupthink is more than a norm; it is an exclusionary process designed to protect the group from outside influence. Groupthink in research can limit the topics studied and the methodology used. The long period during which editors silenced the voices of women, African Americans, and the gay, lesbian, bisexual, and transgendered community in education is one example. Another currently exists among those in education who support only “scientific research” (Shavelson & Towne, 2002). Berliner (2002) suggests that the problem is not one of science but rather one of politics and money. Those who label good research in education as “scientific” are stuck in groupthink, as are those who consider research method as essential and all else as trivial. When methodology precedes identifying the problem to be studied, groupthink wins and research suffers.

Methodology and Methodological Correctness

At the extreme, the result is “methodological correctness,” a term I coin as a play on “political correctness.” It is associated with taking oneself very seriously and is related to academic fundamentalism, where skepticism is replaced by dogma. Methodological correctness means that the purpose of research is to optimize methodology. It is an example of goal displacement, where the purpose of research is no longer to find out something important but rather to use method flawlessly. The hegemony of methodologists in determining the value of research has a chilling effect on exploring new approaches to research, on studying topics not studied previously, and on studying topics that do not lend themselves to study using preferred methods.
Institutionalized methodological correctness takes the form of guidelines, where if the guidelines are not followed, the result is funding not being given or results not being taken seriously. The U.S. Department of Education has provided *A User-Friendly Guide*, one that is not “friendly” at all, that can be paraphrased as follows: The only rigorous evidence that can be used to evaluate an educational intervention comes from research using randomized controlled trials (Institute of Education Sciences, 2003).

Simple solutions are often wrong. Randomization means that individual student differences will not be a factor in the research and that all kinds of students can expect to benefit equally from the program. The results are designed to mask individual differences to see whether the program worked for the majority. It worked if the mean of the criterion variable for the treatment group is significantly higher than the mean of the control group. Like randomization, means are designed to mask individual differences. Berliner (2002) makes the point that there are a “ubiquity of interactions” and that a program could have remarkable positive effects on a small segment of the treated population, none of which would be discovered by this research design. A program could benefit gifted students, African American students, girls, athletes, or special needs students in a manner invisible to scientific methods.

Much of the contentiousness about educational research design centers on whether the research is scientific, a desiderata identified by the National Research Council’s (NRC) publication of *Scientific Research in Education* (Shavelson & Towne, 2002). The debate revolves around using scientific methodologies to examine educational issues. The NRC’s position is generally supported by some (Feuer, Towne, & Shavelson, 2002; Slavin, 2002) and cautioned against or rejected by others (Berliner, 2002; Erickson & Gutierrez, 2002; Olson, 2004; St. Pierre, 2002). Research design, research funding, and politics are interconnected (Burkhardt & Schoenfeld, 2003).

If research is designed for political purposes, the methodology should be called “scientific,” not “educational.” True or quasi-experiments should be carried out on huge samples, and the study should employ terms such as “experimental” and “randomized” to give the research an air of authority and scientific respectability. The results should be simple numbers based on complicated statistics with which few politicians can argue. Using these methods, different programs should receive a single outcome score that can be used to show that, for example, Program A is significantly more effective than Program B. Politicians can now say, “I have scientific proof that Program A should be funded and Program B should not.” Few scholars would be so bold.

A research article, like the tip of an iceberg, contains only a small percentage of the information that the author encountered in the study. Given this situation, research becomes an enactment of the map–territory relationship, that is, the relationship between the object studied and the symbol for that object—the research report (Bateson, 2000). How complete does the symbol need to be to represent some objective reality? Borges (1998), in “On Exactitude in Science,” provides a fictional example of an empire that was so enamored of mapmaking that the cartographers were encouraged to make maps that were larger and more accurate. In the end, they made a map that was so detailed, it needed to be exactly the same size as the land it described. As a map, it was perfectly useless.

In this case, greater accuracy and greater methodological correctness diminished utility. Bateson (2000) argues that maps are useful not because they are literal representations but rather because they are in some way analogous to reality. Research provides a map, an analog of reality. If Bateson is right, then it might be more appropriate to design and evaluate research not on the basis of how correct the methodology is or how literally it represents reality but rather on how useful it is for understanding and acting in our environments.

**The Primary Research Audience**

Research design is affected by the primary research audience for the study. For doctoral students, the primary audience is their advisers and other members of their research committees. For faculty, the primary audience is journal and publishing house editors and grantors. Refereed journal editors are the gatekeepers of much of the research that is published, which in
turn influences what is taught and who is tenured and promoted at schools that value research.

Recognizing this power, a researcher responds to the real or imagined preferences for topic or method of this audience. The obvious way of finding editorial preferences is to read the journal, see what is being published, and use a similar approach to one’s own study. Doctoral students would be prudent to read dissertations directed by a prospective dissertation adviser to see what these preferences actually are. This situation begs the question: Should these gatekeepers set the research agenda? Editors of research journals usually have been successful researchers in their fields and have published widely. The advisory board that hires an editor increases a journal’s prestige by hiring the most prestigious editor it can find. The editor then finds other successful researchers in the field and brings them on-board. This selection procedure produces a conservative bias: Reward what has worked in the past.

One model for the editorial process is that reviewers have had long experience in the field and make prudent judgments about what studies will advance educational practice or knowledge. Another model views editorial decisions as being on show because what editors approve is published. The imposter syndrome is ever-present: “How do I, as an editor, make decisions that will make me look like I know what I’m doing?” The ordinary response is risk aversion: “If I don’t take chances, I’m least likely to look like an imposter.” Editors are likely to reject methodologically flawed research in favor of methodologically correct research. Imaginatively flawed research, research whose consequences are trivial for the discipline or practitioners, can be published if the methods are correct but with predictable disdain from the public (Kezar, 2000). I have heard of no cases where an editor has written an author saying, “The ideas in this article are so compelling that I’m going to publish it even though it contains obvious methodological flaws.” Editorial referees work at the pleasure of the editor, and if they are to be retained, they work in line with the editorial vision. Reviewers are often shown the comments of other referees so that they can compare their responses. Feedback provides an implicit pressure to conform.

The upward drift in methodology can be considered paradoxical. To get published, authors use sophisticated methodologies. The newer and more complex the method, the fewer people will be able to evaluate the article and the fewer practitioners will be able to understand the research and judge whether using the results would be beneficial. In attempting to gain the approval of other researchers, a researcher might not care whether an article advances practice in the field. Good research can do both. Some publications do neither.

The Secondary Research Audience

It is a desirable state when secondary research audiences—other researchers, practitioners, and the public—are more important than the primary ones. From an altruistic perspective, it is for these audiences that the research is conducted. Research should be designed to be useful to the discipline and to advance theoretical or empirical understanding of what is happening in some area of education. Does this research provide new ideas, new understandings, and new practices that advance the ways in which professionals and practitioners in the field can serve the public good? An affirmative answer would justify the use of public and philanthropic resources in pursuit of educational knowledge. Good research should benefit everybody.

A measure of the value of research is not just acceptability to the editorial process, that is, the merit indicated by its publication; rather, the impact of a piece of research on theory or practice becomes the ultimate measure of its value or worth. Research that does not meet at least minimal methodological acceptability is not published and does not become available to its potential audience. Assuming that it does reach a larger audience, does it affect future research in the field?

A well-designed study should include, at the end of the article, recommendations for future research, but in practice these recommendations tend to focus on narrow methodological concerns such as improving a questionnaire and using a different sample. The implicit recommendation for future researchers is that they continue to advance the theoretical orientation of the line of research. A second concluding
section should deal with the practical applications of the study. The form of the application is along these lines: "If your educational world is similar to the one in which this study was conducted, here are the things you should do, based on my findings, that would improve educational practice and understanding in your world."

Educational research can be influential not because of its quality but rather because the findings confirm what policymakers already believe. This situation is distressing because it means that an excellent study will affect policy only if policymakers want it to affect policy. When two studies are excellent but lead to opposite conclusions, policymakers lose confidence in the research and return to intuition to set policy.

There have been contentious debates about educational research for at least the past century (Lagemann, 1997). Many of the issues centered on the different interests of the parties involved, with policymakers seeking politically expedient program evaluation, practitioners looking for ways in which to improve practice, and university researchers interested in improving knowledge in specialized disciplines. Each overlaps with the others, each can serve the others, and each can attack the others. The politics of educational research seems to be one of its salient features (Cooper & Randall, 1999).

CONCLUSION

The reporting of research can be viewed as storytelling, as part of a mythic process of identifying who we are. In storytelling, we seek to remember the past, invent the present, and envision the future (Keen & Valley-Fox, 1989). Research can be viewed as a similar process in remembering the past by examining the literature, inventing the present by conducting the study and describing the findings, and envisioning the future where this research influences thought, policy, and practice.

To design research is to make a map, an analogy of what happens in the world. Research design depends on what is being studied and what the researcher wants to find out. The double entendre of "wants to find out" is intentional. The researcher wants to find out something about, say, how to improve literacy rates in rural areas. The researcher also wants to find out that his or her hypothesis is true, for example, that tutoring improves literacy.

The choice of the topic focuses the endeavor. The choice of method limits what can be discovered, emphasizing some possibilities and eliminating others. Each choice involves trade-offs. Each methodology chosen should, if done well, supply some beneficial information. There is one best way in which to find out something extremely simple such as the mean length of time it takes students to memorize a list of spelling words. As the question addressed becomes broader and more complex, it can be studied using a variety of designs. There is no best way in which to study education; each approach emphasizes some things and is silent on others. Political and research ideologies can drive research or be ignored.

Research could be designed purely on the basis of curiosity if the researcher wants to know something. The methodology is likely to be emergent as the researcher plays with the topic, thinking of it without preconception, delighting in possibility, and creating an ongoing dialogue with the topic, methods, other researchers in the field, the persons being studied, and so on.

Research can also be designed around extrinsic reasons: "How can I make myself famous, promoted, tenured, or rich on the basis of my research?" For that research, the researcher should let money and disciplinary popularity lead the endeavor. For research to affect policy, one should follow the money out of governmental or other granting agencies and heed their guidelines for topics and methods. Research should be designed to meet their expectations using methods they prefer. An effective presentation of the results might demand that they be presented in the most simple or most mystifying forms.

Designing research for altruistic purposes, to benefit humanity, is more complicated because what benefits one group might not benefit another. Any discovery can have wonderful unanticipated consequences. Basic research has grand possibilities, but the environment must thrive on patience and failure—on trying many new things that do not work to find the few that
do. Such environments are rare. Research designed to solve well-defined problems, applied research, can also benefit humanity. Other applied research is intended to profit the patent holder. Research designed to provide an educational environment that will save humanity should get top billing, but who could agree on what that research would be?

Predicting the future can be fun because even if the researcher is wrong—well, nobody can predict the future. If the researcher is right, then he or she can claim great insight. Here are some things that I think might happen to research design in education during the years ahead:

- Knowledge production in all areas of education will continue to be valuable for understanding the field and for practice. Much of the research will be of interest only to other researchers. Potentially valuable findings will be ignored by practitioners who do not understand the research and will be used selectively by policymakers when they disagree with the findings.

- The debates about the design of educational research will continue indefinitely. They will not be resolved because they are, for the most part, not about method but rather about the political values implicit in choosing one method over another.

- Research designed to help improve the processes of teaching and learning will continue, but research cannot establish what should be taught and how it should be taught because those decisions are based on politics and values.

- The accretion of research findings will continue at an increasing rate. The use of these findings will lag considerably behind their development. To be published, the selection of research designs will be based on how they impress other researchers rather than on their usefulness to practitioners.

- Quantitative methodology will continue to develop more and more complicated strategies for data analysis, and these will be understood by fewer and fewer people. These studies may well provide better information related to what quantitative studies do well (e.g., generalizability, probability) but might not alter our basic understanding of the field.

- Many qualitative researchers are likely to be bullied out of thinking that description is enough. A majority of these researchers will remain defensive about their methods, which will take on more and more of the characteristics of quantitative researchers, focusing on reliability, validity, objectivity, generalizability, and so on. For example, qualitative methods will be used increasingly in hypothesis testing.

- Despite these pressures, qualitative researchers will continue to improve the understanding of local events and processes and will continue to advance theories and topics that can be further tested in large-scale quantitative research.

- Educational researchers will continue to emulate the methods of social scientists. Those with political agendas will continue to call educational research scientific research, believing that this label increases the probability that these studies will influence policymakers. Research will be designed to meet these expectations so that it can be funded. These studies will continue to ignore the varied effectiveness of educational processes depending on the individual characteristics of the teacher, the student, and the subject matter.

- Humanistic and aesthetic values will be neglected in research in the face of issues of social justice and pragmatism. Capitalistic elements related to the costs of education and the ways in which the educational system provides a suitable labor force for the nation's economy will be emphasized.

REFERENCES


