



Article

Use of Participant-Generated Photographs Versus Time Use Diaries as a Method of Oualitative Data Collection

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Abstract

A small qualitative research study was chosen as a time efficient way to allow students to participate in and complete a research project during a 16-week long semester course. In the first year of the research contribution course, student researchers asked participants with diabetes to complete time use diaries as a part of their initial data collection. The time use diaries were found to be an ineffective way to collect data on self-management of diabetes and were not useful as a basis for subsequent interviews with the participants. A review of the literature suggested reasons for this lack of effectiveness; in particular, participants tend not to record frequently done daily activities. Further review of the literature pointed toward the use of participantgenerated photography as an alternative. Subsequent participants were asked to take photographs of their daily self-management of their diabetes for initial data collection. These photographs provided a strong basis for subsequent interviews with the participants. A comparison of the data collected and the emergent themes from the two different methods of initial data collection demonstrated the improved ability to answer the original research question when using participant-generated photography as a basis for participant interviews. The student researchers found the use of participantgenerated photographs to elicit interviews with participants in the context of a research contribution course to be effective and enjoyable.

Keywords: photography, time use diaries, qualitative, student researchers

Author Note: I would like to thank the student researchers who chose to participate in diabetes related research and all of their family and friends who willingly gave their time to be participants.

This article will explore the differences in using time use diaries versus participant-generated photographs for initial data collection in small qualitative studies as a part of a master's-level research contribution course. Incorporating entry-level, master's degree students into a research project in a way that is engaging, meaningful, and timely can be a challenge. As a way of managing the time constraints of a 16-week semester, I chose to use a small qualitative study to allow each student the experience of both collecting and analyzing data. Each student was required to recruit a participant, conduct an interview, and analyze his or her data both individually and as a group. As a part of data collection in the first year, the participants were asked to complete a time use diary. The time use diaries were not found to be particularly helpful, so participant-generated photographs were used the second year. Although there are limitations in using samples of convenience and student researchers, this article will focus on specific aspects of data collection leading to richer data being obtained. I will present a comparison of the results from each year and conclusions regarding the usefulness of participant-generated photographs for elicitation of information during interviews.

Diabetes Research Year 1

Diabetes is a chronic condition that disrupts the normal production or processing of insulin. Insulin is necessary for converting the carbohydrates we eat into energy for our bodies. Type 1 diabetes, previously referred to as juvenile diabetes, is a chronic condition characterized by a lack of production of insulin. Type 2 diabetes, previously known as adult onset or non-insulin-dependent diabetes, is a chronic condition where the body has difficulty processing the glucose needed to give the body energy. At the age of 50 years old, I was diagnosed with Type 2 diabetes. I spent a year learning to manage my life, including long-acting insulin, medications, diet, and exercise, as a Type 2 diabetic. A year and a half later I went to an endocrinologist who correctly diagnosed me with late-onset, autoimmune Type 1 diabetes. So I spent yet another year relearning how to manage my life as a Type 1 diabetic using mealtime insulin instead of medications.

As I moved through this process I was struck by the occupational nature of diabetes self-care—how it became a part of all I was doing. I began to review the research literature related to diabetes and self-management. Most of the research focused on how to get persons with diabetes to be compliant with medical recommendations for self-managing their diabetes. I was frustrated by the focus on compliance that seldom looked at the issue from the point of view of the person with diabetes. Diabetes self-management is a very complex occupational balance that involves sophisticated medical management of diet, exercise, and medication and/or insulin use. Many studies oversimplified diabetes self-management. For example, studies looked at walking as a solution to getting daily exercise. In the opinion of the researchers, walking was a simple and inexpensive treatment. They did not consider things like: was it safe to walk in the neighborhood in which the person with diabetes lived; did the person enjoy the activity of walking; did walking impact his or her blood glucose levels over an extended period of time, among other things (Johnson, Boulé, Bell, & Bell, 2008; Morton, West, Stephens, Bain, & Bracken, 2010).

Because of my experiences and the fact that many of my students have relatives and friends with diabetes, I chose the examination of the occupational nature of diabetes self-management as the focus of their research project. The research study was first approved by the university Institutional Review Board (IRB) and written consent was obtained from the participants. The students were to explore how persons with diabetes manage their daily care from their own occupational point of view. On their first visit, student researchers asked the participants to complete a time use diary for two days, a typical weekday and a weekend or non-typical day. Occupational therapists and occupational scientists commonly use an activity log, also referred to as a time use diary, in collecting information about daily activities for purposes of research or

treatment (Bejerholm, Hansson, & Eklund, 2006; Orban, Edberg, & Erlandsson, 2011). The time use diary required each participant to record the time an activity began and the time it ended, as well as what they were doing, with whom, and where and if the activity was pleasurable, productive, or restorative. There was also a space for comments. Participants were told that we were researching diabetes self-management and then given specific instruction to include their diabetic care in the time use diary. They were not restricted to specific time intervals.

When the time use diaries were collected and examined, we were surprised to find that only half of the six participants had specifically mentioned any diabetes self-management. One was a young woman with Type 1 diabetes who noted the times she checked her blood glucose levels and occasionally mentioned taking insulin, but she had no other description of diabetes self-management. Another participant was a young man with Type 1 diabetes who noted that he set an alarm to wake up and check his blood glucose level at two in the morning. The third participant was an older woman with Type 2 diabetes who mentioned taking readings ("sugars and blood pressure") and taking medication and insulin. The other three participants did not describe any diabetes self-management, although one made a note in the comments section of the time use diary that his blood glucose was on the high side. He had identified that "what he was doing" was eating cherry tomatoes and sliced turkey. There is no description of how he knew that his blood glucose was high or if his blood glucose level impacted what he was eating. The student researchers were able to ask about diabetes self-management in their follow-up interviews, but the time use diaries were of minimal to no assistance.

Time Use Diaries

A search of the literature found that researchers in occupational therapy and occupation science primarily supported the use of time diaries (Chilvers, Corr, & Singlehurst, 2010; Crowe & Florez, 2006; Erlandsson & Eklund, 2001; Farnworth, 2000; Larson & von Eye, 2010; Orban, Ellegård, Thorngren-Jerneck, & Erlandsson, 2012; Scanlan & Bundy, 2011; Ziviani, Lim, Jendra-Smith, & Nolan, 2008). Although the reliability of self-report was questioned (Jason et al., 2009) and the participants often needed assistance in fully completing the diaries (Bejerholm, Hansson, & Eklund, 2006; Thomas, Hunt, Hurley, Robertson, & Carter, 2010), generally they did not find them to be difficult or time-consuming. Some interesting themes did emerge from the search: the variety of types of time use diaries, the gender differences in their use, the need to follow up with an interview to get a full understanding of the participants' occupations, and insights into what people do not write in time use diaries.

Although no frustration with the type of information gathered was expressed as a limitation in using time diaries, a variety of styles of time diaries have been developed over time. Examples include the Modified Occupational Questionnaire, time-geography diaries, and the Experience Sampling Method (ESM). Most recently, the data collected in time-geography diaries have been converted into graphs that then give visual feedback about the patterns of activity (Orban, Edberg, & Erlandsson, 2011). The ESM participants are randomly beeped during the day, at which time they respond to a series of questions about their immediate time use (Farnworth, 2000; Larson & von Eye, 2010). Larson and von Eye (2010) felt it was necessary to sample activities more often than recommended for ESM in order to meet the needs of the research study being conducted. They speculated that the increased frequency of sampling might have caused fatigue, thereby influencing the amount of information being recorded.

Thomas et al. (2010) described a gender difference in how well participants completed time use diaries. Men did not like using time diaries as much as women and spent less time on them. Decreased time spent on doing the time diaries related to decreased accuracy in the information

recorded. Many of the studies in the literature focused on women participants (typical women, occupational therapy students, and mothers of children with disabilities). Although it is understandable that women as the primary caregivers of children would be the focus of time use research, this raises the question of men's resistance to time use diaries. One older article was found that used time diaries in a study of men who were HIV positive (Albert et al., 1994). These men did not find the use of time diaries to be problematic.

Erlandsson and Eklund (2001) did a comparative study examining four different methods of data collection. They compared using a diary to direct observation, video-recorded observation, and experience sampling method. They felt that the experience sampling method gave a depth of knowledge about the participants' feelings regarding their occupations at the time they were performing the occupation, but direct observation was the best method of learning about daily occupations. The diary method was felt to be useful for the overall occupational pattern. Diaries, however, might miss hidden occupations such as using the bathroom or unexpected occupations such as the dog getting loose, so diaries must be combined with a subsequent interview to gather such information. Crowe and Florez (2006), in their comparative study of time use by mothers of children with disabilities and mothers of children without disabilities, made note of two things:

(a) mothers of children with disabilities had twice as much unaccounted for time in their diaries as compared to mothers of children without disabilities and (b) the mothers rarely recorded frequently done activities like going to the bathroom. Farnworth (2000) expressed concern that her participants (adolescents) would not record illegal activities when sampled in their time use, so certain types of activities were less likely to be recorded in the time use diaries.

Photography in Qualitative Research

I decided to explore the idea of using photography for initial data collection rather than time use diaries. Photography as a method is used in various approaches, including photo elicitation, photovoice, photo-novellas, and visual narratives (Guillemin & Drew, 2010). Photo elicitation was first proposed in the 1950s by researcher John Collier (Harper, 2002). His research team used photo elicited interviews as a method for collecting data about mental health in changing communities in the Maritime provinces of Canada. They found that photographs helped the interviewee improve their recall from memory, reduced misunderstanding, and allowed the interviewer to probe for significant information not apparent in conventional methods, which led the research team to conclude that photo elicited interviews were more effective than surveys or in-depth interviews. Harper (2002) proposed that photo elicited interviews were effective in gathering research data about a range of issues because they encourage moving beyond words to allow for a deeper communication across cultures by developing a shared perspective.

Of particular interest to our research was the use of photography in research related to health issues. Current literature points to the effectiveness of using photography as a data collection methodology for describing various health experiences. Some examples of research studies using photo elicitation include the experiences of women dealing with chemotherapy (Frith & Harcourt, 2007), patients recovering in the hospital (Radley & Taylor, 2003), adolescents who are obese (Lachal et al., 2012), children with ADHD (Bruce, Ungar, & Waschbusch, 2009), children with cancer (Epstein, Stevens, McKeever, & Baruchel, 2006), maternal and child health (Wang & Pies, 2004), adults experiencing life after an acquired brain injury (Lorenz, 2010), African-American women with breast cancer (López, Eng, Randall-David, & Robinson, 2005), and next of kin of ICU patients (Olausson, Ekebergh, & Lindahl, 2012). These research studies demonstrate that photo elicitation can be used with males and females, including children, adolescents, and adults. The differences in populations show that photo elicitation can validate health and illness experiences of a wide variety of people. I will expand on two of the studies that

focus on adults dealing with health issues because our research was limited to adults with diabetes.

Frith and Harcourt (2007) in their work with women dealing with chemotherapy found that photographs helped describe significant life events and gave rich insight into the experience of health, illness, and medical treatment: "We saw the photographs as a reference point to be used in conversation rather than an objective representation of reality that has meaning independent of these conversations" (p. 1342). Their research demonstrated that photo elicitation captured detailed accounts of experiences, experiences over time, and private experiences by enabling participant control of the research. In particular, capturing private experiences was a key advantage to this methodology. Photo elicitation provided the participants with an opportunity to capture private experiences without the researcher being obtrusive to private spaces, places, and events (Frith & Harcourt, 2007). This could be of significance when asking participants to record information about something highly personal like diet or medication management.

Lorenz (2010) used a specific photo elicitation method, photovoice, to generate insights into the lived experience of participants who had sustained brain injuries. The participants were instructed to take photographs that show their point of view on living with a brain injury and what helped or slowed down their recovery. In conducting this research, Lorenz (2011) was struck by how the use of photo elicitation allowed her to better empathize with the participants. Empathy is the ability to understand another's perspective. Lorenz (2011) selected one of the participants from the original study to conduct a case study to reflect on her research experience and explicate how using photo elicitation led to empathy for her participants. Lorenz (2011) found that empathy through photography was valuable in helping researchers to become more emotionally attentive and engaged with participants. She concluded that:

Using photographs to see experience through the eyes of those who suffer presents an opportunity to encourage empathy, share power, and improve the therapeutic relationship for brain injury survivors and others living with chronic conditions. ... When photographs help us to hold critical, self-reflective conversation not only with our 'patients' but also with ourselves the healing potential of visual methods may be realized. (p. 273)

Her conclusions regarding the development of empathy between the researcher and the participant further encouraged me to use photo elicitation with my students.

Diabetes Research Year 2

After researching the use of photography as a method of data collection, I felt it was a good match for research related to health and occupations. During the second year the new class of students again recruited participants with diabetes. The student researchers used participant-generated photographs for the purpose of revealing aspects of diabetic daily management that might have been overlooked in the previous year. The research study was first approved by the university IRB and written consent was obtained from the participants. Concerns regarding the use of photography were addressed with additional consent forms and explicit instructions. The participants were given instructions to take pictures of their daily diabetic care occupations, either directly or as a representation. For example, they could take a picture of their testing kit rather than a picture of the actual act of lancing their finger and loading the testing strip (Figure 1):



Figure 1. Glucose monitor. Reproduced courtesy of Martin (pseudonym), research participant (2011).

Photos were taken using a digital camera during the course of a typical weekday and on a second day if needed (a weekend or non-typical day). In the past, researchers commonly gave disposable cameras to their participants. This required researchers to spend time and money developing the photographs. Digital cameras, including those in cell phones, are easy and portable, and they allow the user to take and share photographs with ease. Saving time by not having to deliver the cameras and develop the film was an important issue in trying to complete a research project over a 16-week semester course. Digital cameras also allowed the participants to review the pictures taken and delete any they did not want to share.

Participants selected up to twenty of the most representative photos and sent them to the student researcher via the Internet or email prior to the interview. As with the previous year, participants were asked, "Tell me about how you manage your diabetes," as they reviewed each photograph with the researcher. Unlike the time use diaries that had little to no mention of diabetes management, the participant-generated photographs were all about their diabetes self-management and very useful in directing the flow of the interviews.

Comparison of Results

From the analysis of the interviews during the first year in which time use diaries were used for initial data collection the following themes emerged:

Theme 1: "Managing the Diabetes" (doctors, health care, rest, cost, exercise, habits/routines)

Subtheme 1A: "Managing the Insulin" (pump vs. injections, travel concerns, side-effects)

Subtheme 1B: "Managing the Food" (carbohydrate counting, eating out, appealing foods, cultural foods)

Theme 2: "Telling the Diagnosis Story" (type of diabetes, thoughts at diagnosis, fear, prediagnosis symptoms, actual diagnosis, age, diabetes education at diagnosis)

Theme 3: The negative impact of diabetes on the body (weight gain/control, vision loss, activity constraints, delayed healing, low/high blood glucose symptoms)

Theme 4: Emotional contexts (attitudes of self and others, neglect, spirituality, pressures, living with the disease)

In examining the time use diaries, Theme 1: "Managing the Diabetes" was found only in the mention of taking blood glucose readings (in three of the six diaries) and the mention of taking insulin or medication (in two of the diaries). Although exercise is also noted in some of the diaries, it is not linked in any way to diabetes management. For example, one participant noted that she ran 4.5 miles, and her comment in the diary was: "I love running. While it is a challenge physically, it relieves stress, clears my mind and restores me emotionally." In the follow-up interview, when asked if she exercises to manage her diabetes, her response was: "Yes, absolutely." Subtheme 1A: "Managing the Insulin" was minimally noted in the time use diaries. Subtheme 1B: "Managing the Food" is missing from the diaries as can be seen in a sampling of time use diaries' references to dinner (see Figure 2). Themes 2, 3, and 4 cannot be found in the time use diaries in any form and were developed solely based on data from the follow-up interviews.

TIME BEGAN	TIME ENDED	IDENTIFY WHAT YOU WERE DOING	WITH WHOM	WHERE	COMMENTS
6:15 PM	6:50 PM	Cook dinner	Self	Home	I enjoy when I have time to cook dinner for my husband and I
6:50 PM	7:30 PM	Eat dinner (check Blood Sugar, took insulin)	Husband	Home	
TIME BEGAN	TIME ENDED	IDENTIFY WHAT YOU WERE DOING	WITH WHOM	WHERE	COMMENTS
7:00 PM	8:00 PM	Cook dinner/ Eat dinner	Fiancé	Home	
TIME BEGAN	TIME ENDED	IDENTIFY WHAT YOU WERE DOING	WITH WHOM	WHERE	COMMENTS
6:25 PM	6:35 PM	Drive to friends house for a cookout	Wife	Car	I was excited about the cookout so it was a fun drive
6:35 PM	10:30 PM	Cookout, games, conversation	Wife and friends	Friends' Home	Had a great time, but started to get tired, hate knowing work was coming in the morning
TIME BEGAN	TIME ENDED	IDENTIFY WHAT YOU WERE DOING	WITH WHOM	WHERE	COMMENTS
5:00 PM	7:30 PM	Got ready and went to dinner	Partner	Texas Road House	
TIME BEGAN	TIME ENDED	IDENTIFY WHAT YOU WERE DOING	WITH WHOM	WHERE	COMMENTS
5:10 PM	5:20 PM	Take readings	Self	Home	
5:20 PM	5:30 PM	Fixed & ate ham sandwich	Husband	Home	Reaching a goal for my health

Figure 2. Samples of dinner—cooking and eating from time use diaries.

From the analysis of the interviews during the second year in which participant-generated photographs were used for initial data collection the following themes emerged:

Theme 1: Changes over time (in managing the diabetes, pre-diagnosis, symptoms, interactions with other diagnosis, family supports, changes in diet and lifestyle, "the story," feelings)



Figure 3. Continuous glucose monitor. "But now of course they are like smaller than a phone and so technology has really, really helped." Reproduced courtesy of Alicia (pseudonym), research participant (2011).

Theme 2: What to eat (food, routines, habits, will-power, cooking, changes in diet, family supports and constraints, cookbooks)



Figure 4. Dinner. "That's probably one of the biggest changes, is your diet. I love to eat. I always did. So I've got to be more careful and a lot of the times I've found out that you can proportion some things and vegetables, I eat more vegetables then I used to." Reproduced courtesy of Doug (pseudonym), research participant (2011).

Theme 3: Habits and routines (predictable daily schedule – routines, lifestyle change – adapted habits, learning curve over the years – new routines and habits, well-being affected when things go out of the ordinary)

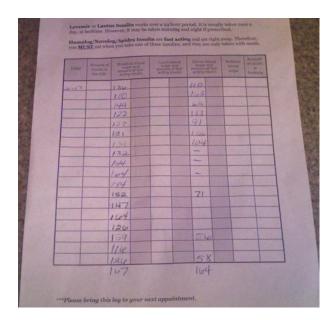


Figure 5. Blood glucose time log. "It's more of a good stewardship of your body. You can't, unless you, just like, you know when you're studying your school, you need to do a lot of writing things down, it helps the memory process and stuff. The doctor wants those too, she wants me to bring those in for my three-month averages. But it also, I can go back and see, you'll start seeing patterns." Reproduced courtesy of Andrew (pseudonym), research participant (2011).

Theme 4: Family: Occupational impacts (family support, family impact on diet, family traditions and holidays, family history of diabetes, family and social participation)



Figure 6. Family bicycles. "In the weekends, that's where we got the bicycles and we started getting out and walking at the lake or take the bikes out and things like that." Reproduced courtesy of Doug (pseudonym), research participant (2011).

All of these themes can be found directly in the photographs. Theme 1: "Changes over time" can be seen in photos of all the different blood testing kits, insulin pumps, and supplies that did not

exist when some of the participants were first diagnosed (see Figures 1 and 3). Theme 2: "What to eat" is seen in the many photographs taken of diet foods, carbohydrate charts, meals (see Figure 4) and cookbooks. Theme 3: "Habits and routines" can be seen in such photos as the blood glucose time log (see Figure 5), the organization of supplies, and the park where the participant walks his dog each day. Theme 4: "Family: Occupational impacts" is represented in photographs like the family bicycles (see Figure 6) or a photograph one of the participants had taken of himself cooking breakfast for his family.

A comparison of the themes emerging from the two different techniques for initial data collection shows that while the first year's themes covered a broad range of topics, the second year's themes are an expanded and more in-depth look at the first theme from year one, "Managing the Diabetes." The first year's themes were much more focused on medical interventions, with participants telling about what happened when they developed diabetes, how having diabetes makes their body feel, and what their feelings are about being diabetic, all of which emerged from the interviews, not the time use diaries. The second year's themes were occupationally focused on the daily self-management of diabetes. Although the students approached the interviews in the second year with a set of open-ended questions to ask if needed, they reported that the interviews were primarily based on the responses to the photographs. The original purpose of this research was to explore daily self-management of diabetes from the point of view of persons with diabetes using an occupational lens to interpret the data. In addressing this purpose, using the participant-generated photographs was far more successful than using the time use diaries.

Conclusion

As a person with diabetes I felt a strong need to represent the daily struggle to self-manage my diabetes. As an occupational scientist and occupational therapist, I understand this diabetes self-management as a daily occupational balance of medication and/or insulin, foods eaten, exercise taken and when, blood glucose testing, carbohydrate counting, and on and on. It was clear after reviewing the data collected in the time use diaries of the first year's research that almost all of this occupational daily self-management was missing from the information reported in the diaries. The student researchers reported that they did not find the time use diaries helpful when conducting interviews with the participants about their diabetes self-management. The literature reviewed on time use diaries gives some possible reasons for the lack of success in the first year of data collection. All of our participants have a disability that takes time to manage, thereby leaving less time to write in the diaries (Crowe & Florez, 2006). People with diabetes do self-management activities every day and many times a day. This kind of routine self-care was often left out of time use diaries (Crowe & Florez, 2006; Erlandsson & Eklund, 2001). Finally, half of our participants were men who may have spent less time writing in the diaries (Thomas et al., 2010).

Based on the literature review of the methods being used by other researchers, in the second year I switched to participant-generated photography for initial data collection. In reviewing the photographs taken by participants in the second year of research, it was striking how they had captured their daily self-management in a way that was transparent (see Figure 4) when compared to the time use diaries (see Figure 2). The photographs naturally lent themselves to elicitation of interviews related to the daily occupational needs of diabetes self-management. A photograph of a plate of food says so much more to the viewer than a simple statement of "Cooked dinner."

Finally, the students enjoyed the research process involved in a qualitative study, especially the year they used participant-generated photography. On the course reviews they made comments like, "I never thought I would enjoy research, but this class made me realize I could." I am also

brought back to the concept of empathy being elicited through the participant-generated photographs (Lorenz, 2011). Researchers, as well participants, benefit from the development of empathy. The students reflected on how much they had learned about being diabetic from their participation in this research, from reviewing the participants' photographs, and how this will impact their ability to empathize with future clients.

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