

Chapter 3

The Basics of Qualitative Research

John Creswell, *University of Nebraska-Lincoln*

How many of you have actually published a qualitative research study? Would you raise your hand? How many have worked on a qualitative research project? How many would like to work on a qualitative research project. Ok, a few.

As Gregg Schraw said, I'm in the department of educational psychology. I'm in a very specialized graduate program called Quantitative and Qualitative Methods of Education (QQME). In this program we train masters and doctoral students to be research methodologists and to go out around the country to some of the leading research centers, such as ACT and ETS and think tanks, as methodology specialists. We also train people to teach research methods in education.

I'm pleased to be here. Today I want to talk a little bit about qualitative research. To share with you my vision of what it is, I'm going to set the stage first by discussing its importance in education and social science research. Then I want to get right into the area of physics education and have us all look at a qualitative study in physics education. Finally, I want to step back and consider why we might use qualitative research in our study, what are some of its advantages, disadvantages and also make some contrasts with quantitative research. You didn't really believe all that Gregg said about quantitative, did you?

I also need to mention that I spent the first dozen years of my academic career as a quantitative researcher, crunching a lot of numbers, doing a lot of statistical analysis. About 1985 I turned my attention to qualitative research and began teaching some courses and writing and working in the area full time, although I would say that my interest these days is in the area of mixed methods—combining quantitative and qualitative—so my writings are really going more and more in that direction.

I ought to just go through some of the basics of what I see as qualitative research. I hope this conversation is not too fundamental for you and that it touches on a few ideas you might find useful. Towards the end, if we have time, I have a quiz. Sounds like the typical professor, "If we have time I have a quiz."

Figure 1

Interest in Qualitative Research in Education and the Social Sciences

Book Publishers

- Falmer's Social Analysis Series
- Longman's Research on Teaching Series
- Sage's extensive publications (e.g., Qualitative Research Methods series – 29; 70 titles in latest brochure)
- Routledge's books on postmodern, feminism

The interest in qualitative research has grown considerably in the last 20 years, especially in the field of education and the social sciences. One marker would be to look at the book publishers that have gotten into this business (see Figure 1). Falmer's has a qualitative series on social analysis. Longman has a series on research on teaching, which is heavily qualitative in its orientation. Sage Publications, which is probably the leading book publisher (I say that because they publish my books) in the research methods area internationally, has extensive publications. They have a qualitative research methods series with 29 titles and I just looked at their most recent brochure and counted 70 titles in qualitative research that have come out recently. So all across the social sciences there has been interest expressed. Also, Routledge is a publisher with many books out on qualitative topics, in postmodernism and feminism.

Figure 2

Interest in Qualitative Research in Education and the Social Sciences

Journals

- *Qualitative Inquiry*
- *Qualitative Studies in Education*
- *Anthropology and Education Quarterly*
- Judith Preissle's list of 38 education and social science journals that publish qualitative research (*AERJ* - 1/2)

We can also turn to the journals to get some sense of what is going on (see Figure 2). There are entire journals devoted to qualitative research in education and the social sciences. For example, a journal from Sage called *Qualitative Inquiry*. There's a journal from Taylor and Francis, *Qualitative Studies in Education*. There is a journal called *Anthropology and Education Quarterly*. One of my colleagues down at the University of Georgia put together a list of 38 journals in education and social sciences that publish qualitative research. Its title is *Jude's Juicy Journal: Periodicals Friendly to Qualitative Research*. So there are quite a few journals out there. In one of the leading educational journals, *American Educational Research Journal* (*AERJ*), about half the articles in each issue are devoted to qualitative research. I also have a list of the e-mail discussion groups that have grown up across the United States and around the world, looking at qualitative research.

Figure 3

Interest in Qualitative Research in Education and the Social Sciences

Courses

- Introductory
- Advanced, field study
- Theory
- Writing
- Specialized in anthropology, sociology, psychology

Of course our response has been to develop courses (see Figure 3). I might tell you a little bit about what we have at the University of Nebraska-Lincoln in education. We have an introductory course where students are introduced to the way of thinking qualitatively, the paradigm, the world view perspective. They also then learn about framing good qualitative questions, collecting and analyzing data and writing qualitative reports. They then have a field studies course where students actually go out and do a field project where they collect qualitative data, analyze it and write it up. We are developing a course, which will be taught this next spring on theory perspectives, such as feminist, post modern, critical emancipatory theories. We have a special course on writing qualitative research, and of course if you go out among the social science disciplines you can take specialized courses, such as a field work course in ethnography in anthropology; a course in grounded theory research in sociology and a course in field studies in psychology. These courses have developed, leading to a number of students conducting qualitative research.

Figure 4

Interest in Qualitative Research in Education and the Social Sciences

Leading to research by students and faculty in education.

For example, my qualitative studies:

- Qualitative case study of campus response to a gunman incident on a university campus
- Qualitative phenomenological study of messages high school teens receive about smoking and tobacco use
- Qualitative grounded theory study of how department chairs enhance the productivity of faculty
- Qualitative biographical study of prolific scholars in educational psychology

I would estimate that we have over 50 qualitative doctoral dissertations in education underway in our college right now, and many faculty who are working on qualitative studies. For example, just a short list of some of the projects I've been working on over the last few years (see Figure 4): a qualitative case study of campus response to a gunman incident on the university campus; a qualitative phenomenological study of messages high school teens receive about smoking and tobacco use (that's with the medical center); a qualitative grounded theory study about how department chairs enhance the research productivity of faculty; and a qualitative biographical study of prolific scholars in educational psychology. Probably the most fun project is not even on that list, and that's when I spent last year working at the homeless soup kitchen here in Lincoln and writing an ethnography about the soup kitchen experiences.

This interest in qualitative research has developed considerably over the last couple of decades (see Figure 5). Early in the 1980s I think it was the philosophers of education that first got into the game and began talking about a different framework, a different worldview for doing educational research. That then moved into the mid '80s where qualitative became legitimate to a certain extent—no longer were qualitative people challenging the quantitative paradigm, they were willing to live

peacefully side by side with the quantitative researchers. By 1990 more and more books were coming out about qualitative methods and procedures. You need to know that my take on qualitative research is not going out to Broyhill Fountain and sitting and casually observing and writing up a few comments. My procedure is to look for very rigorous methods and procedures. The ethnographers, the grounded theory sociologists and the psychologists doing phenomenological projects have all come up with very rigorous methodological procedures in the last few years. Also during the 1990s there's been an application of qualitative research across the social sciences. Now there's a book out on qualitative research in marketing research. There's a book out on qualitative research in social work. There's a book out on qualitative research in nursing. You know, across the different discipline groups they've now developed their own take on qualitative research and I would assume physics educators are next.

Figure 5

Interest in Qualitative Research in Education and the Social Sciences

Evolution of this interest

- Philosophical differences in 1980s
- Legitimacy of qualitative in its own right (mid-1980s)
- Emphasis on procedures and methods (1990 -)
- Application for specific groups (ideological groups, specialized disciplines) (1990-)
- Recognition of different types of qualitative research (1995)

I was curious to see what the physics educators were doing in the qualitative area, so I started with an ERIC search. This is not a comprehensive search, but I found about 16 studies over the last few years that are labeled with a descriptor of *qualitative research*. For example, Wolff-Michael had an article in school science and mathematics about problem centered learning and it was a qualitative case study (Wolff-Michael, 1993). Grayson and McDermott had an article in American Journal of Physics on the use of computer for research on student thinking in physics (Grayson & McDermott, 1996). I just chose three here to start our discussion. Dickie and Farrell had an article in *The Physics Teacher* called "The transition from high school to college: an impedance mismatch" (Dickie & Farrell, 1991).

I'd like to talk about what qualitative research is by actually looking at Dickie's article (see annotated article after this chapter). By the way, for those that want an answer up front, the mode of thinking in qualitative research is more inductive, where you build up to it. Hopefully by the end of our discussion of this article I'll draw your attention to some specific points that illustrate what qualitative research is.

Now I'm not sure, as a person outside physics education, how you view this journal—whether or not you view *The Physics Teacher* as a scholarly journal. I think this article serves our purpose well for talking about qualitative research but it is fairly short. Also as I started reading this I saw many of the components of a good qualitative study, which a casual reading may not yield. If I kind of take you through

that, for those that are not familiar with qualitative research, you may begin to see some of these elements and you'll be able to spot them in other articles.

This was an article about the transition of students from high school to college and especially looking at students that took physics class at John Abbott College, in Canada. It was described as an ethnography, which means it is a qualitative study, and I think it has many of the good markings of a qualitative piece. As I go through this I'm going to talk about what I saw in this piece that was qualitative, and I will make a few points about what I might, as a qualitative researcher, add to it.

This piece sets up much like many qualitative articles. I'm going through my notes now on the left and right hand side of the first page. It uses typical qualitative headings and divisions. For example, there's a heading called themes, which the quantitative researcher would probably call results. So the language—the headings and the format—sets up much like a qualitative study. There's a passage in there called a description, which is very ethnographic. Immediately, we need to orient ourselves to different labels, different things we look for in this piece.

It also follows a pattern of ethnography, which is simply this. First you describe the cultural setting, and they talk about the students who are making this transition from high school to college. Then you describe issues or themes, and then you step back towards the end of the piece and provide some larger interpretations or generalizations. Very ethnographic. Right out of Harry Wolcott's book of 1994 (Wolcott, 1994).

Now let's just look at the title for a minute. It is a two-part title, which we don't always see in quantitative research. It also is written in the literary format, ending in a question, with kind of a play on words with the term "impedance mismatch".

The first part of this piece sets up as a traditional research study with a problem. The transition for high school students to college, in physics, is stressful and there have been some comments apparently in the physics education community—Lillian McDermott and others who have talked about how the curriculum in a college is not well matched to student needs, and also these authors brought in authorities in citing these different people who have written about this topic, to provide support for the importance of this problem. But now the conversation three quarters of the way down the page gets into a very strong qualitative point which is simply that we can best learn about this issue of transition by listening closely to the views of participants, these students. Then they go on down the rest of the page and cite some other studies, which have relied on student voices to gain a picture, of what student experiences in learning are like.

Turning to the next page. Rather than the methods of the study we have a title called description of the study. Qualitative researchers might also use the term procedures but it is in this passage that you can clearly see some very strong qualitative markings. First of all, the data collection. The data collection consists of interviews and observations with a small number of people. They interviewed about 87 high schoolers and then they followed these kids to college and interviewed 31 students who enrolled at John Abbott College. A small number of

people participated in this study. By observing and interviewing, the researcher is what we call the instrument of data collection. They did not rely on a standardized instrument or a published instrument out of the Buros Institute of Mental Measurement. They probably designed their own interview protocol, or interview instrument, and asked those questions in face to face settings. By the way, these were very open-ended questions. They said they began with a general question. I underlined it here halfway down the page. "What was interesting for you at college?" They're not trying to close the discussion. They're trying to elicit views from these students in a very open-ended way. They also mentioned here, it is at this point that they said, "we used the ethnographic tradition," and it is not a bad rendering of that tradition. I would probably write it in a more detailed way, but basically by describing the system and the students and coming up with themes and making their interpretations it is well within an ethnographic model.

Their sampling departs from what we would expect in a good qualitative study. They said they used random sampling. We have a different term in qualitative research called purposeful sampling. In a purposeful sample we choose people to participate in our study based on which individuals can help us best understand the question we're looking at. Our intent is not to generalize these findings, as we might want to do in a quantitative study. Our intent is to get a detailed picture, hearing the voices of students. A purposeful sampling would be more in keeping with qualitative research.

You'll note too that this study was done in what's called a natural setting. The interviewers went out to the students in the high schools. They went out to the students after they had gone to college, interviewed them right in the setting.

Halfway through the page we hear the authors talk about why they conducted a qualitative study, their reasons for using a qualitative approach. There are two reasons: these interviews provided rich data about student perception strategies and coping mechanisms and secondly, there were useful, provocative, and insightful quotes that resulted from this. So those were the two arguments for why they decided to conduct a qualitative study.

Further down that paragraph we hear about how they actually analyzed data. They took their observational field notes, they took their interviews (I would assume they had transcriptions from their interviews) and then they started forming some themes. They formed what they called meaning units; they took a phrase, a sentence, a paragraph, labeled it and brought it together in terms of a theme. Now they did another thing. They say that they counted the number of times a topic was mentioned by the students even though they don't report that later. Some qualitative researchers do some counting, others don't. It is interesting that even though they did counting they didn't report it in this piece. They then describe the junior college system, which is what I would expect to find in an ethnographic study.

On the next page we find the results. They came up with five themes. The intent in qualitative research is to take your observational field notes, your interview transcriptions, and reduce all this textual information into a small number of

themes. Typically I say from four to six. They came up with five. Then you come up with a label or a category for these themes. They phrased the first one as a question: "When does the transition begin?" The second theme: "A sense of identity". The third theme: "Teachers". The fourth theme: "Student work / Teacher work". The last theme is titled "Responsibility and Freedom". How do you come up with the labels for these things? If I had been doing this I would use something that we talk about in qualitative research called *in vivo* codes. *In vivo* codes are labels drawn from the actual words of the people who are participating in the study. I would have looked through my interview transcriptions and the observational field notes I might have taken, and asked myself when students are talking about a sense of identity (that might be my nice educational social science term), "What words did they use?" to make this piece very realistic. Qualitative research if written and developed correctly should be very alive and real, and should represent the complexity that we see in this world.

Now they did another thing through each one of these themes that a casual reading wouldn't pick up, but as you think about this from a qualitative perspective you'll see it. One of the ideas in qualitative research is to capture multiple perspectives, so for example on this first theme: when does the transition begin, I started underlining the different perspectives the authors were mentioning. One college student talked about the transition to a more grown up environment. Another talked about how the transition was never made. The next one talked about transition as just another shift, and I was actually looking to see whether those multiple perspectives came through. One of the great advantages of qualitative research is that we try to paint the complexity of life. To do that we do not want to reduce everything to a central tendency or to a mean. We want to present all the different views, so if qualitative researchers have done their work in writing about a theme you'll see different perspectives.

Now it is not just different people, in this case different students, with their perspectives. If you start looking at some of these other themes you'll see that multiple perspective idea elaborated in some very interesting ways. In theme number four, on student work and teacher work, you begin hearing the voices not just of the students, as you have in the earlier themes, but the voices of the teachers and the voices of parents. So multiple perspectives can be more than just different students in this case but different sources of information giving perspectives. If you look at the theme titled "Responsibility and Freedom," what you see here are multiple perspectives through different topics that are addressed. This theme of multiple perspectives expands on through the project.

On page 443 they end by discussing the implications. A good ethnographer would try to step back and ask, "What are some generalizations from what we've learned, through these themes?" They talk about implications for strategies; implications for teaching physics in high school; implications for the constructive view of learning; implications for balancing effective and cognitive teaching; all of these issues are discussed as they conclude this piece.

They return, in the conclusion, to a key point, which is that we need to learn from the actual view of the students. At the bottom of page 444 I've put down a few comments that I might add to this. One is "How do we know whether this account is accurate or any good?" There are no attempts by these authors to get at the question of validity and there are some fairly simple ways. They could have taken these themes back to the students and asked them whether these captured realistically their transition experiences. You also note that no theory guides this study. What we're doing here is building inductively: we're starting with a database, we're moving more broadly to some themes, we're moving more broadly to some generalizations toward the end.

In terms of qualitative data analysis, I would have layered this analysis and made it a little bit more complex. Perhaps I would have taken one of those themes and built some sub-themes into it. I would have developed, perhaps, some theoretical models towards the end, some larger pictures. An ethnographer, especially, would take this piece and finish by talking about some general rules that help explain this cultural group of physics students in transition from high school to college.

Figure 6

What Makes this Study Qualitative?

- Qualitative data collection – open-ended interviews and observations
- Inductive mode of analysis – from data to themes to broad interpretations
- Analysis of text
- Report of views of participants and multiple perspectives
- Use of quotes
- Research conducted in the natural setting

Inductively thinking now, what makes this study qualitative? (See Figure 6) The data collection is very open-ended: interviews, observations. It uses an inductive mode of analysis, working from data to themes to broad interpretations. The analysis of text rather than numbers. They were taking textual information and trying to reduce it down to some themes. The report of views of participants and multiple perspectives. The use of quotes, and we had different lengths of quotes in here, and research conducted in a natural setting.

Figure 7

What Advantages Exist for Using Qualitative Research?

- "Rich data of student perceptions" (meanings students ascribe)
- "Provocative and insightful quotes"
- Multiple perspectives
- Open-ended to derive complex picture
- User-friendly because written in literary style
- Conducive for application

Why would a physics educator want to do qualitative research? (See Figure 7) Let's start with the two arguments that these two authors made in the piece. One is

that it provides rich data of student perceptions as opposed to researcher perceptions. It provides provocative and insightful quotes. You read the article and you can judge that. I think providing multiple perspectives in order to see things from different angles is an advantage. It is open-ended to derive a complex picture. It is written in more of a literary style, which is user friendly. Some people say qualitative research is very applied research.

Figure 8

What Disadvantages Exist for Using Qualitative Research?

- May not be familiar to other physics educators
- Limited generalizability
- Standards of validity different
- Few publishing outlets

Why would the physics educator not want to use this? (See Figure 8) I really had to work to come up with some reasons. This may not be familiar to the physics educators, this style of writing, and this approach to research. There is limited generalizability, taking these student views of this one college and applying them to another place may be a problem. I see research methods and designs as having tradeoffs. In qualitative we don't have that generalizability capability but we do get an in-depth picture. Probably more of an in-depth picture of what students are thinking than we might have in a quantitative project. Standards of validity are a little different. They weren't even introduced in this piece but the standard that I suggested, taking it back to the students, means that we're relying on the people that gave us the information to tell us whether this seems to be a good rendering of the themes. Finally, in physics education you may have few publishing outlets.

Figure 9

Major Differences between Quantitative and Qualitative

- Outcome of study: *from* generalizing *to* particularizing; *from* probable causality *to* meaning
- Relationship of researcher to participant: *from* distance *to* closeness; *from* expert *to* non-expert
- Sampling: *from* random, representative *to* selective, purposeful
- Data collection: *from* numbers *to* words and images
- Data analysis: *from* central tendency *to* multiple perspectives
- Standards: *from* external validity *to* participant, reader, and researcher validity

I contrast quantitative and qualitative in Figure 9. I think they are different perspectives. Each is a legitimate perspective. They have different outcomes. The relationship between the researcher and the people being studied is different. The sampling procedure is different. The data collection is different; we go from numbers to words and images. Data analysis, rather than reducing it down, we're really trying to build multiple perspectives into our study and in terms of the standards (Gregg Schraw emphasized the standards) I see quantitative as having many statistical standards of how we should define a construct, whereas qualitative

researchers look to the people that they studied to get some reading on whether the studies are good. The readers also may rely on their own ability to look at material.

I put together a talent test for qualitative research (see test after this chapter). Now this is a bit tongue in cheek. This is a five point Likert style survey that you fill out. I wrote this after reading a fiction writer's talent test in a writing magazine, which then you would fill out to determine whether you would be a good fiction writer. I put this together to determine if you might be a good qualitative researcher. Here are some of my points.

The first one relates to whether you see the big picture. You're standing in the valley of the Rocky Mountain National Park. What attracts you is the whole panorama. You take it all in. You sense the wholeness of it all. Responses can vary from strong agreement to strong disagreement.

You make connections easily. Remember back to your SAT or MAT or any other test where you had to make connections between analogies. This was an easy task for you. You make connections between words easily.

You like to write. Remember back to your high school composition class where you learned how to write creatively. You loved it. You wrote poems and love letters profusely at this time. You loved to play with words; you might create a title like the impedance mismatch. You quoted Keats to all your friends. On a smaller scale, you may keep a diary or journal of daily activities right now. Qualitative researchers like to write.

You like to draw pictures. We didn't see any pictures in this article, but often to visualize the complexity of what is going on in a situation a qualitative researcher will have pictures. Your classroom notes often show doodles. If someone asks you for instructions for someone's house, you would rather draw a picture than tell them how to get there. Circles are especially appealing to you.

You see unusual things in everyday details. You are standing before the Vietnam Memorial in Washington, D.C. Not only do you want to go closer and read every name but you are curious about unusual names, such as biblical names or names of months.

Level of detail. You are curious about those detailed perspectives that different students talking about their transitions to college.

The routine bores you. One journey that you must make five days a week is to the office. You vary your pattern of travel, trying to experiment with different routes to your office. You may even find yourself going down alleys, just to explore. How does that feed into this impedance mismatch article? You're dealing with different titles; you're dealing with a different way of formatting research; the routine quantity format might be a bit boring to you.

You see many perspectives in things. You heard that in this article. You've just attended a movie with friends and you are sitting in the coffeehouse discussing the movie. Someone says, "What was that all about?" You offer five different ways to interpret the movie and ask others for their interpretation as well. You can see I'm

underscoring some of the points of a good qualitative research that we saw in the article.

References:

- Dickie, L. O., & Farrell, J. E. (1991). The transition from high school to college: An impedance mismatch? *The Physics Teacher*, 29(7), 440-445.
- Grayson, D. J., & McDermott, L. C. (1996). Use of the computer for research on student thinking in physics. *American Journal of Physics*, 64(5), 557-565.
- Wolff-Michael, R. (1993). Problem-centered learning for the integration of mathematics and science in a constructivist laboratory: A case study. *School Science and Mathematics*, 93(3), 113-122.
- Wolcott, H. F. (1994). *Transforming qualitative data: description, analysis, and interpretation*. Thousand Oaks: Sage Publications.

Question-Answer session

Q

The nature of research is that you start with a focus of what you are looking for, especially if you are writing a dissertation or you want to stand in front of a committee and tell them what you want to do, but qualitative research begins with inference and is exploratory in nature. How do you accommodate for the focus of purpose of the research and the exploratory nature that is inductive in this type of research? They seem to be at odds with each other. By purpose I mean taking something specific; you want to do this so you come to the research with an idea of what exactly you want to do. Qualitative research seems to be more open ended.

John Creswell

The best qualitative projects, or the best problem to study, are problems where you need to explore, or where our understanding of the problem is at an exploratory stage. If you have an understanding of variables and theories, and especially if you can measure something, I don't think qualitative is a good approach. If I see a number of articles describing research on a topic, I don't think it is a good candidate for a qualitative project. The exploratory stage is where things might be very difficult to measure. It is where few people have identified variables, theories, where we don't even know what the questions are except for a very broad question. Those seem to be the problem areas that best lend themselves to qualitative research, in my opinion.

Q

Can you give me your opinion on why there was such a shift from quantitative research to qualitative research, and then also can you give me an example of what you mean by correlational as opposed to quasi-experimental?

Gregg Schraw

The first one is a pretty interesting sociological kind of question. I have opinions but they are lay opinions. The organizations which I think have been most typical of the shift, and I hope this doesn't offend anyone, are for example National Reading Conferences. It happened there very dramatically, and I think that a large part of that is that many of the people who attend those conferences and have sort of assumed power over the last decade have been women, who tend to have more post-modern and particularly feminist perspectives, which I think are much more receptive to qualitative methods. In fact I think I think some feminists perspectives view traditional quantitative measures as being somewhat exclusionary. Especially the way they're implemented in real-life field settings. That's just my opinion. I don't really have any expertise and I certainly have no intention of creating a gender war.

For the second question, correlational studies are ones in which in essence you go out and you get data that you have no control over. For example, the typical correlational study is based on archival data. Tons of these things are done in education, especially sociology, where you go down to the state department of education or state department of this, that, or the other thing and you get archival data that you've never actually even collected. In education, one of the most, in my opinion, scandalous examples of correlational research is what *The Bell Curve* is based on. Murray and Hernstein never actually collected any of their data. They just had access to large sets of archival national data. The problem with those sorts of studies, in my opinion, is that there may or may not be random selection or sampling. There certainly is very little control over what constitutes an independent variable. People may be measured under very different kinds of conditions, and so really the problem with correlational studies is that you just throw any semblance of experimental control away, and so for that reason and many other reasons I think generally they have serious interpretive problems. In using the traditional quantitative criteria they have virtually no internal validity.

Q

John Creswell asked at the beginning of his talk how many people here had done qualitative studies. Now that we have some idea of qualitative studies I'd like to see another show of hands. How many people here have done a qualitative study as part of the research they have done? It looks like it's slightly different.

The thing that troubles me the most about these two talks is the division into two talks. It seems to me absolutely bizarre that you would do a quantitative study without a qualitative study beneath it and that you would do a qualitative study without asking questions about the distribution function of the properties that you've learned quantitatively. I really don't see why these are separate. It seems almost as if they're separate fields with totally different paradigms and approaches. Aren't we trying to figure out and make sense of what's going on?

John Creswell

Well I do think these are different perspectives. That doesn't mean that we can't use both in a single study, which is called mixed method research and which I think

is, in the social sciences, the way we're headed. Now that qualitative research is considered a legitimate mode of inquiry and we know how to do it, we can add it in with our quantitative study, or we can build an exploratory qualitative study followed by a quantitative study. We still don't know a lot about how to do that, design-wise, and that's what I've been working on. So they're not incompatible, they are simply different perspectives for doing educational research. There is a very different worldview that exists. The qualitative worldview is one of relying on the views of the participants rather than the researcher as the expert who is imposing a theory on the study. In a qualitative study the researcher is not the expert anymore. The experts are the students who will tell me about transition experiences in going from high school to college. So they're very different perspectives that you bring in. That doesn't mean you can't combine those in a single study. One person might put a quantitative study first to test out some hypothesis and then follow up with some qualitative case studies. I think we're moving more and more in that direction.

Q

When the National Humanities Center was established about 30 years ago the first director was William Bennett who subsequently became Secretary of Education and national drug czar, and would-be presidential candidate. He was asked how he could tell that he had established a humanities center and not a social sciences center, and he said as soon as somebody said, "The data show..." he would throw them out of the National Humanities Center. Why don't you call your qualitative research "Humanities?" That is, what makes it non-humanities? What makes it different in style from what a historian does?

John Creswell

Some people would consider historical research a variant of qualitative research, although historians wouldn't look at it that way. Well it does have strong roots in the humanities. It has borrowed from the humanities more than from the hard sciences to inform its methods and procedures, and in any book on qualitative research there will be a discussion about the roots of qualitative research in the humanities, where we're working with text, where we're looking at compiling different perspectives, much like the way you'd see different perspectives conveyed by a novelist, for example. Qualitative researchers say it does have roots in humanistic thinking, certainly. Maybe it is just the adaptation of humanistic thinking to the social sciences.

Q

I want to ask a question on a different theme, one that looms large in our community. Over the past 40 or 50 years we've engaged in numerous costly projects. Curriculum development at all levels of science education, teacher education programs, on and on. Each one of which has flourished briefly in the initial euphoria and then softly and silently vanished away like the man in *The Hunting of the Snark*, and this has been cyclic, it has been repeated over and over again. Now since the late sixties there has been a requirement that all of these projects be evaluated, and they've usually been evaluated from outside of the generating group.

Every one of these projects, as far as I know, has been positively evaluated. Now if anybody knows of a negative evaluation I'd like to have the reference, because I've never seen one. Now my question to these people from their standpoint is this. Are the evaluations faulty or are there other forces operative that we neglect? How come all the evaluations are positive and none of the projects successful?

Gregg Schraw

Well as a quantitative researcher I'd say low statistical power.

John Creswell

As a qualitative researcher I'd ask whether they really listened to the participants views, the people that were participating. How closely do they really reflect what people were thinking and talking about and doing about physics out there in the field? Did they even get out to the field and talk to them face to face?

The Qualitative Researcher's Talent Test

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A number of individuals are now thinking about being qualitative researchers. After an exploratory review of the literature, I have not found a paper and pencil test to determine if an individual would make a good qualitative researcher or not. Many such tests exist out there, from depression inventories to tests to determine if one has talent as a fiction writer (Writer's Digest, September 1997). Accordingly, I developed this test in hopes that aspiring (or experienced) qualitative researchers can definitively determine the "truth" of their talent for conducting this form of inquiry.

Directions: Indicate on a scale of 1 to 5 the extent to which you agree with the following statements. Circle the number that applies.

1. You see the big picture –

You are standing in the valley of the Rocky Mountain National Park. What attracts you is the whole panorama. You take it all in, you sense the wholeness of it all.

Strongly Agree (5) Agree (4) Undecided (3) Disagree (2) Strongly Disagree (1)

2. You make connections easily –

Remember back to your SAT or MAT (Millers Analogy Test) or any other test where you had to make connections between analogies. This was an easy task for you. You make connections between words easily.

Strongly Agree (5) Agree (4) Undecided (3) Disagree (2) Strongly Disagree (1)

3. You like to write –
Also remember back to your high school composition class where you learned how to write creatively. You loved it. You wrote poems and/or love letters profusely at this time. You loved to play with words. You quoted Keats to all your friends. On a smaller scale, you may keep a diary or journal of daily activities now.
Strongly Agree (5) Agree (4) Undecided (3) Disagree (2) Strongly Disagree (1)
4. You like to draw pictures –
Your classroom notes often show doodles. Someone asks you for instructions to someone's house. You would rather draw a picture than tell them how to get there. Circles are especially appealing to you.
Strongly Agree (5) Agree (4) Undecided (3) Disagree (2) Strongly Disagree (1)
5. You can easily organize diffuse information into categories –
Think about those pictures that you took of the family vacation last summer. Fifty pictures are spread out before you, and it is your task to organize them into piles of categories for your photo album. This is an easy task for you. You can quickly complete this project and not belabor deciding which picture goes into which pile.
Strongly Agree (5) Agree (4) Undecided (3) Disagree (2) Strongly Disagree (1)
6. You see unusual things in everyday detail –
You are standing before the Vietnam Memorial in Washington, D. C. Not only do you want to go closer and read every name, but you are curious about unusual names, such as biblical names or names of months (e.g., April)
Strongly Agree (5) Agree (4) Undecided (3) Disagree (2) Strongly Disagree (1)
7. The routine bores you –
One journey that you must make five days a week is to the office. You vary your pattern of travel, trying to experiment with different routes to your office. You may even find yourself going down alleys just to explore.
Strongly Agree (5) Agree (4) Undecided (3) Disagree (2) Strongly Disagree (1)
8. You see many perspectives in things –
You have just attended a movie with friends and you are sitting in the coffeehouse discussing the movie. Someone says, "What was that all about?" You offer five different ways to interpret the movie and ask others for their interpretations as well.
Strongly Agree (5) Agree (4) Undecided (3) Disagree (2) Strongly Disagree (1)
9. You love to explore –
Someone asks you to join the new expedition to the "Titanic" and various libraries around the world to study the last music played by the orchestra aboard the ship before it went down. You give up friends, job, family, significant others to join the expedition. Now this is living.
Strongly Agree (5) Agree (4) Undecided (3) Disagree (2) Strongly Disagree (1)

10. Your criteria: Please construct an item that shows talent as a qualitative researcher. If you have already thought of several items as you take this test, give yourself a “5”. If you have to think for a few minutes, assign a “3”. If you have no clue what to write, give yourself a “1”.

11. You like to tinker –

Look back at question 10. Do you want to change what you wrote? Look back at all of the earlier questions. Do you want to change their language, their tone, their emphases, or perhaps delete some items altogether?

Strongly Agree (5) Agree (4) Undecided (3) Disagree (2) Strongly Disagree (1)

12. You know how to count, but would rather work with words –

Look back at this entire test. I have asked you to score from 1-5, and hence use numbers to record your thoughts. This is repulsive, or at least at odds with your nature, which is to work with ideas and words to reflect thoughts. You didn't believe Thorndike when he said that “if it can't be measured, it doesn't exist.”

Strongly Agree (5) Agree (4) Undecided (3) Disagree (2) Strongly Disagree (1)

Scoring: Add up your total score and place here _____

Points:

12-24: Other paradigms and methodologies may be more suitable for you.

25-36: There is some hope. Cover the basic books in qualitative research, attend a few classes. See if your score improves in time.

37-48: You are an aspiring qualitative researcher. Dabble with a project or two, go out to the field and observe for awhile, you are ready for this. Perhaps write up your qualitative study and send it off. Don't let that qualitative study you completed sit around...do something with it.

49-60: You are a natural. How did you develop this talent for qualitative research? Probably born with it. Start immediately to teach others about qualitative research. Write books about qualitative research. Convince others that they need to be like you.

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