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Abstract

The authors describe the process whereby a student with a background in economics was guided to understand the central role in qualitative research of the researcher as instrument. The instructor designed a three-part mock research project designed to provide experiential knowledge of the enterprise of qualitative research. Students, as neophyte qualitative researchers, were guided to develop a sophisticated understanding of the necessity for congruence between the ontological and epistemological philosophical underpinnings of the research question, data collection techniques, and analysis. An example of the trail of analytic decisions one student made during analysis is included to show the complexity of qualitative analysis and interpretation.

Keywords

Researcher as Instrument, Qualitative Analysis, Qualitative Research

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Learning the Concept of Researcher as Instrument in Qualitative Research

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The authors describe the process whereby a student with a background in economics was guided to understand the central role in qualitative research of the researcher as instrument. The instructor designed a three-part mock research project designed to provide experiential knowledge of the enterprise of qualitative research. Students, as neophyte qualitative researchers, were guided to develop a sophisticated understanding of the necessity for congruence between the ontological and epistemological philosophical underpinnings of the research question, data collection techniques, and analysis. An example of the trail of analytic decisions one student made during analysis is included to show the complexity of qualitative analysis and interpretation. Key Words: Researcher as Instrument, Qualitative Analysis, Qualitative Research.

A naïve view of qualitative research is that it can be conducted according to the canons of quantitative research and, as such, that it is merely a modification of quantitative research. More disconcerting is the view that qualitative research is second class. However, Sandeloswki (2004) reminds us that an important contribution of qualitative research is that it "complicates and thereby unfreezes the idea of evidence, foregrounds the politics in definitions of evidence, and precludes a priori prejudices against certain types of evidence" (p. 1382). To become a qualitative researcher requires a whole new way of thinking about what counts as evidence. Unlike in the natural sciences, where an Archimedean point is prized for its vantage point of total objectivity of the researcher in relation to the object of study, qualitative researchers accept that evidence is not a given, fixed reality. Thus, qualitative health researchers challenge the hegemony of a hierarchy of evidence based solely on the allure of the randomized control trial as the gold standard in health care research. They take a much more nuanced and complex view of what constitutes evidence in health research.

In this article we discuss how a student with a Master's degree in Economics enrolled in an Advanced Qualitative Research course as a part of a subsequent Master's Degree in Applied Health Services Research (MASHR) and was guided to expand her thinking about the nature of evidence and the concept of researcher "as the primary instrument or medium through which the research is conducted" (Lofland, Snow, Anderson, & Lofland, 2006, p. 3). Being told that qualitative research is different from quantitative research is different than actually experiencing the difference. We believe that learning how the researcher plays a central role in generating and interpreting data in qualitative research assists neophyte qualitative researchers in understanding the complexity inherent in qualitative research. To provide a context for the discussion we first describe the background on the unique nature of the master's program; subsequently, we describe how within the course the student was guided to develop an appreciation for qualitative research.

Context of the Educational Program

The Atlantic Regional Training Centre

Atlantic Canada is a largely rural area especially when compared to other parts of Canada and the United States. Thus, increasing capacity for health service research has been a focus of the Atlantic Regional Training Centre (ARTC), which is one of four applied health research training centres funded by the Canadian Health Services Research Foundation and the Canadian Institutes for Health Research through the Capacity for Applied and Developmental Research and Evaluation initiative. The ARTC is a collaborative endeavor among four Atlantic Canada universities (Dalhousie University in Nova Scotia, Memorial University of Newfoundland, the University of New Brunswick and the University of Prince Edward Island), offering both a MAHSR and opportunities for PhD studies. The master's program consists of eight courses in health care research plus "rotating theme-based workshops as forums for interchanges among decision makers, students, and faculty; a residency placement where students apply theory and concepts within a decision-making organization; the involvement of health decision makers in thesis work; and dissemination of research results to decision makers parallel to traditional academic requirements" (ARTC, nd, ¶ 5). Students in the MASHR program come from diverse disciplines and backgrounds and may have limited background in the healthcare field. By the end of the program, students are expected to demonstrate grounding in scholarly research techniques and a comprehensive understanding of distinct theoretical and practical perspectives underpinning a multidisciplinary understanding of key issues in health service policy, administration, and delivery (ARTC, nd).

To accommodate the challenges of accepting students at four distant geographic sites, students are enrolled in cohorts and follow the same course and residency sequence over the two years of study. In the second year of study, students elect to gain more in-depth knowledge of either qualitative or quantitative research. Students are physically located at all four sites and the faculty member is located at one of the four host universities; therefore, course delivery is accomplished through a combination of synchronous and asynchronous web-based courses, teleconferencing, and face-to-face meetings at the beginning and end of the academic term.

The Advanced Qualitative Research Course

The first and last classes for the Advanced Qualitative Research course, hereafter referred to as the course, are held as face-to-face classes at the beginning and end of the academic term designed to coincide with timing of the required attendance at rotating theme-based workshops. While all students enter the course with a basic understanding of the difference between qualitative and quantitative research approaches, they do not have a comprehensive understanding of the ontological and epistemological underpinnings of qualitative research. Thus, as shown in an excerpt from the course syllabus shown below students are introduced to the notion that methodological integrity is contingent upon ontological and epistemological clarity.

> A core belief underpinning this course is that the choice between different research methods is entirely dependent on what the researcher is trying to learn. Qualitative research approaches offer an important perspective for addressing issues of concern for applied health research and should not be chosen merely because of an aversion for numbers or a misconception that qualitative research is atheoretical and/or "simple". In qualitative research the researcher as instrument is an accepted and acceptable stance. This means that it is imperative that the qualitative researcher be fully aware of how his/her ontological and epistemological position underpins the research…

One expected outcome of the course is that students will move away from naïve views that a) qualitative research is merely a modification of quantitative research and b) that quantitative research is inherently superior. In introductory courses on research, students learned that in quantitative research the preliminary preparation of a research proposal includes determining how theoretical frameworks help frame research questions and that research instruments are used as a means to objectify and measure a variable or phenomenon. The teaching/learning activities in the advanced qualitative course all revolve around the theme of researcher as instrument. First, students are exposed to a view that what constitutes evidence is a contested issue and furthermore, how differing views of evidence influence the role of the researcher. For example, students are exposed to issues such as the relationship between evidence-based practice and economic rationalism as well as the role of values and ideology in constructing evidence (Holmes, Murray, Perron, & Rail, 2006; Raphael, 2000). They discuss how ideology, values and data all interact to form evidence and how because of this interaction it is important to accept pluralism in research methods (Jensen, 2007; Mykhalovskiy et al., 2008; Rankin, 2003). Students also learn that the quality of observation data is contingent on the expertise of the researcher who serves as instrument in generating the data. They consider whether observation is the appropriate method for the research question and learn about the ethics, challenges of and range of participant observation (Lofland et al., 2006). They also deliberate how the perspective of the researcher influences the type of data generated through observation (Chawla, 2006; Morse, 2003a; Savage, 2000) and consider how the quality of field notes is entirely dependent on the skill development of the researcher as instrument (Emerson, Fretz, & Shaw, 1995). Most, if not all, students initially enter the course thinking that anyone can conduct an interview; that it is a simple matter of asking questions and recording answers. Throughout the course this view is transformed as they contrast the practice of asking the same question in the same sequence characteristic of the approach used in quantitative interviews with the more unstructured format of qualitative interviewing (Fontana & Prokos, 2007; Rubin & Rubin, 2005). In doing so they learn that, as was the case with observation and field notes, the researcher as instrument can develop skills of interviewing that will enhance the depth and quality of the data generated.

Linking Classroom Learning to Course Assignments

Students are guided to reflect on their development as research instrument through a mock research exercise where the outcome is that they are expected to learn the process of conducting research rather than develop specific findings. Specifically, a three-part assignment assists students to learn techniques of observation, interviewing and analysis/interpretation. An excerpt of the course syllabus is shown below.

> In this course, a mock research project consisting of three specific assignments is used to assist students to develop experiential insight with qualitative research evidence that takes them beyond a cognitive level of understanding… In qualitative research where the researcher is considered a research instrument the ability to observe "mundane" details, to conduct in-depth interviews and to reflect on the meaning of observation and interview data are all essential to success. These attributes are not naturally inherent in all individuals and the purpose of these three assignments is to assist you in developing and refining yourself as an "instrument" for doing qualitative research...
>
> The mock research project is developed from a descriptive qualitative research approach. The research question is: What are the sources of influence in health promoting or preserving practices of university students. Ethical approval for the mock research project has been received and a common recruitment letter, consent form, participant information sheet and an interview guide are to be used. Students should read the "research proposal" and ethics application prior to beginning the assignments.

The mock research project. The mock research project was designed to enable students to develop their skills in conducting observation in a naturalistic setting, carrying out unstructured interviews and developing a credible interpretation of the data generated through observation and interviews. In order for students to have sufficient opportunities to develop these skills the class, as a whole, completed the same mock project. Initially this was disconcerting for some students who wished to do fieldwork and interviews related to their specific research interest. They were informed that the skills of observation, interviewing and interpretation are all transferrable and that the instructor believed that a common mock project would enable them to focus more on the process of skill development than would occur if each focused on their own area of interest.

For purposes of understanding the transformation of student's perceptions about qualitative research we believe it is important to briefly describe the various parts of the mock research project. In the first component students conducted two separate 1-hour observations in public locations where university students congregate. Observation is one of the most common and also most demanding qualitative research methods. It requires researchers to use all of their senses and acquire a variety of research techniques. Among other skills, an observer should be able to understand the language of people studied, to establish explicit awareness of details, and to maintain a position of novice even in

familiar settings (Bernard, 1988; Emerson et al., 1995). For this observation exercise, students transcribed their field notes and posted them for access by all students within the web-based learning platform used in the course. In addition, in reflecting on their development as a research instrument, they submitted to the course professor a paper including a discussion of the challenges faced and benefits gained in using observation as a way of examining the research question. They were expected to include the following aspects in their reflective paper: process, issues, and decisions made prior to entering the field; how these issues and decisions changed or stayed the same during field work; concrete and specific examples of how they transformed jottings in the field to full field notes; and an appraisal of what they would do differently and what they would do the same in future field work.

For the second component the students completed two interviews with university students, transcribed and posted the interviews for access by their classmates. To further refine their understanding of researcher as instrument they submitted a second reflective assignment to the course professor incorporating issues such as how they recruited participants and how decisions made prior to and during the interviews altered the quality of interview data. As was noted earlier in the excerpt from the course syllabus, the mock research project underwent ethical review and all students were required to read the submission to the research ethics board prior to beginning the assignment. Students were expected to assess their explanation of the research process and the consent; their flexibility with the interview guide; how they handled silence, overlapping talk, and interruptions in the interviews; the quality of the responses they received, etc. In addition, they were directed to determine how their interview technique changed over the two interviews, what they would do differently, and provide concrete suggestions for improvement in their interview technique.

For the last component of the mock research project, the students created a project set using their own transcriptions and field notes as well as those from their classmates. Students used pseudonyms in posting field notes and interview transcripts. Field notes and interview transcripts were posted in the web-based learning program used for the course and only students in the course and the instructor had access to the field notes and transcripts. The continued emphasis on researcher as instrument remained part of the process of learning how to complete analysis of qualitative data. Students were expected to present an analysis that was developed at a beginning conceptual level and to include trail of analytic decisions that were defensible and readily able to be discerned. They were told that the analysis should mirror the complexity of the research question rather than comprising facile explanations. In the next section we include excerpts of one student's (MX) analysis to demonstrate how she learned to be an instrument in interpreting qualitative data.

Throughout the three parts of the mock exercise in research students were required to reflect on the role of researcher as instrument. Encouraging the students to intentionally reflect on how they conducted fieldwork and interviews and how they made decisions about interpretation helped them recognize how human consciousness of the researcher influenced data generation. In all three exercises students were required to examine and record the impact of the researchers and the intersubjective elements of the mock research project. While there were many opportunities for learning through reflection, for purposes of this discussion the issue of informed consent is used. The

format of the exercise required each student to post field notes and transcripts for access by all students in the class. Students were required to post one set of field notes before conducting the second observation and to post interview transcripts in an identical manner. The opportunity to see the varying level of detail different students wrote in their field notes provided students with the prospect of being able to reflect on what they chose to observe, whether they were using impressionistic and opinionated language in field notes, and how concrete details "show rather than tell about people's behavior" (Emerson et al., 1995, p. 53). Reflection on these issues then helped them to examine their beliefs and values surrounding the ethics of observation in public settings. Despite knowing that the mock research project had received ethical approval, some students were very uncomfortable with the requirement to conduct observations. This discomfort led them to ponder the dilemma of whether it was deceitful to conduct observation research in public settings. They began to more deeply reflect on issues such as the impossibility and advisability of obtaining consent in public settings, the presumption of no harm coming to those people being observed and the expectation of privacy in public settings (Lofland et al., 2006). The requirement to reflect on both the observation experience and interview experience further deepened students' understanding of informed consent in qualitative research. Some of the students included the discussion of consent in their interview transcripts and others did not. Some followed the exact phrasing of the research question when obtaining consent and others explained the purpose in more colloquial terms. The exposure to differing approaches helped students to learn that flexibility in data collection qualitative research is also accompanied by flexible treatment of summary protocol forms required by research ethics boards (van den Hoonard, 2002). The requirement for students to keep a trail of analytic decisions made when they developed the interpretation helped them to address the issue of ethics of representation of qualitative research. For example, many students were concerned about bias. They learned that in qualitative research the role of the researcher is not simply to collect data from a representative sample and provide a voice for the participants, but also to interrogate the data and provide informed commentary (Morse, 1998, 2003b). They reflected on the relationship of high quality research and ethics. They considered it ethically responsible to present the interpretation in ways that would promote understanding the complex social world to students of university in profoundly different ways (Hutchinson, 1999) than occurs in quantitative research. The focus of this paper is on how the student developed the interpretation rather than on the data collection phase of the mock research project. Therefore, in the next section we include excerpts of one student's (MX) analysis to demonstrate how she learned to be an instrument in interpreting qualitative data.

Developing an Interpretation

As a master's educated economist, I (MX) have been taught to use advanced methods in statistical analysis, mathematics, and computer programming to analyze data. Throughout the course I read that qualitative data is an "extremely complex, detailed, and subjective" (Bereska, 2003, p. 61), analysis of qualitative data is making sense out of the "chaos and confusion" (Patton, 2002, p. 432), and that the data must be reduced and managed before theoretical conclusions emerge (Marshall, 2002). However, I had no concept of the complexity of the process of qualitative data analysis until completing this

assignment. I learned that it involves "identifying, coding, categorizing, classifying, and labeling the primary patterns in the data" to "determine what is significant" (Patton, 2002, p. 463). I will explain how in coding, labeling, and categorizing the data I was refining myself as a research instrument while simultaneously developing my interpretation.

How were the data coded?

As was noted previously, in the excerpt from the course syllabus, the mock research project was developed from a descriptive qualitative research approach. Sandelowski (2000) describes "qualitative description as a method that researchers can claim unashamedly without resorting to methodological acrobatics" (p. 335). In qualitative descriptive research the researcher is not required to develop a highly abstract rendering of the data but is required to produce a "complete and valued end-product" (Sandelowski, 2000, p. 335). The first step of developing my end-product was to develop a manageable coding scheme. Before beginning my analysis, I first had to figure out what to do when coding data (Marshall, 2002). For this project I decided to use a traditional method–doing it manually without the assistance of specific qualitative analysis software. Using a manual coding process can "highlight the thinking and mechanics involved" (Patton, 2002, p. 463). Below I describe step-by-step how my codes were developed.

Initial identification of codes. The data for this mock research project consisted of 31 pages of field notes and 59 pages of interview transcripts generated by my classmates. To initiate the coding process, I employed Bereska's (2003) suggestion of first reflecting on the purpose of the research. Since the purpose of the research was to find out how full-time university students promote and preserve their health, I first started my coding process by conceptualizing "health" especially health for full-time university students. Prior to beginning the analysis I augmented my personal and experiential knowledge of health by reviewing the 12 key determinants of health defined by Public Health Agency of Canada (nd). Being new to health research as well as qualitative analysis, a literature review on what constitutes health provides me with an integrated understanding of the scope of the research project. However, it i-s worth noting that the pre-research process may give pre-conceptions about what to find and therefore import borrowed theories into one's research. According to grounded theory, codes should only emerge from the data, not the extant theory. It ensures researchers remain open to original concepts and therefore helps them develop theoretical sensitivity (Glaser & Holton, 2004).

After refreshing my understanding of what determines health, I read the 10 field notes and 10 interview transcripts posted by my classmates. As I carefully examining the field notes and transcripts, each time I noted something related to health and determinants of health I made a note in the margin. In this note, I used a word or a phrase to alert me to the context of the situation. The word or phrase that I placed in the margin became my initial code. After I identified a code word I then added more detail in a bracket to describe what the event was, why it happened, how it impacted the individual's health, etc.

> Excerpt from Student C's Interview Number 2, p. 3
> Interviewer: … What do you think really enhances your health in terms of eating?
>
> Respondent: I think… I really like vegetables. And I think that it is important to eat vegetables. But I think its….I try to have a balanced diet. You know, like I'm not a picky eater so I try to eat everything. And I do eat the gross fatty foods sometimes but I try to stay away from that. But I try to incorporate every day you know a variety of fruits and vegetables, and, you know, just a variety of food.
>
> Interviewer: And what sort of things helps you get that variety? How do you manage to get that variety?
>
> Respondent: Well, you know, I have to lend that to my mother because she is the grocery shopper so she gets the good food and everything. And I just pick from it, and I'm like okay, I need this and this and this for lunch. And I always make sure I eat breakfast. I never go without eating breakfast.

On the margin of this data passage, I used "healthy diet" as my code. In a bracket following the code, I added the following description: "more fruit and vegetable; balanced; variety; importance of breakfast; depending on family support".

After reviewing the data from all five of my classmates following the process described above, I had a series of notes on the margin of each field note and interview transcript. I then reviewed all of the field notes and interview transcripts a second time while examining my initial set of codes and the brief description I had attached to each of them. During this second reading I made a new document where I organized my notes in a two-column table. In the first column, the particular codes and the more detailed description were listed; in the second column, the relevant quotations from the raw data were also included.

Working back and forth. A number of issues arose for me during the process of assigning codes to raw data. First of all, I found as Patton (2002) had warned that within the data there were always many passages illustrating "more than one theme or pattern" (p. 463). For example, the code "exercise" was usually related to time, stress, and access to facilities. The code "healthy diet" was often associated with time, money, family support, coping skills, or food choices at university facilities. I found that there were not many quotations that were specifically focused on one code and almost every code was somehow related to other quotations. The overlapping and entanglement among different codes increased the complexity of the coding process. It was difficult to illustrate how the codes were interrelated, and for a particular passage, which particular code should dominate the others. As an attempt to solve this overlapping issue I decided to add a third column to the table. In this column I tried to describe the potential relationships between the assigned code and the others, or to use a different wording that might have been more

descriptive and representative than the initial code. In the following table I demonstrate how I used the third column to help me to see connections between codes.

Table 1. Early Attempt at Explicating Assignment and Connection of Codes to Data Excerpts

Assigned code and description	***Quotation***	***Connection with other codes***
Addiction	Fred: "I need a smoke." Cathy: "You have to quit." Fred: "I did, but then I started again last month when my girlfriend thought she was pregnant. I was smoking hard…all the time." Cathy: "What!" Fred: "Yeah, I told her to pee on the strip again. Man, I don't want to go through that again, it was a bad time." Cathy: "You're serious?" Fred: "Yeah, it sucked." - Student E's Observation No. 2, p.4	Coping skills; Stress management; Sexuality
Stress management	"Definitely being involved in a master's program and doing school work outside of paid work, it just makes it a little bit more difficult sometimes to make it to the gym or make healthy choices when I eat because sometimes it just takes a little bit longer to prepare healthy meals than it does to grab something quick." - Student B's Interview No. 2, p.1	Exercise; Healthy diet; Time management; Coping skills; Priority setting

After adding the third column I now had an initial code and a set of secondary codes to consider in relation to the selected passages. This then allowed me to reconsider my coding as I continued to more thoroughly review the data. According to Patton (2002), the qualitative analyst must work back and forth between the data to deal with the challenge of convergence and divergence of codes or categories. When working back and forth through the data using the process described above I was able to more effectively rearrange some of my initial codes.

Generation of new codes. When something caught my attention for the first time, I created a new code for it and also reviewed the data to see if it had emerged elsewhere.

Excerpt from Student C's Interview Number 1, p. 9.

> Interviewer: Sometimes we have people in our lives who have influenced us. Has anyone influenced you in terms of the choices that you make about your health or your healthy activity?
>
> Respondent: … Umm, my boyfriend has been a big part too just because he is very active and he's extremely athletic. And it's sort of motivating for me just to see what his life is like and how he is so active. And so …he has a really good balance in his life so it's been a…it's kind of motivational for me. And I don't want to… I kind of want to keep up with that just because I would like to have the same balance that he does. So I find that has been a big thing for me.

Initially I assigned the code "social support" to this passage. I also wrote the following description: "support from friends, motivation". After I introduced the third column I added a couple of secondary codes: "exercise" and "balance". When I went through the notes for another time, I noticed the word "motivational" and realized that the passage was more of an illustration about motivation rather than social support as there was no indication that the boyfriend was intentionally supporting the respondent. On the contrary it was the respondent who recognized the influence herself and tried to keep up. Therefore I decided to create a new code "motivation" to replace "social support" for this passage.

After creating the new code, I returned to both the raw data and my notes to look for information related to "motivation" in other places. I found additional passages and codes that also contained the message of "motivation". Depending on how strong the message was, I used "motivation" either as a secondary code (Table 2) or as a replacement for the original code (Table 3). By repetitively coming across the notion of motivation, I was convinced that "motivation" was a valid code.

Dealing with convergence. According to Patton (2002), qualitative researchers must deal with the challenge of convergence of data or reveal patterns that can fit things together. When I came across a number of codes that could be linked together, I grouped them to generate a new code that summarized the pattern. For example, for one passage my initial set of codes included "living conditions", "facilities in public places", and "family atmosphere". These codes contained one pattern – the environment. Therefore, I decided to group them together and create a new code – "environment", which comprised both physical and social environment. Instead of being a separate code, each of the "living conditions", "facilities in public places", and "family atmosphere" became a thread under "environment". As none of these original codes was frequently encountered, grouping them together also helped to add clarity.

Dealing with divergence. Checking for divergence is the mirror analytical strategy of dealing with convergence (Patton, 2002). Without a certain degree of distinction between different notions, it is possible to lose useful information. For example, during my first coding process I identified "social support" as a code. The descriptions following this code demonstrated the richness of the information. There were different types of social support, such as support from family, support from friends, as

well as support from university professors and administrators. Respondents had different understandings and expectations about support from different sources; these supports also had different impacts on the respondents' health practice. Frequency is another factor that should be considered when dealing with divergence. As I worked back and forth reading the data, social support appeared to be one of the most frequent patterns, especially in the interviews. I recognized that the use of an overall code of "social support" did not capture the complexity of the participant's experience. Therefore, considering both the richness and frequency of the information, I decided to split the initial code "social support" into three individual codes: "family support", "peer support", and "university administration support".

Table 2. Refining Explication of Assignment and Connection of Codes to Data Excerpts

Assigned code and description	***Quotation***	***Connection with other codes***
Social support - support from family, encouragement	M: So, I think that, you know, honestly for me I couldn't do it as well without them, for sure. Because if there is no one there kinda telling you that they're proud of you, or um, giving you that pat on the back for a good mark, then…to me there's not kind of a whole lot of motivation to do it. - Student E's Interview No.1, p.2	Emotional support; (Motivation)
Physical activity – go for a run with friend	R: Yes, we usually will run together. …But usually we would go together just because it adds more motivation to know that you have someone there who is also doing the same thing as you, and you are not just there like trying to keep going by yourself. - Student C's Interview No. 1, p.13	Socialization; (Motivation)

Table 3. Process of Replacement of Initial Codes

Assigned code and description	***Quotation***	***Connection with other codes***
Environment – working environment, go to school for better efficiency	A: So you still go to school every day even if you don't have to? B: Yeah. That's because I work better at school. The efficiency of my work is really really low at home (Laughs). - Student A's Interview No. 2, p.4	Motivation

How were codes categorized? After continuously moving back and forth between the notes I rearranged some of my original codes and generated a final list of 15 codes. These codes can be divided into two broad categories – personal factors influencing health or "health behavior", such as physical activity and healthy diet; and external factors or "health context" such as support and environment. By further examining the "health behavior" factors, I noticed that a considerable portion of the data were about the students' comprehension of health, their recognition of the importance of health, and their intention to maintain and promote health; the rest was more focused on their everyday health practice. It is worth noting that the former did not necessarily lead to the latter. Some students appeared to have perfect knowledge about why and how to maintain a healthy lifestyle but did not seem to have applied it to their everyday practice. Considering the distinction, I decided to further divide "health behavior" into "health intention" and "health practice". As a result, I created three main categories: "health intention", "health practice", and "health context". I then assigned all 15 codes to these categories. There were no codes left out and no new categories needed to be generated.

How were themes generated?

Following the above coding and categorizing activities, the data were organized into a more manageable volume and structure to allow for generation of themes. Although the health behaviors of university students depended on their individual characteristics such as age, gender, financial status, social relationships, self beliefs, personal health conditions, etc., I could identify some common features or themes. The process of identifying themes helped me to further conceptualize the underlying patterns in the data. By revisiting both the raw data and the analytical notes, I identified three themes from the initial codes - "time", "coping skills", and "social support" (see Figure 1). In this section, I will briefly describe how I derived these themes.

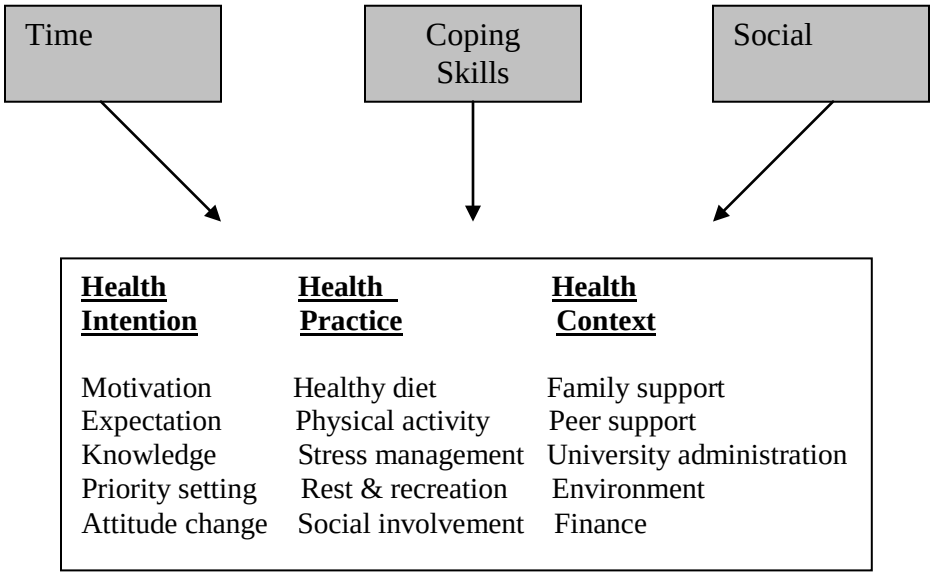
Time. Time management has been recognized as being related to students' health status, especially mental health status (Maville, Kranz, & Tucker, 2004; Pau, Croucher, Sohanpal, Muirhead, & Seymour, 2004). In this mock research project I identified "time" as one of the initial codes. However, during the refinement of the coding scheme, time appeared to be more significant than the other codes. Not only did its persistent occurrence confirm its importance, the concept of time was also saturated in many other codes such as priority setting, attitude change, physical activity, healthy diet, university administration, etc. To eliminate the potential of overlap between codes, I decided to upgrade "time" from a code to a theme.

Coping skills. Another theme extracted from the original codes was personal coping skills. Skills in personal coping are one of the determinants of health defined by the Public Health Agency of Canada. It refers to actions "by which individuals can prevent diseases and promote self-care, cope with challenges, and develop self-reliance, solve problems and make choices that enhance health" (Public Health Agency of Canada, nd). The data from the 10 observations and 10 interviews revealed that university students require a range of coping skills in order to juggle school with other aspects of their lives. Personal coping skills were closely related to most of the other codes,

especially those in the health practice category. In particular, university students require certain coping skills in order to maintain a reasonable activity level, to prepare healthy meals, to manage stress, and to take part in social activities. As personal coping skills involve using internal resources to handle external influences, it allowed me to extract an even broader range of information–factors influencing health both internally and externally.

Social support. As discussed previously, social support is another dominant theme that can be derived from the data. There is evidence linking social support with health (Janevic et al., 2004; VonDras & Madey, 2004). According to the data in the current study, social support included support from family, friends/peers, and universities. Family support was usually related to food provision, financial support, and emotional support; peer support was generally in the form of providing companionship and motivation; support from universities was usually offered through administration. Although each type of social support influenced students' health differently, social support was a common component reflected in almost all interview transcripts and a majority of observation field notes.

Figure 1. Factors affecting students' health



Utility of the Analytic Process

University students are presented with a unique set of challenges and stressors as they transition from adolescent to adult. In addition to the issues facing most adults such as finances, relationships, etc., university students face other challenges such as social environmental change, attitude adjustment, school performance, career development, etc.

How university students maintain a healthy lifestyle while juggling school with other aspects of their lives will have a significant influence on their educational performance and their future development. While the factors affecting university students' health may at first seem self-evident, Morse (2009) reminds us that "interpretative analysis is … making the trivial profound and the obvious significant" (p. 579). Developing the analysis of the data collected during the mock research project in the way that has been described provides a focus for intentionally thinking about development of health policy in universities.

Lessons Learned

Wolcott (2002) suggests that "qualitative researchers should reveal and revel in complexity" (p. 129). At the same time it is important for qualitative researchers to remember that at times they may be writing for an audience more used to statistical analyses (Belgrave, Zablotsky, & Guadagno, 2002). In quantitative research the conventions of analysis are systematic, highly structured, and empirical in nature. That the same situation does not exist in qualitative data analysis can be somewhat disconcerting for the neophyte qualitative researcher who wants not only a recipe for analysis but also a clear understanding of what constitutes evidence. Human beings are not capable of an omniscient point of view; interpretations and conceptions imposed on external reality can be challenged or resisted; thus Murphy and Dingwall (2003) argue for use of subtle realist ontology in health policy research. Subtle realist ontology underpinned this mock research project and students learned that a constructionist epistemology requiring them to be partners with research participants (Crotty, 1998) was consistent with the ontological foundation of the mock research project. Students learned through phases of data collection and analysis that they became active partners with the research participants in co-creating the meaning of university students' health promoting and preserving practices.

Becoming partners in creation of knowledge means that qualitative researchers must become and develop as research instruments. In doing so, students struggled more with the requirements of the observation component as compared to the interview component. Data collected through skilled observation can provide rich research data which can complement data collected through interviews. Sandelowski (2002) noted that qualitative research may not be as full-bodied as possible without including observation. In learning to collect data through observation, the students' commitment to the role of researcher as instrument is enhanced when they recognize that observation is not simply voyeuristic but serves a purpose. The discretion of what to observe is in the hands of the observer and thus students learn firsthand how to deal with issues such as ethics of covert observation in public spaces, insider/outsider status, participant/non-participant observation, potential sources of bias, etc. There is extensive literature on the role the researcher plays in designing and conducting qualitative research (Chavez, 2008; Cooper, Lewis, & Urquhart, 2004; Dwyer & Buckle, 2009; Patton, 2002). Students learn from their own experience that the involvement of the observer in the setting is the "first and most fundamental distinction that differentiates observational strategies" (Patton, 2002, p. 265). They learn to balance between "understanding the setting as an insider" and "describing it to and for outsiders" (Patton, 2002, p. 268). They question the extent to

which their personal experience and presumptions had influenced the findings of their observations. This process inspires further critical thinking and increases their understanding of qualitative research as a process of self-reflection. In being exposed to field notes from five different classmates, students gain a deep appreciation for differences in what the observers focus their attention on and how they describe what is taking place. Thus, they learn to recognize and attempt to overcome their own preconceived ideas about observation as data collection and the purpose of the research.

The interview is a widely used method of generating data in qualitative research (Burns, 2003; Hermanowicz, 2002; Lofland et al., 2006; Nunkoosing, 2005; Roulston, deMarrais & Lewis, 2003; Rubin & Rubin, 2005). Indeed, Silverman (2000) suggests that the "choice of the open-ended interview as the gold standard of qualitative research is pretty widespread" (p. 291). While students enter the advanced qualitative research course with a basic understanding of the role of interviews in data collection, the mock research exercise affirms for them that interviews are not simple conversations. Instead, the interviewer must develop the art of hearing data (Rubin & Rubin, 2005) and develop "the use of self in relationship building … to communicate with people to create stories" (Nunkoosing, 2005, p. 698). When students are exposed to interview transcripts completed by others on the same topic they learn, at an experiential rather than theoretical level, that quality of data is dependent on the ability of the interviewer to attend to the flow of conversations by using effective interviewing skills such as probes, silence, and follow-up questions.

Finally, at the analysis stage of the mock research assignment, students develop confidence in their ability to bring together the nearly 100 pages of observation and interview research data in a rigorous way to generate a nuanced and thorough interpretation. They learn that creating an audit trail of their analytic decisions contributes to verisimilitude of the interpretation (Holliday, 2002). In the final class where all students present their interpretations, they learn that the depth and complexity of the interpretation is determined by the effectiveness of the researcher as instrument.

Conclusion

Neophyte qualitative health researchers must learn how to effectively develop themselves to a research instrument capable of collecting rich data and developing a nuanced and complete interpretation congruent with the philosophical underpinnings of the research and reflective of the complexity of health. Yet, researchers do not possess the innate attributes for high quality data collection and analysis. A course designed to assist a group of students to focus on the process of learning about qualitative research rather than on individual substantive research interests is one way to actively assist students to meaningfully learn about the significance of researcher as instrument prior to embarking on real world research.

References

Atlantic Regional Training Centre (ARTC). (nd). *The Program*. Retrieved from http://www.artc-hsr.ca/The-Program.aspx

Belgrave, L., Zablotsky, D., & Guadagno, M. (2002). How do we talk to each other? Writing qualitative research for quantitative readers. *Qualitative Health Research, 12*(10), 1427-1439. DOI: 10.1177/1049732302238753

Bereska, T. (2003). How will I know a code when I see it? *Qualitative Research Journal, 3*(2), 60-74.

Bernard, H. R. (1988). *Research methods in cultural anthropology*. Newbury Park, CA: Sage .

Burns, M. (2003). Interviewing: Embodied communication. *Feminism & Psychology, 13*(2), 229-236. doi:10.1177/0959353503013002006

Chavez, C. (2008). Conceptualizing from the inside: Advantages, complications, and demands on insider positionality. *The Qualitative Report, 13*(3), 474-494. Retrieved from http://www.nova.edu/ssss/QR/QR13-3/chavez.pdf

Chawla, D. (2006). Subjectivity and the "native" ethnographer: Researcher eligibility in an ethnographic study of urban Indian women in Hindu arranged marriages. *International Journal of Qualitative Methodology*, *5*(4), Article 2. Retrieved from http:www.ualberta.ca/~iiqm/backissues/5_4/pdf/chawla.pdf

Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*. Thousand Oaks: Sage.

Cooper, J., Lewis, R., & Urquhart, C. (2004). Using participant or non-participant observation to explain information behaviour. *Information Research*, *9*(4). Retrieved from http://informationr.net/ir/9-4/infres94.html

Dwyer, S., & Buckle, J. (2009). The space between: On being an insider-outsider in qualitative research. *International Journal of Qualitative Methods, 8*(1), 54-63.

Emerson, R., Fretz, R., & Shaw, L. (1995). *Writing ethnographic fieldnotes*. Chicago, IL: University of Chicago Press.

Fontana, A., & Prokos, A. (2007). *The interview: From formal to postmodern.* Walnut Creek, CA: Left Coast Press.

Glaser, B. G., & Holton, J. (2004). Remodeling grounded theory. *Forum: Qualitative Social Research*, *5*(2), Article 4. Retrieved from http://nbn-resolving.de/urn:nbn:de:0114-fqs040245

Hermanowicz, J. (2002). The great interview: 25 strategies for studying people in bed. *Qualitative Sociology, 25*(4), 479-499.

Holliday, A. (2002). *Doing and writing qualitative research*. Thousand Oaks, CA: Sage.

Holmes, D., Murray, S., Perron, A., & Rail, G. (2006). Deconstructing the evidence-based discourse in health sciences: Truth, power and fascism. *International Journal of Evidence Based Health, 4*, 180-186. doi:10.1111/j1479-6988.2006.00041.x

Hutchinson, S. (1999). The development of qualitative health research: Taking stock. *Qualitative Health Research, 11*, 505-521.

Janevic, M., Janz, N., Dodge, J., Wang, Y., Lin, X., & Clark, N. (2004). Longitudinal effects of social support on the health and functioning of older women with heart disease. *The International Journal of Aging and Human Development*, *59*(2), 153-175.

Jensen, U. (2007). The struggle for clinical authority: Shifting ontologies and the politics of evidence. *BioSocieties, 2,* 101-114. DOI:10.1017/S17485520700508X

Lofland, J., Snow, D., Anderson, L., & Lofland, L. (2006). *Analyzing social settings: A guide to qualitative observation and analysis* (4th ed.). Boston, MA: Wadsworth.

Marshall, H. (2002). What do we do when we code data? *Qualitative Research Journal*. *2*(1), 56-70.

Maville, J., Kranz, P., & Tucker, B. (2004). Perceived stress reported by nurse practitioner students. *Journal of the American Academy of Nurse Practitioners, 16*(6), 257-262. doi: 10.1111/j.1745-7599.2004.tb00448

Morse, J. (1998). What's wrong with random selection? *Qualitative Health Research, 8*, 733-735. doi: 10.1177/104973239800800601

Morse, J. (2003a). Perspectives of the observer and observed. *Qualitative Health Research, 13*(2), 155-157. doi: 10.1177/1049732302234595

Morse, J. (2003b). Biasphobia. *Qualitative Health Research, 13*(7), 891-892. doi: 10.1177/1049732303253522

Morse, J. (2009). Going beyond your data, and other dilemmas of interpretation. *Qualitative Health Research, 19*(5), 579. DOI: 10.1177/1049732308330603

Murphy, E., & Dingwall, R. (2003). *Qualitative methods and health policy research*. New York, NY: Walter de Gruyter.

Mykhalovskiy, E., Armstrong, P., Armstrong, H., Bourgeault, I., Choiniere, J., Lexchin, J., Peters, S., & White, J. (2008). Qualitative research and the politics of knowledge in an age of evidence: Developing a research-based practice of immanent critique. *Social Science and Medicine, 67,* 195-203. dpo:10.1016/j.soxscimed.2008.03.002

Nunkoosing, K. (2005). The problems with interviews. *Qualitative Health Research, 15*(5), 698-706. DOI: 10.1177/1049732304273903

Patton, M. (2002). *Qualitative research & evaluation methods.* Thousand Oaks, CA: Sage.

Pau, A., Croucher, R., Sohanpal, R., Muirhead, V., & Seymour, K. (2004). Emotional intelligence and stress coping in dental undergraduates--A qualitative study. *Brazilian Dental Journal, 97*(4), 205-209. doi:10.1038/sj.bdj.4811573

Public Health Agency of Canada. (nd). Population health approach – Key determinants of health. Retrieved from http://www.phac-aspc.gc.ca/ph-sp/determinants/index-eng.php#determinants

Raphael, D. (2000). The question of evidence in health promotion. *Health Promotion International, 15*(4), 355-367. doi:10.1093/heapro/15.4.355

Rankin, J. (2003). 'Patient-satisfaction': Knowledge for ruling hospital reform: An institutional inquiry. *Nursing Inquiry, 10*, 57-66. doi: 10.1046/j.1440-1800.2003.00156.x

Roulston, K., deMarrais, K., & Lewis, J. (2003). Learning to interview in the social sciences. *Qualitative Inquiry, 9*(4), 643-668. DOI: 10.1177/1077800403252736

Rubin, H., & Rubin, I. (2005). *Qualitative interviewing: The art of hearing data.* Thousand Oaks, CA: Sage.

Sandelowski, M. (2000). Whatever happened to qualitative description? *Research in Nursing & Health, 23*, 334-340. doi: 10.1002/1098-240X(200008)23:4<334::AID-NUR9>3.0.CO;2-G

Sandelowski, M. (2002). Reembodying qualitative inquiry. *Qualitative Health Research, 12*(1), 104-115. doi: 10.1177/1049732302012001008

Sandelowski, M. (2004). Using qualitative research. *Qualitative Health Research, 14*(10), 1366-1386. doi: 10.1177/1049732304269672

Savage, J. (2000). Participative observation: Standing in the shoes of others? *Qualitative Health Research, 10*(3), 324-339. doi: 10.1177/104973200129118471

Silverman, D. (2000). *Doing qualitative research: A practical handbook.* Thousand Oaks, CA: Sage.

van den Hoonard, W. (2002). *Walking the tightrope: Ethical issues for qualitative researchers.* Toronto, CA: University of Toronto Press.

VonDras, D., & Madey, S. (2004). The attainment of important health goals throughout adulthood: An integration of the theory of planned behavior and aspects of social support. *The International Journal of Aging & Human Development, 59*(3), 205-34.

Wolcott, H. (2002). Writing up qualitative research…better. *Qualitative Health Research, 12*(1), 91-103. doi: 10.1177/1049732302012001007

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