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Use of Participant-Generated Photography in a Research Contribution Course

MaryEllen Thompson
Eastern Kentucky University, maryellen.thompson@eku.edu

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Abstract
This paper describes the use of small, qualitative studies focused on interviews done with participant-generated photographs as an effective and efficient way of teaching research to entry-level masters students. A comparison of using time-use diaries vs. participant-generated photography is presented to explicate the research process and demonstrate the advantages of using photography, including ease of data collection and data sharing. Over a three-year period of using participant-generated photographs as a guide for semi-structured interviews, students have consistently expressed enjoyment of the research process and increased empathy with their research participants.

Keywords
Students, Qualitative, Education

Cover Page Footnote
I would like to thank all of my occupational therapy students who have worked hard each year in the research contribution class, and all of the participants who willing gave of their time.

Credentials Display
MaryEllen Thompson, PhD, OTR/L

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Incorporating entry-level masters students into a research project in a way that is engaging, meaningful, and timely can be a challenge. A brief review of the occupational therapy (OT) literature reveals a range of suggestions for meeting this challenge. Several authors suggested linking the research project to clinical fieldwork or community OT practice (Crist, 2010; Du Toit & Wilkinson, 2010; Hoppes, Hamilton, & Robinson, 2007; Larsen, Stokholm, Madsen, & Borg, 2013). Javaherian and Scheerer (2007) found in their review of using clinicians to conduct research projects with students that while the clinicians were willing to collaborate with the students, they were completely dependent on the OT faculty to initiate, design, and implement the research. Other examples of incorporating a research project into the curriculum included using the students themselves as participants in the study; engaging in grant-supported, faculty supervised treatment in which the students both conducted the treatment and collected research data related to the treatment; and employing simulated research (James, 2011; Silverman, 2010; Teitelman & Watts, 2002). Most discussed using a qualitative approach.

Within the curriculum at my institution, students take an introduction to research course during their first semester. This course covers a broad range of topics and introduces students to both quantitative and qualitative research. During their last semester before level II fieldwork, students who did not opt to write a thesis take a second research class. The research contribution class is designed to allow students to participate in an actual research project without writing an individual thesis. The student learning objectives in this class are meant to address the 2006 ACOTE standards B.8.5., B.8.7., and B.8.8, and include (a) critically analyzing selected research studies, (b) implementing the research methodology necessary to complete the proposed research contribution, and (c) contributing to OT by disseminating knowledge obtained from completion of a research project. All students in our program present their research outcomes at a local research symposium at the end of the semester in which they participate in the research contribution class. The first year that I taught our research contribution class, I decided to involve my students in a small, qualitative study as a way to complete a research study in the short time frame allowed, and as supported by my literature search. During the second year, I changed the approach to data collection, and in the third and fourth years, I changed the research topic. I will discuss how the methods used for this class research project continued to evolve over a four-year period and, in particular, the change in initial data collection from time-use diaries to photography.

**Research Course Year 1**

For their research project, my seven masters level students were to explore how persons with diabetes manage their daily care from their own occupational point of view. As a person with diabetes myself, I was frustrated by the lack of OT research regarding the development of the habits and routines needed to accomplish the complex occupations involved in diabetes self-management (Pyatak, 2011). I felt that my students could learn...
something meaningful about diabetes self-management and about research at the same time. The purpose of the students’ research project was to explore the daily self-management of diabetes from the point of view of persons with diabetes using an occupational lens to interpret the data. Each student recruited a participant with diabetes.

On the first visit, the 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 commonly use an activity log, also referred to as a time-use diary, to collect information about daily activities for purposes of research or treatment (Bejerholm, Hansson, & Eklund, 2006; Orban, Ellegård, Thorngren-Jerneck, & Erlandsson, 2012). The time-use diary required each participant to record the time an activity began and the time it ended; 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 given the information that the team was researching diabetes self-management and given specific instructions to include their diabetic care in the time-use diary. They were not restricted to specific time intervals.

After collecting and examining the time-use diaries, the team was surprised to find that only three of the seven participants had specifically mentioned any diabetic self-management: two of the participants with Type 1 diabetes noted some of the times they checked their blood glucose levels and took insulin, and one of the participants with Type 2 diabetes mentioned taking readings (“sugars and blood pressure”) and her medications. The other four participants did not describe any diabetic self-management, although one made a note in the comments section of the time-use diary that his blood sugar 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 sugar was high, or if his blood sugar level impacted what he was eating. The initial intention in collecting the time-use diaries was for the students to use them as a guide in interviewing the participants. While the student researchers did interview the participant they recruited about their diabetic self-management, the time-use diaries were of minimal assistance.

**Time-Use Diaries**

A search of the literature found that researchers in OT and occupational 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 et al., 2012; Scanlan & Bundy, 2011; Ziviani, Lim, Jendra-Smith, & Nolan, 2008). Although some studies questioned the reliability of self-report (Jason et al., 2009), and the participants often needed assistance in fully completing the diaries (Bejerholm et al., 2006; Thomas, Hunt, Hurley, Robertson, & Carter, 2011), the participants generally did not find the diaries to be difficult or time consuming. Some interesting themes did emerge from the research. Researchers felt the need to develop a variety of types of time-use diaries. Men did not like using time diaries as much as
women and the men spent less time completing them. The researchers found that there was a need to follow up the diaries with an interview to get a full understanding of the participants’ occupations. The participants did not include in the time-use diaries routine or hidden occupations, such as using the bathroom, and unexpected occupations, such as having to retrieve the dog when it gets out of the house.

The literature reviewed on time-use diaries gave some possible reasons for our lack of success in the first year’s data collection. All of our participants had a chronic disability that takes time to manage, thereby leaving less time to write in the diaries (Crowe & Florez, 2006). People with diabetes do diabetic self-management every day and many times a day. Researchers noted that this kind of routine self-care was often missing from the 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., 2011).

In addition to what was found in the literature, other factors may have impacted what was included in the diaries. The participants may have been confused about what to record in the time-use diaries, despite being given specific instructions to record their diabetes self-management. They may also have been overwhelmed with keeping track of multiple activities throughout the day or been less than literate about their own health care. It may have been helpful to have the participants record diabetes self-management alone. However, the interviews with the participants indicated that in some ways their diabetic self-management became an invisible part of their everyday routines.

**Photography In Qualitative Research**

I decided to explore the idea of using photography for initial data collection, rather than time-use diaries. Various approaches use photography as a method, including photo elicitation, photovoice, photo-novellas, and visual narratives (Guillemin & Drew, 2010). Researcher John Collier first proposed photo elicitation in the 1950s (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 improved the interviewee’s recall from memory, reduced misunderstanding, and allowed the interviewer to probe for significant information not apparent in conventional methods, leading 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 as 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 using photo elicitation include studies of the experiences...
of women dealing with chemotherapy (Frith & Harcourt, 2007), patients recovering in the hospital (Radley & Taylor, 2003), adolescents suffering from obesity (Lachal et al., 2012), children with ADHD (Bruce, Ungar, & Waschbusch, 2009), 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 the next of kin of ICU patients (Olausson, Ekebergh, & Lindahl, 2012). These research studies demonstrate that photo elicitation can be used with males, females, children, adolescents, and adults. The differences in populations show that photo elicitation can validate the health and illness experiences of a wide variety of people.

In their work with women dealing with chemotherapy, Frith and Harcourt (2007) 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” (Frith & Harcourt, 2007, 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 obtruding into private spaces, places, and events (Frith & Harcourt, 2007).

**Research Course 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 eight students each recruited a participant 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 participants were given instructions to take pictures of their daily diabetes 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 the process of loading the testing strip. Photos were taken using a digital camera or a phone camera during the course of a typical weekday and on a second day if needed (a weekend or non-typical day). Participants provided their own cameras.

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, portable, and convenient. Saving time by avoiding having to deliver the cameras and develop the film was an important issue in trying to complete a research project over a 16-week long semester. 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 Dropbox (an Internet application that allows for privacy) or email prior to the interview. All digital copies of the photographs were erased from emails and Dropbox once they were transferred to my work-dedicated laptop that is password protected. As the participants reviewed each photograph with a researcher, they were asked, as in the previous year, to tell the researcher about how they manage their diabetes. 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.

<table>
<thead>
<tr>
<th>Themes Year 1</th>
<th>Examples within the Themes</th>
<th>Themes Year 2</th>
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<tbody>
<tr>
<td>Managing the diabetes</td>
<td>Doctors, Health care, Rest, Cost, Exercise, Habits/routines, Pump vs. injections, Travel concerns, Side effects, Carbohydrate counting, Eating out, Appealing food, Cultural foods</td>
<td>Changes over time (in managing the diabetes)</td>
<td>Pre diagnosis, Symptoms, Interactions with other diagnosis, Changes in diet and lifestyle, Feelings</td>
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<tr>
<td>Telling the diagnosis story</td>
<td>Type of diabetes, Thoughts at diagnosis, Fear, Pre-diagnosis symptoms, Actual diagnosis, Age, Diabetes education at diagnosis</td>
<td>What to eat</td>
<td>Food, Routines, Habits, Willpower, Cooking, Changes in diet, Family supports and constraints, Cookbooks</td>
</tr>
<tr>
<td>The negative impact of diabetes on your body</td>
<td>Weight gain/control, Vision loss, Activity constraints, Delayed healing, Low/high blood sugar symptoms</td>
<td>Habits and routines</td>
<td>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</td>
</tr>
<tr>
<td>Emotional contexts</td>
<td>Attitudes-self and others, Neglect, Spirituality, Pressures, Living with the disease</td>
<td>Family: Occupational impacts</td>
<td>Family support, Family impact on diet, Family traditions and holidays, Family history of diabetes, Family and social participation</td>
</tr>
</tbody>
</table>

*Figure 1. Examples of coding within the themes for Year 1 and 2.*
Comparison Of Research Results From Years 1 And 2

Each year, after interviewing the participant they recruited and transcribing the data, the students individually analyzed the data they collected by reading and reviewing the transcript, highlighting important words and statements, and developing an in-vivo coding for their individual participant. Next, as a class, they all reviewed each of the transcriptions and coding under my direction as the team leader. New coding was developed as a team and applied across cases. Further analysis and discussion of coding lead to preliminary themes. This same process was followed both years, with the primary difference being how the researchers conducted the initial data collection.

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” (Subtheme 1A: “Managing insulin”; Subtheme 1B: “Managing the food”), Theme 2: “Telling the diagnosis story,” Theme 3: “The negative impact of diabetes on your body,” and Theme 4: “Emotional contexts” (see Figure 1 for examples of themes from Year 1 and 2).

In examining the time-use diaries, Theme 1: “Managing the diabetes” was found only in the
mention of taking blood sugar readings (in three of the six diaries), and the taking of insulin or medication in two of the diaries. Subtheme 1A: “Managing insulin” was minimally noted in the time-use diaries. Subtheme 1B: “Managing the food” is missing from the diaries as can be seen in the sampling of the references to dinner in the time-use diaries (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.

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,” Theme 2: “What to eat,” Theme 3: “Habits and routines,” and Theme 4: “Family: Occupational impacts” (see Figure 1 for examples of themes from Year 1 and 2).

All of these themes can be found directly in the photographs. Theme 1: “Changes over time” can be seen in the photos of all of the different blood testing kits, insulin pumps, and supplies that did not exist when some of the participants were first diagnosed (see Figure 3).

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

Figure 4. Dinner. “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 than I used to.” Reproduced courtesy of Doug (pseudonym).

Figure 5. Supplies. “...showing you how I stay organized with all of the materials I use.” Reproduced courtesy of Alicia (pseudonym).
Theme 2: “What to eat” is seen in the many photographs of diet foods, carbohydrate charts, breakfast, dinner (see Figure 4), and cookbooks. Theme 3: “Habits and routines” can be seen in such photos as the blood glucose time log, the organization of supplies (see Figure 5), and the park where the participant walks his dog each day.

Figure 6. “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.” Reproduced courtesy of Doug (pseudonym).

Theme 4: “Family: Occupational impacts” is represented in photographs like the family bicycles (see Figure 6) or the photograph one of the participants had taken of himself cooking breakfast for his family.

A comparison of the themes emerging from using 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 “Managing the diabetes” from Year 1, and two of the other themes from Year 1 are included in the first theme from Year 2, “Changes over time” (see Figure 7). The second year’s themes were occupationally focused on the daily self-management of diabetes. As the original purpose of this research was to explore the daily self-management of diabetes, not the overall experience of being diabetic, using the participant-generated photographs to guide the participant interviews was far more successful than using the time-use diaries.

Figure 7: Diagram of change in themes.

Year 1 Themes

- Managing the Diabetes
- Habits and routines
- What to eat
- Emotional Contexts

Year 2 Themes

- Managing the Diabetes
- Habits and routines
- Family: Occupational impacts
- What to eat
- Emotional Contexts

Changes over time

Telling the Diagnosis Story
Figure 8. “I make sure I do at least 20 sets. Sometimes more, sometimes less. I think that sometimes I get into the TV program that I’m watching and will be doing it for longer than I thought I had. But, I am not complaining about that because the more I do the better.” Reproduced courtesy of Charles (pseudonym).

Research Course Years 3 And 4

As I had obtained a grant to pursue my own research regarding diabetes self-management, during Year 3 the five students in my research contribution course used participant-generated photographs to research the morning routines of persons with chronic disabilities. The interviews elicited by these photographs allowed the research team to explore issues of occupations included in morning routines. Significant results were found regarding the increased length of time needed to complete their morning routine, the need for a critical order to parts of the routine, use and placement of objects, including many medical objects, and how the disability motivates or deters completion of the routine (see Figure 8). These results were useful in suggesting many ideas about future research on morning routines, and the students completed their coursework by developing a poster presentation and drafting a research article.

Currently, the 10 students in my fourth year of teaching the research contribution course are using photovoice to explore perceptions about socializing on the part of young adults with autism. During their first meeting, pairs of students interviewed the five individual participants using a semi-structured interview with questions based on the Lifestyle Performance Model. After the participants took pictures of their concepts of socializing, the students interviewed the participants a second time using the photographs as a guide. A local art gallery sponsored an exhibit of the photographs, and the students will be presenting the results of their research at the department’s annual research conference.

Conclusion

Over the last four years of teaching a research contribution class, I have found the use of photography in the context of a qualitative research study to be both useful and efficient. Participant-generated photography has led to quality research with meaningful results in the short time period of four months. Students were able to participate fully in the research process by recruiting participants, interviewing participants, and analyzing the data gathered with the guidance of an experienced researcher. Most gratifying has been the very positive response of many students who ended the semester by reflecting in class discussion and in their written course evaluations that they never thought they would enjoy doing research, but this class taught them that they could, indeed, enjoy...
research. For example, one student stated, “I enjoyed research for once as I usually do not.” On the course evaluations, all students rated the class as “Above Average.” Finally, doing this research facilitated the students’ development of empathy for the participants and their particular disability as the photography allowed them a common ground for discourse, which will surely benefit the students’ future clients.
References


