

A Case Study of a Case Study: Analysis of a Robust Qualitative Research Methodology

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A unique multi-part qualitative study methodology is presented from a study which tracked the transformative journeys of four career-changing women from STEM fields into secondary education. The article analyzes the study's use of archived writing, journaling, participant-generated photography, interviews, member-checking, and reflexive analytical memos. An exploration into the interconnectedness of the methodologies used reveals a robust framework from which the first stages of grounded theory emerged. A detailed explanation of the methodological aspects of conducting the study is discussed with the purpose of making this combination of qualitative methods replicable. Key Words: Qualitative Methods, Visual Research, Reflexive Analytic Memos, Participant Generated Photography.

The purpose of this qualitative (Creswell, 1998; Merriam, 1998) case study research was to understand the transformative journey of four women career-changers moving from business, engineering, and science into secondary education. The study was built within an authentic setting with varied and in-depth data collection. The focus of this research was the exploration of the transformative process (Mezirow, 1978) experienced by the participants as they transitioned from their previous careers into graduate school and then into teaching.

The primary reason for the research was to gain an understanding of how adults learn and how their relationship to learning is different from children or adolescents. It has been my experience that adults approach new learning with a more intense need and amplified emotional state compared to other age groups. The research questions targeted the identification of transformation in the participants and the durability of those transformations as they moved from their teacher education program into their careers as secondary teachers.

The study moved with the participants from their decision to enter a Master of Arts in Teaching (MAT) program to two years after the program. The questions, method, design, and setting were brought together to serve one another so that the most in-depth understanding of the participants' transformative journey could be achieved. Transformative learning theory (Mezirow, 2000) framed this study because of its derivation from and focuses on adult learners (Kegan, 1998).

The purpose of this article is to describe a uniquely robust multi-part qualitative methodology. The qualitative methods used include archived writing, journaling, participant-generated photography, interviews, member-checking, and reflexive analytical memos. An exploration into the interconnectedness of the methodologies used reveals a robust framework from which initial stages of grounded theory were produced. A detailed explanation of the methodological aspects of conducting the study demonstrates the ability to replicate this combination of qualitative methods. An analysis

of the multi-part qualitative method employed supports the academy's assertion that multiple methodologies in qualitative research provide the opportunity for richer and more robust findings (Brown, 2010; Keats, 2009; Taber, 2010; Clair, Wasserman & Wilson, 2009). My experience was similar to Keats when she stated, "the practice of interpreting different types of texts...increases the capacity of researchers to understand the complexity of intertextual connections..." (Keats, 2009, p. 193).

A brief overview of the framework and outcomes of the study are presented for the purpose of lending context to the methodological understandings presented in the article. The article then proceeds with a detailed retelling of how each aspect of the qualitative methods used supported the research goals.

Study Findings

The study revealed many findings, including several themes for further research. First, the study participants showed strong evidence of divergent moral reasoning compared to what might be typically observed from more traditionally-aged first and second year teachers. The participants often went off script, so to speak, choosing to deal with disciplinary issues or student evaluation issues in ways they saw as most appropriate, rather than following the clearly established rules of their school's administration. A more thorough understanding of this phenomenon could better inform schools and school leaders as they train and leverage the skills of career-changers.

Second, the study revealed that the degree of mental and emotional strain exhibited by the participants could be unique to older and/or career-changers making this kind of professional transition. The participants anticipated encountering challenging professional demands, but at the outset, they did not anticipate thinking they would not be able to meet those demands. That perspective changed quickly as they entered the classroom and began to recognize the dynamic nature of secondary teaching. The skills they acquired professionally were helpful to them, but did not constitute the full repertoire of skills they needed to be successful teachers. The depth and breadth of their emotional strain and identity transformation were dramatic and unexpected. A greater understanding of this transformation would benefit teacher education programs working with career-changers.

Finally, the participants' words clearly pointed toward a set of characteristics in their learning experiences which they attributed to their successful transition into secondary teaching. Those characteristics, briefly stated, are: collegial relationships with classmates and faculty; authentic learning; a spiraled curriculum; reflective writing and discourse; and student centered learning. The rich and varied results from this study are a result of the heavily triangulated, recursive, and in-depth research design. It is that design that is the focus of this article. The design is presented in detail so that it may be replicated by others who find it relevant to their research agendas.

Research Design Framework

Qualitative research is based on:

...the view that reality is constructed by individuals interacting with their social worlds. Qualitative researchers *are interested in understanding the meaning people have constructed*, that is, how they make sense of their world and the experiences they have in the world. (Merriam, 1998, p. 6) (Merriam's italics)

LeCompte (2000) further explains the nature of qualitative research in her *Theory into Practice* article, *Analyzing Qualitative Data*:

Because [qualitative] data have no initial intrinsic organizational structure or meaning by which to explain the events under study, researchers...must then create a structure and impose it on the data. The structure is created in stages, and forms the basis for assembling data into an explanation or solution. Creating the structure is analogous to the strategies used to assemble puzzle pieces; the pieces are like units of analysis in the data. (pp. 147–148)

This research study was both interpretive and inductive. In defining interpretive case studies, Merriam (1998) echoes Geertz' (1973) famous phrase stating that they "contain rich, thick description" (p. 38). In this spirit, I attempted to "instantiate and develop" (Gee, 1999, p. 136) the themes derived from my participants in order to understand the phenomenon researched: the professional transformation of four women career-changers leaving STEM fields to become secondary teachers. It is inductive because the study relies on the "study of a range of individual cases and extrapolates patterns from them to form a conceptual category" (Charmaz, 2006, p. 188).

Mezirow's theory focuses on the journey taken by adult learners when encountering new learning (2000). In essence, Mezirow states that when new learning takes place, that learning changes not just what is known, but also how the adult thinks about the world around her; thus, the learning becomes transformational. Mezirow makes the point that because adults have a wealth of experience and prior learning upon which to rely, they filter new learning through elaborate frames of reference (2000) which increase in reliability as they are tested and honed over consecutive experiences. The more elaborate and reliable a person's frame of reference, the more work it might take to integrate new ways of knowing and interpreting the world around them. Hence, the career-changer who enters the field of teaching with a pre-existing frame of reference about who she is intellectually and professionally might have a more difficult time making the transition to teaching compared to a traditional, twenty-two-year-old graduate student entering her first profession.

I was able to thoroughly investigate and relate to the transformative process as it is a career path that I was on many years ago. I changed careers, moving from international banking to secondary teaching. I am also a graduate, many years previous, of the same MAT program. This level of familiarity caused me to carefully approach the research design, choosing an interpretive and feminist interview methodology which encourages familiarity between the interviewer and participant; and in so doing elicits more deeply meaningful interviews (Rubin & Rubin, 1995). In feminist interviewing methodology,

...the interviewer participates and shares. An interviewer is not justified in keeping all uncomfortable things to herself while asking others to reveal what is personal and private. Feminist researchers argue that being open about themselves to their research collaborators, the interviewees, is both fair and practical. (Rubin & Rubin, 1995, p. 37)

At the same time, “feminist researchers emphasize the need for interviewers to avoid dominating the interview” (Rubin & Rubin, 1995, p. 37). I was able to achieve a simultaneous high level of comfort and minimal intrusion in the interview precisely because the participants knew me as a professor and colleague and knew that I had also been a career-changer. Evidence of minimal intrusion on my part is represented by the fact that in all of the interviews conducted in the study, my own words averaged less than 15% of the overall dialogue. Also, because of my familiarity, I carefully monitored my assumptions about the participants’ journeys. The interview protocol consisted of twelve questions. All of the interviews included those questions plus more than fifty follow-up or probing questions. The high number of follow-up and probing questions was a way to separate my experiences from the unique experiences of my participants.

In addition to addressing the credibility of my position as researcher, thorough triangulation of the data would enhance the validity of the findings. Creswell (1998) points out the need for triangulation in qualitative research. Defined as the “use of multiple and different sources, methods, investigators, and theories to provide corroborating evidence” (Creswell, 1998, p. 202), triangulation requires the use of several different types of data. In order to fulfill this requirement, this study analyzed several archived documents as well as photographic evidence and transcripts from face-to-face interviews with all participants. Data interpretation was also verified through a rigorous use of member checking (Carlson, 2010) with all participants.

Sharon Merriam (1998) outlines the use of constant comparative method as a trusted means of analysis of qualitative data. Constant comparative method, which is returning to the participants for clarification and further explication of the research topic, is used when a researcher is striving toward grounded theory. This study uses existing theory to pursue a particular phenomenon (transformative learning) and pending further study, might produce grounded theory. My research design employs the key characteristic of constant comparative method. As explained by Merriam, “...the right way to analyze data in a qualitative study is to do it *simultaneously* with data collection...Data that have been analyzed while being collected are both parsimonious and illuminating” (Merriam, 1998, p. 162) (Merriam’s italics). I call the method I am using *cumulative analysis*.

Methodology

My research contains three steps: analysis of archived data, participant generated photography (Galman, 2009; Keats, 2009; Ketelle, 2010; Mannay, 2010; Perka, Matherly, Fishman & Ridge, 1992; Taylor, 2002), and face-to-face interviews. In addition to those three formal steps, I employed member checking, cumulative analysis, and refinement of case study narratives throughout the research timeline. The participants

also kept reflexive analytical notebooks (Charmaz, 2006; Gerstl-Pepin & Patrizio, 2009; Glaser & Strauss, 1967; Maxwell, 1996; Tuleja, 2002), which allowed me to explicate my thinking and trace ideas from one step to the next.

The research design evolved over the course of the study. Initially I envisioned an analysis of the participants' archived data with a follow-up interview to verify the emergent themes in the data. As I progressed with my analysis, however, it became clear that I would need intermediary steps that would achieve two goals: first, provide me with a road map of my own thinking as themes emerged from the data and second, give the participants a more independent voice. After some consideration and reading, I decided on analytical notebooks and participant-generated photography. I have used analytical notebooks in the past and found them to be extraordinarily useful in tracing my thinking and learning during a study. I also tend to be very visual, as illustrated below. So the opportunity to "draw" my thoughts as they emerged helped to clarify the direction my participants' voices were taking me. The participant-generated photography became a medium through which my participants could show their evolution in thinking about themselves as secondary teachers without the risk of my voice being inserted into the analysis. What follows is a detailed explanation of each phase of research.

Step I: Archived Data

In step one, I first received consent from the participants to use their archived data. This was done through an invitation email which the participants responded to in the affirmative. Participants were purposefully selected based on the definition of career-changer and the discipline to be studied. A career-changer is anyone entering the MAT program that spent more than three years in another career. There were fourteen people fitting that requirement in the graduating class of students used for the study. Of that cohort, anyone in a science, mathematics or engineering field became a potential participant. There were eight students in these fields. All eight of these individuals received an email inviting them to participate in the study. The potential participants received this email while they were in their first year of teaching, the year following graduation from the MAT program. Six teachers replied with interest to participate. One withdrew almost immediately, acknowledging that the time commitment was too great. Another stopped responding to my emails. After two non-responses to follow-up emails, I withdrew this person from the participant list. The four who remained became part of the study.

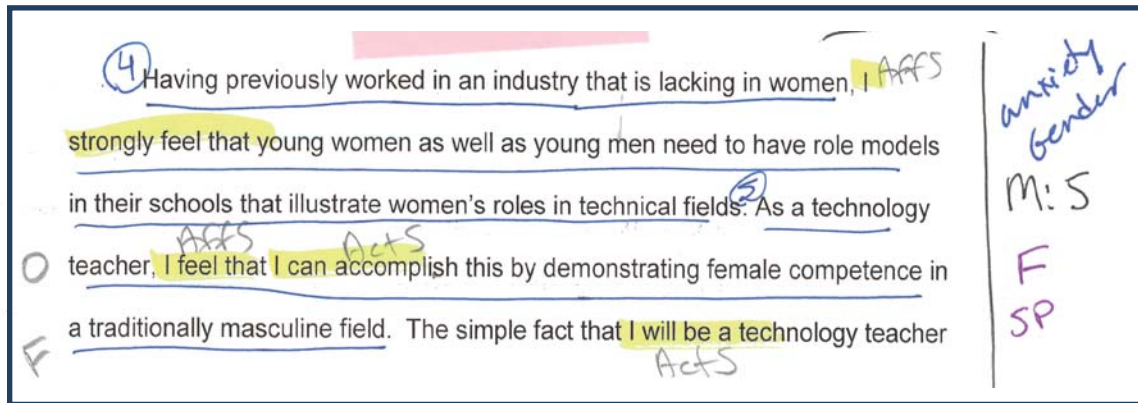
In order to gather their archived data, I requested that I be allowed to access their work that was already on file in the college's education department. Permission from participants and the college were included in the internal review process prior to the initiation of the study. A few documents were missing from school files. In most cases, I was able to secure copies of those documents directly from the participants.

Once I gathered the archived data from the four participants I analyzed it for evidence of transformative learning. Several pieces of writing were available due to the MAT program's focus on reflection and journaling. See Table 1 for a summary of archive data collected.

The following pieces of writing were collected and analyzed:

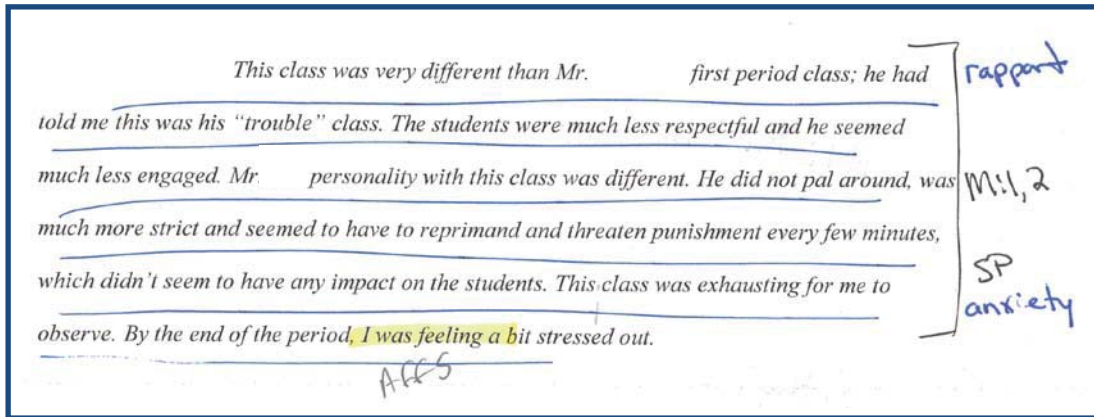
1. Application Essays: The essay articulates a philosophical tipping point for most candidates as they struggle to explain why they want to become teachers in their chosen disciplines. This narrative is the first public document written by the candidates announcing their desire to become and reasons for becoming a teacher. This essay is typically one to two typed pages. See Figure 1 for sample coding of a participant's application essay.

Figure 1. Excerpt from Application Essay Showing Coding



2. Field Work Journals: Prior to being accepted into the program, all candidates must complete two weeks of field observations. Accompanying this experience is a manual outlining what students should observe and questions they should answer regarding their observations. It is the program's attempt to start shaping their professional mindset. It is the first time candidates are asked to look at the classroom environment from the point of view of the teacher as well as the student. This journal is typically between twenty and fifty pages in length. See Figure 2 for sample coding of a participant's field experience journal.
3. Summer Journals: During the intensive summer program, students are asked to write and to reflect on their learning after every class. While they may comment on the learning that takes place in the teaching lab class or methods class, they are asked to focus their reflection on the learning that takes place in the introductory course, Psychology of Teaching. This course is co-taught to the entire cohort, so all students receive the same instruction. Six times during the eight-week summer program, students submit their journals for evaluation. Students are asked to keep each entry to fewer than ten pages; thus, by the end of the summer, most journals near sixty pages in length.
4. Trimester Evaluations: (November, March, and June) At the end of each trimester, students formally meet with their supervisor and mentor to discuss their progress. The conversation focuses on what the intern has accomplished and what she should work on in the coming trimester. Following the meeting, the intern is asked to write a one page reflection stating what she learned in the meeting.
5. Philosophy of Teaching: (February) During the winter term, each teacher candidate completes a professional portfolio. As part of this portfolio, she is asked to write a philosophy of teaching (one to two pages in length). This document is carefully reviewed by the winter term seminar instructor and discussed in the class.

Figure 2. Excerpt from Participant Field Experience Journal Showing Coding



- The Teacher I Have Become: (May) Near the end of the program, the candidates come together for a full day discussion of their experiences in the program. Students are given the opportunity to talk about what they have learned, and to talk about the strengths and the weaknesses of the program. For one hour of that day, students are asked to find a quiet place to write. They are asked to reflect on the following statement: Reflect back on your year in the program and capture in writing the teacher you have become. This hand-written document represents the last formal request for reflection in the program prior to graduation and typically varies from one to four pages in length.

Table 1. Summary of Archived Data

<u>Time Line</u>	<u>Document</u>	<u>Average Length</u>
Prior to entering the program	Application Essay	1–2 pages
Prior to entering the program	Field Work Journal	20–50 pages
June – August	Summer Journal	60 pages
November, March, June	Trimester Evaluations	1–2 pages each
February	Philosophy of Education	1–2 pages
May	The teacher I have become	1-4 pages

This data was collected by first asking participants' permission. Once I received consent from the participants, most of the data was gathered from the education school's files. Documents not on file were requested from the participants. See Table 2 for a summary of the archived data collected from participants.

Since all but the last document were word processed, I was able to gather almost every piece of data for each of the four participants electronically. Original copies of all documents, if not already in digital form, were scanned and stored digitally for reference and safe keeping during data analysis. Per the college's internal review board request, all documents were kept on an external, password protected hard drive.

Table 2. *Summary of Archived Data Collected from Participants*

<u>Document</u>	<u>Elizabeth*</u>	<u>Mary*</u>	<u>Rebecca*</u>	<u>Tosha*</u>
Application Essay	√	√	√	√
Field Work Journal	√	√	NA	√
Summer Journal	√	√	√	√
Trimester Evaluation (Nov.)	√	√	√	√
Trimester Evaluation (March)	√	√	√	√
Trimester Evaluation (June)	√	√	√	NA
Philosophy of Education	√	√	√	√
The teacher I have become	√	√	√	√

*Pseudonyms

The data were organized into binders for analysis: first, binders were created for each participant and labeled with their pseudonym and the title *Archived Data*. Each piece of archived data was collected, labeled with pseudonyms, scanned for electronic safe-keeping and placed in a binder. Once all of the collected documents were in a binder, I hand-numbered all the pages. The four binders averaged approximately 100 pages each. As all the data came in, I began to read and code it for categories related to my research questions. "Coding is the process of grouping interviewees' responses into categories that bring together the similar ideas, concepts, or themes you have discovered..." (Rubin & Rubin, 1995, p. 238). I did this coding one participant at a time, attempting to view each person without the assumption of categories I found in the previous participant. Admittedly, as I continued to analyze, this became more and more of an intellectual challenge because clear categories emerged in all four participants' writing. I worked toward achieving a level of quality in my analysis discussed by Maxwell (1996) when he stated:

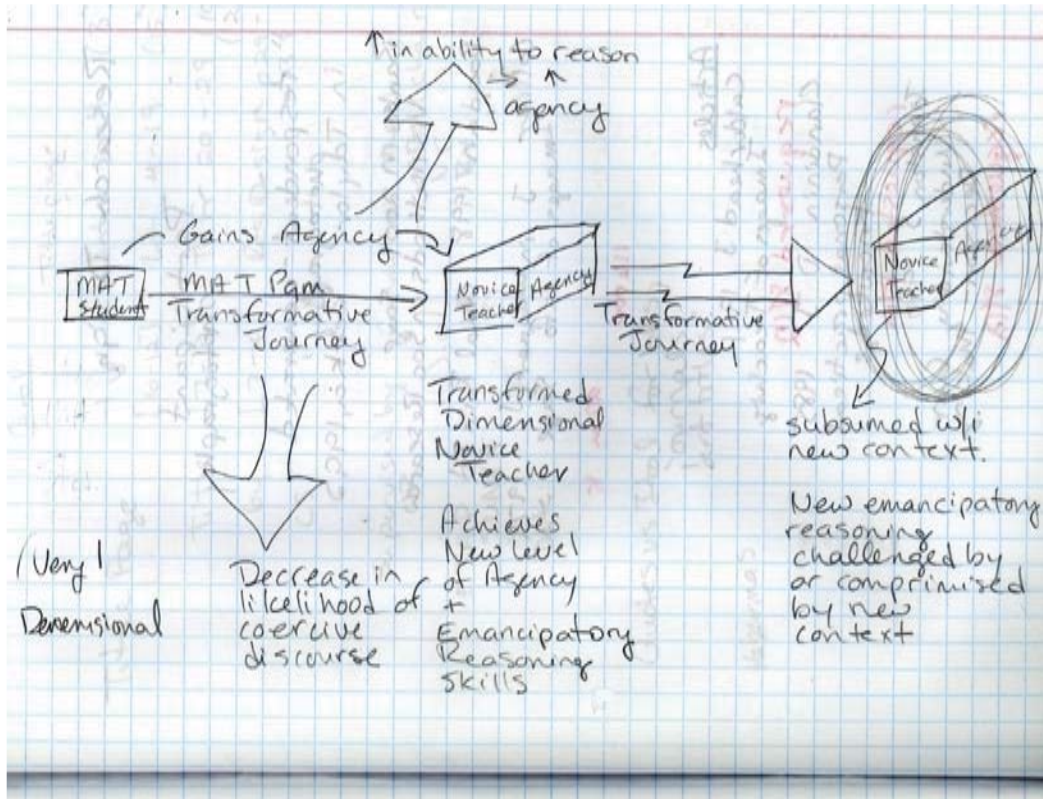
In qualitative research...the goal of coding is not to produce counts of things, but to "fracture" (Strauss, 1987, p. 29) the data and rearrange it

into categories that facilitate the comparison of data within and between the categories and that aid in the development of theoretical concepts. (Maxwell, 1996, p. 78–79)

As I read, I wrote notes in the margins of the participants' binder pages, gradually labeling similarly themed statements with category names such as "previous career comments" or "motherhood". I also uncovered categories unique to one or another participant, such as "commenting on what is *not* there". I underlined the coded statements and labeled them with the participants' pseudonym, an abbreviation of the document and the page number. Finally, I kept a running analytic memo (Carlson, 2010; Charmaz, 2006; Gerstl-Pepin & Patrizio, 2009; Glaser & Strauss, 1967; Maxwell, 1996; Tuleja, 2002) of my thinking in a notebook as I read the archived data. See Illustration 1 for a sample reflexive analytical memo page. The memos became a running reflexive history of my understanding of themes as they emerged in the research. They were filled with insights I needed to remember, preliminary thoughts about how the data were fitting together, connections to the literature, and graphics of my growing understanding of the data. Referencing VanMaanen (1998), Herz (1997), and Bott (2010) provide a succinct argument for the usefulness of this type of reflexive thinking in qualitative research: "Reflexivity should mean that research involves the active construction of interpretations of experiences in the field and a questioning of how these interpretations arise" (Bott, 2010, p. 160). As time went on, the memos became particularly important as I needed to connect threads of data together. Had I not kept the memos (which totaled five notebooks by the end of the research) I would not have been able to present as comprehensive a view of the data as I did. Below is an excerpt from one memo which explores my growing understanding of the journey taken by the participants through the lense of the theories being used to analyze their words.

After reading the archived data several times for emergent themes, I reread each binder looking strictly for evidence of Mezirow's (1978) phases of transformative learning. When I found statements that supported a phase of learning, I indexed the statement as such. Once I read through all four coded and labeled binders,, I made two photocopies of each binder. The identified passages in the photocopied pages were then physically cut apart and sorted. First, coded categories for individual participants were sorted and put into a second binder for that participant labeled with their pseudonym and the title *Coded Data*. Then, the coded passages were sorted again, this time combining all four participants' work together where coding overlapped. For instance, all four participants made comments that I labeled "relationship with colleagues". All four participants' coded statements relating to "relationship with colleagues" went into the same section in the *Coded Categories* binder. While I experimented during this time with various electronic coding methods (Nvivo, NUDIST), I ultimately felt most comfortable, and most connected to my data, byphysically cutting, sorting, and reanalyzing the data myself.

Illustration 1. *Sample Page from Reflexive Analytical Memo*



My final step in analyzing the coded data was to create a grid of the coded data by participant, keying the codes to Mezirow’s (1978) phases of transformative learning and my four research questions. See Table 3 for an excerpt of the coding grid of archived data as it is linked to the research questions and phases of transformative learning.

This grid was continually revised as I folded in new pieces of data. Below is an excerpt from one draft of the coding grid.

Table 3. Excerpt from Coding Grid of Archived Data Linked to Research Questions and Phases of Transformative Learning

Participant Pseudonym	Tosha	Rebecca	Mary	Elizabeth	Connection to Research Questions	Connection to Phases of Transformative Learning
4/4 participants	Collegiality	Collegiality	Collegiality	Collegiality	2, 3	1, 3, 4, 6, 9
	Perspective	Perspective	Perspective	Perspective		
	Transformation	Transformation	Transformation	Transformation	2	9, 10
	Planning Ahead	Planning Ahead	Planning Ahead	Planning Ahead	3	5, 6, 7, 8, 9
	Previous Career	Previous Career	Previous Career	Previous Career	1	1, 8, 9

	Metacognition	Metacognition	Metacognition	Metacognition	3	3, 4, 5, 6, 7, 8, 9
	Philosophy of Education	Philosophy of Education	Philosophy of Education	Philosophy of Education	1, 3	1, 2, 4, 5, 6, 7, 8, 9
3/4 participants	Gender		Gender	Gender	1 and 2 for Mary only	
		Rapport with students	Rapport with students	Rapport with students	2	
2/4 participants		Motherhood		Motherhood	1, 2	2, 8
	Where to teach		Where to teach		2	2, 5, 6, 8
1/4 participant	Physical Space					5
	Things that aren't there			Clinical perspective		

Step II: Participant-generated Photography

After completing the analysis of the archived data, I used the themes gathered from the coding to inform my next step, participant-generated photography (Keats, 2009; Ketelle, 2010; Mannay, 2010; Pink, 2004). Participant-generated photography is defined as photography in which “...the participant is responsible for taking photographs instead of the researcher...” (Taylor, 2002, p. 124). This step in the research design was added after I had decided to use archived data and face-to-face interviews. As I planned my study, it became clear that I needed an additional step to connect what I was interpreting in the archived data to the interviews. I was concerned that if I built my interview questions around *my* interpretation of the archived data, the questions would be too leading and narrow. I ran the risk of missing important elements of the participants’ journeys by not hearing their current voices (as opposed to their two-year-old voices from the archived data) prior to the interview. Perka, Matherly, Fishman and Ridge (1992) found that “respondent-generated photographs provide a unique method for collecting rich information” (Perka et al., 1992, p. 7) from participants. Perka et al. also point out that taking photographs is a natural act for most people, so it offers the participants a way to communicate in a “non-threatening way” (Perka et al., 1992, p. 8) with the researcher. Edward Taylor (2002) conducted a literature review of the use of photography in education research and found that

There are often things that are consciously and unconsciously captured in a photograph that provide points for greater clarification that the participant may not adequately describe or the researcher may overlook when listening during an interview. (Taylor, 2002, p. 125)

Taylor also points out that because the photographs are taken by the participants in their particular context, the data “provides contextual integrity” to the study (Taylor, 2002, p. 124). Finally, echoing transformative learning theory, Taylor (2002) states that “images provid[e] further opportunities to reflect and possibly differentiate, reinforce, or elaborate on existing meaning perspectives” (Taylor, 2002, p. 125).

Echoing Taylor’s literature review is the work of several current researchers who confirm the impact of visual methods in qualitative research. Mannay (2010) discusses how the use of participant-generated photography refocuses conversations with participants away from formalized questions and on to the participants’ actual thoughts and experiences. Mannay summarizes her points by highlighting that the use of visual media in qualitative research “[limits] the intrusive presences of the researcher”, thereby allowing for the collection of more authentic data (p. 98).

Keats (2009), whose participants also used disposable cameras (among other techniques), described that visual methods, when added to a set of methodologies, deepened understanding. Keats (2009) states that the photo elicitation and other methods “[expand] both the participants’ and researcher’s opportunity to understand the complex narratives of living through specific life experiences” (p. 193).

Limitations to this method were highlighted by Taylor’s (2002) literature review. Some studies reported that participants were self-conscious about being photographed. Others felt that the camera limited their interpretation of context: freezing it in time, so to speak, rather than allowing it to be fluid. Photographs needed to be made immediately available to participants in order to optimize the interpretive meaning of them. And finally, some participants expressed frustration that the camera did not allow them to capture the more metaphorical ways they view their teaching. Ketelle (2010) also discussed the difficulties in using visual methods while seeking Institutional Review Board approval and recruiting participants in studies. Photography adds a layer of intimacy that requires the researcher take care with data collection, analysis, and storage.

Despite these limitations, and after a small pilot study, I decided to insert participant-generated photography into my design between the analysis of archived data and the face-to-face interviews. The pilot study consisted of two colleagues who agreed to follow the procedures as I envisioned them taking place in my study. Several problems emerged that were dealt with in the actual study. First, in both cases, the pilot study participants’ took pictures that were irrelevant to the study. This was determined through conversations with the pilot study participants who explained that in some cases the directions weren’t clear. So, for example, they took pictures of their students engaged in a particular type of learning they thought might be considered relevant to the study, rather than pictures which represented themselves or their teaching. These conversations helped to better hone the directions sent to the study participants. Second, one pilot study participant took the camera home (for safe keeping) and, believe it or not, it was destroyed by her beagle puppy. She had to be mailed a new camera. Third, in both cases, well-meaning colleagues took the cameras and took pictures *they* thought were relevant to the task. To minimize the likelihood of these problems happening in the study, I sent an email to the participants ahead of mailing the cameras, alerting them to the cameras’ arrival. I also asked that they keep the camera with them at all times, only giving it to students or colleagues if they wished a picture to be taken that they could not take (a

picture of themselves, for example). I also asked that the camera be kept in a safe place at all times.

Finally, my initial idea was to send the participants the pictures digitally, in PowerPoint frames. I did this with my pilot study participants, inviting them to make their comments in the notes section of each PowerPoint frame. One colleague was technologically adept enough to do this without problem, but the size of the file required that we break the 27 pictures up into several smaller files, causing confusion and frustration. The second pilot study participant was not able to navigate the software and asked a colleague for assistance. This assistance played into her interpretation of the photos, as the colleague lending assistance also commented on the photos. Because of this, I decided to print the photos on paper with lines below each photo and mail the package to the participants. In the end, this low-tech method worked without a problem for the participants.

Approximately one month before the face-to-face interview, participants were mailed their disposable camera and asked to take pictures of “the teacher they had become”. I gave the directions for the photography phase of the study a good deal of thought. See Figure 3 for an excerpt from the participant generated photography invitation letter. I strove to balance my need for capturing the essence of the transformation in how they think about teaching and themselves as teachers with the need not to lead them to what I wanted. After several iterations and conversations with my pilot study colleagues, the directions for the photography phase were hammered out. Below are the exact photography directions that I mailed to the participants with the cameras.

Figure 3. *Excerpt from Participant Generated Photography Invitation Letter*

Enclosed please find a 27 shot disposable camera. Use the camera over the next week to *take pictures of the teacher you have become*.

This might include images that represent

- what encourages you as a teacher
- what discourages you as a teacher
- how you see yourself at this stage in your career
- something that is a metaphor for you or your teaching.

Once you are done, mail the camera back to me in the enclosed envelope. After I develop the photos, I will mail you snapshots and ask for a brief comment explaining how the pictures represent the teacher you have become. I will ask you to be as specific as you can be both in terms of what is in the picture and how it connects to the teacher you have become....

As the letter indicates, each participant was mailed a disposable 27-shot camera and a prepaid, addressed envelope to use to return the camera to me when finished. Three

of the participants returned the camera within two weeks of receiving it. The fourth participant kept the camera for a month. As soon as I received each camera, I had the photos developed digitally, then pasted them into a word document with space under each picture for comments by the participant. The picture pages were numbered and labeled with the participants' pseudonyms. In each case, I was able to mail the printed photos to the participants within three days of receiving the used camera. They all mailed the pictures back with their written comments within a week of receiving them. The comments varied from paragraphs under each photo to single sentences to no comments under some pictures for two participants. See Figure 4 for a sample participant generated photograph with comments and coding. While I had viewed the pictures prior to mailing them to the participants, I tried not to analyze them until I received the participants' comments. I did not want to look at the photographs through my own research lens; rather, I wanted the participants to tell me what they saw in the pictures.

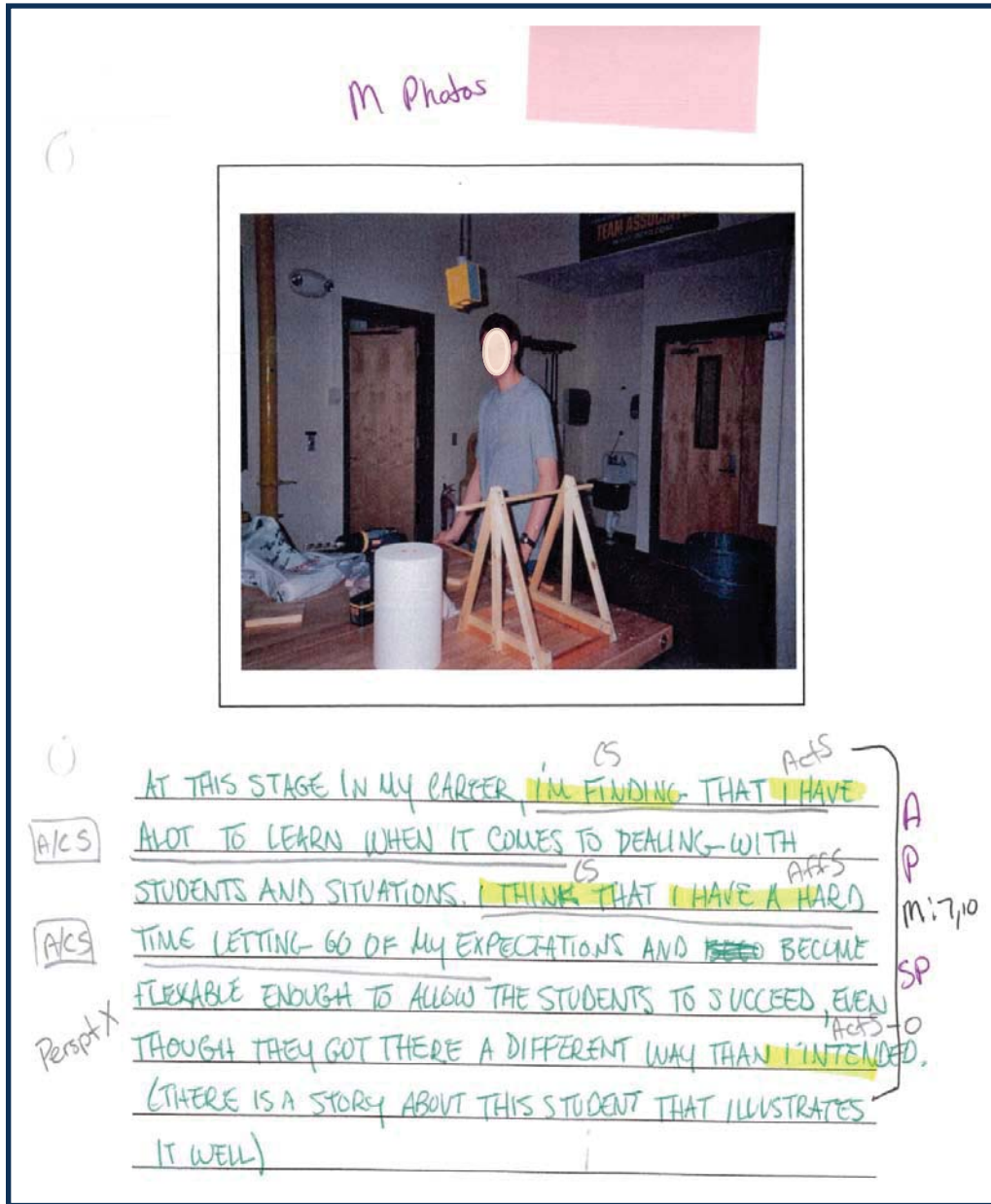
Once I received their comments back, I used a coding scheme similar to the one I followed with the archived data. The pictures were labeled, categorized and added to the participants' individual coding binders and the larger coding binders where overlapping themes appeared.

Those coding categories derived from the photos were used to support or challenge the coding completed in the first step and to support the interview protocol in the third step. The analysis of the photographs proved helpful in reinforcing some of the common themes I discovered in their archived data. For example, all four teachers had pictures of colleagues in their photographs, reinforcing the "Relationship with Colleagues" code seen in the archived data. None of the participants chose to take pictures of their families or lives outside of school, causing me to revisit the significance of the "Motherhood" category seen in the archived data. In all cases, the coding that resulted from the photographs informed my semi-structured interview protocol. I selected a few photographs from each participant's set to discuss specifically during the interview. I also invited the participants to talk about any photographs they wanted to during the interview.

Step III: Face-to-Face Interviews

The third step consisted of a face-to-face interview with participants using a semi-structured (Merriam, 1998) interview protocol and the participant-generated photographs. All of the questions were asked of all the participants, but the order was sometimes changed to accommodate a more natural conversational flow. Some questions were answered by the participants in the course of answering other questions as well. The questions were purposely redundant to give the participants multiple opportunities to articulate how they had grown as a teacher and in their teaching as a result of graduating from the program and their two years of experience.

Figure 4. Participant Generated Photograph with Comments and Coding



My approach to the interview was feminist in that I attempted to “establish a collaborative and nonexploitative” environment, interview my participants in a place and time of their choosing, and “conduct research that [was] transformative” (Creswell, 1998, p. 83). It is my hope that during the process of reflecting on the previous three years of their lives through the lens of change, my participants have not only become more cognizant of the journeys they have taken, but of the changes in the way they think about teaching and themselves. I attempted to uphold the principle set forth in Rubin and Rubin (1995), *Qualitative Interviewing: The Art of Hearing Data*; that is, to “respect both parties in the conversation” (Rubin & Rubin, 1995, p. 32). Gluck and Patai, in their 1991

book *Women's Words: The Feminist Practice of Oral History*, caution researchers to listen carefully to participants' voices, and to suspend, as much as possible, the research agenda for the time that the interview is conducted (Gluck & Patai, 1991, p. 11). I attempted to do this, treating the interviews as looked-forward-to conversations with colleagues where we planned to converse about their professional history.

The interviews were recorded with both a traditional tape recorder and a digital recorder. The plan was to back up the digital recordings onto my computer. During the first interview, the digital recording was successful and later backed up onto my computer. The digital recorder did not record properly (due to user fallibility) in the second interview. The digital recorder was used properly during the third interview, but the recording was accidentally erased while being transferred to the computer. The fourth interview was conducted with the traditional tape recorder only. While I had conducted previous studies with both technologies, I had never encountered as many problems with the digital technology as I did in this study. I was thankful for the advice of more experienced researchers and the lessons I learned in previous projects, like always having two forms of recording devices. In the end, the traditional tape recorder was the medium by which I was able to retrieve my interview data.

The interviews were transcribed word for word using Microsoft Word, typed and double-spaced. The documents were titled with the participants' pseudonyms. I was identified as interviewer and the participants were identified as interviewee in the left margin of each document. I transcribed the first interview myself, but was able to have the other three interviews professionally transcribed. Each interview document was line-numbered for ease of coding. Interview documents, ranging between 40 and 70 pages, were saved on my computer and printed out for coding purposes. The interviews lasted between one hour and ten minutes and two hours. As calculated by word count, I did very little talking in the interviews. My speech totaled about 15% of the words spoken in each interview.

Figure 5. *Face-to-Face Interview Excerpt with Coding notes*

43 C: Okay, um, in hindsight what do you think about your decision to leave your previous career and
 44 become a teacher?
 45 M: I have zero regrets. Not a single regret. You know I'm, I'm a little more strapped for cash than I was
 46 when I was working down there. But even that, you know what, I'd rather be happy and do without. You
 47 know I don't have money for everything that I want now, but I have, like, I do something I like. I have no
 48 regrets. I used to wake up down there every morning when I was working as an engineer and be like, oh
 49 I'm calling in sick today. And then I'd, like, drag myself to work, every morning. And now I'm, like, oh my
 50 gosh I gotta do this with the kids. And I can't call in sick 'cause there gonna lose a day in the shop and
 51 you know so, I, no, I miss some of my friends.
 52 C: But nothing about the professional life?
 53 M: No, not at all. (57:00)

I emailed the interview questions to the participants the day before the scheduled interview. This was done to remind the participant of our upcoming interview and to give them a sense of familiarity with the questions. I purposely did not give them more than

one day to think about the questions. I wanted to strike a balance between relieving anxiety about the interview by knowing the questions, giving the participants the opportunity to think over their answers, and keeping my promise to my participants that my study would not consume large amounts of their time. Three of the four participants read the interview questions before the interview. The last question (Tell me about the teacher you have become since graduating from the MAT program.) purposely mimics the phrase used in the photography directions given to the participants. Almost all of the questions prompted follow-up questions or probes. It was not unusual for a participant to talk for five to ten minutes to answer one question. See Figure 5 for a face-to-face interview transcript excerpt with comments and coding.

Member checking and final analysis. As the phases of transformative learning emerged in the research, I summarized my conclusions in light of the journeys taken by each participant. Ultimately, the content analysis was a “reduction and sense-making effort that [took] a volume of qualitative material and [attempted] to identify core consistencies and meanings” (Patton, 2002, p. 453). I wrote narratives for each participant, averaging 24 pages each, and sent them to the participants for review. Participants responded with feedback, clarification, and elaboration. All emails were saved as Word documents, then printed, labeled, and added to each participant’s binder. The email feedback was then used to further hone my findings and the research conclusions. Ultimately, the conclusions of the research were mailed to the four participants and their feedback was folded into the research findings.

Simultaneous with the member checking (Carlson, 2010), a colleague checked the coding done in the data. She reviewed randomly selected samples of data and compared them to Mezirow’s (1978) phases of transformative learning as well as the themes I encountered. Conversations and refinement of the coding took place using email and face-to-face conversations.

Reporting of study conclusions. After reconciling the feedback from the participants and the results of the member checking, a final refinement of the participants’ narrative was conducted. The study findings, indicated in the introduction of this article, were based on the data, my reflexive analytic memos, and a re-connection with the research on transformative learning.

Conclusion

The combination of analysis and coding of multiple pieces of archived data, combined with participant-generated photography, face-to-face interviews, member checking, and reflexive analytical memos proved to be a highly integrative and robust mixture of methods. In particular, I found the insertion of participant-generated photography in between the analysis of archived data and the face-to-face interview to be particularly helpful. The photographic data allowed me to check the progress of my coding to either confirm or challenge interpretations. It also allowed me to reconnect with my participants in a way that I had not done since gathering the archived data. And most obviously, the photographs became a comfortable focal point for the interview, drawing out different aspects of their professional work and journeys as teachers. It was easy to

create an atmosphere where the participants were not only comfortable but anxious to tell me stories about particular students, colleagues, lessons, or other experiences as novice teachers. Because few of my colleagues have used this technique, I did receive questioning looks upon implementation. But after gathering the results from the photography phase of the study, there was no doubt that this methodological element gave me what I needed to tie together the other pieces of my study.

Also, my use of reflexive analytical memos deepened my insight, kept me organized, and allowed me to check facts and timelines. The notebooks became a companion in my research much like the “pensieve” as described by Gerstl-Pepin and Patrizio (2009, p. 299). I knew that my thoughts, inspirations, ideas for further research, and to-do lists for my research would not be lost. In fact, I am convinced that an analysis of my memos alone might prove fruitful to a researcher interested in understanding how thoughts develop over time.

The design did come with some limitations. First, it was an extraordinarily time-consuming study to complete. Close to a year of my research time (roughly 20 – 30% of my professional day) was spent analyzing the data and bringing it to publication. Second, it required a long term commitment on the part of my participants. I am indebted to them for their perseverance and willingness to continue to engage with me in a conversation about their journey toward becoming secondary school teachers. I count myself lucky to have worked with four women dedicated to their new profession and the telling of their stories.

Third, while participants were unaware of the exact nature of the theory I was applying to their journey, they did become aware of the general theme of my research: their professional journey toward becoming secondary teachers. As the study progressed, three of the four participants became more active in sharing with me information they thought might be relevant to what they thought I was studying. This concerned me because I had to ensure that the participants were not providing information they thought I wanted, but rather sharing their experiences openly. I tried to ensure this by asking questions in multiple ways and more than once. I followed up with participants if a discrepancy in the data emerged. This impacted the analysis of the study because it required more attention. This dilemma seems to be a consequence of the long-term timeline of the study, one that might not be avoidable if using qualitative methods which require getting to know how the participants are thinking and changing over time.

Finally, the study would have benefited from a group of researchers analyzing the data. While a colleague at a separate institution verified my coding scheme, the process was fundamentally a conversation with the participants for three years. Had more researchers been involved, I believe the process would have become simultaneously much more complicated and much richer. If I have the opportunity to design a long-term study like this again, I will endeavor to bring aboard colleagues willing to pursue the same line of research across the length of the study.

The combination of techniques produced a rich narrative that enhanced my understanding of this important cohort of professionals moving into the field of secondary teaching. The study also makes a strong statement regarding qualitative research methods. This particular combination of methods proved eminently revealing to me as a researcher. I believe it could also work under other circumstances where a researcher is working overtime with a small, specifically chosen set of participants.

Perhaps the more important point, however, is that a thoughtfully chosen collection of methods can combine to provide insight not previously attainable.

Also, throughout the study I remained flexible in my choice of methods. My research questions remained the focus throughout the study. I allowed those questions to drive my decision-making in terms of which methods might offer the most clarity in the interpretation of my participants' words. This organic flexibility allowed me to identify and implement methods that I would not have otherwise used in combination. Qualitative data rely heavily on the focus a researcher is able to maintain in pursuit of a research question. This triangulated, redundant, and multi-method design proved to be highly effective in allowing me to answer my qualitative research questions and move forward in my research.

This combination of qualitative tools proved effective in launching a research agenda that will continue for some time and perhaps lead to the development of a grounded theory of career-changer teacher education effectiveness. A research study is now underway to test for generalizability as well as pursue the next logical step in the formation of grounded theory: defining the key terms related to what might emerge as a framework to improve the quality of teacher education for career-changers. This article focused on the qualitative design and its effectiveness in bringing research to this stage. The combination of methods was chosen to match the research questions and organically assembled to maximize understanding of the transformative journey of the participants. Approaching the research with flexibility, willingness to modify the research design as it unfolded, and continual interaction with participants in the analysis of the data produced a robust case study that portends future contributory research.

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