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Combining Case Study Design and Constructivist Grounded Theory to Theorize Language Teacher Cognition

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Abstract

Although second language (L2) teacher cognition has been a sustained area of research in the field of L2 teacher education for the last three decades, designing an appropriate methodology to investigate teacher cognition is still a key challenge due to the unobservable nature of cognition. Teacher cognition is defined as "what teachers know, believe, and think" (Borg, 2003, p. 81). This article seeks to enable researchers who are interested in exploring L2 teacher cognition to design qualitative multiple case study research and to use constructivist grounded theory to data analysis to build theoretical models that capture L2 teachers' cognitions. I discuss the rationale for the proposed design and outline the processes of data collection, three stages of data analysis, and the processes of constructivist grounded theory conceptualization. I provide examples and draw on my own experience of investigating and mapping out some of the intricate connections between the cognitions and the classroom practices of twelve English as a foreign language (EFL) writing teachers, on the one hand, and consider how their cognitions and pedagogical practices interplay with the ecological contexts where they teach, on the other hand. I highlight the flexibility of the proposed design to enable researchers to build models that effectively capture language teacher cognition and explain their pedagogical practices. In doing so, this article also provides a valuable contribution to the discussion of the research methods which have been used to examine L2 teacher cognition.

Keywords

Language Teacher Cognition, Qualitative Methods, Multiple-Case Study, Constructivist Grounded Theory, L2 Writing Instruction

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Combining Case Study Design and Constructivist Grounded Theory to Theorize Language Teacher Cognition

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Although second language (L2) teacher cognition has been a sustained area of research in the field of L2 teacher education for the last three decades, designing an appropriate methodology to investigate teacher cognition is still a key challenge due to the unobservable nature of cognition. Teacher cognition is defined as "what teachers know, believe, and think" (Borg, 2003, p. 81). This article seeks to enable researchers who are interested in exploring L2 teacher cognition to design qualitative multiple case study research and to use constructivist grounded theory to data analysis to build theoretical models that capture L2 teachers' cognitions. I discuss the rationale for the proposed design and outline the processes of data collection, three stages of data analysis, and the processes of constructivist grounded theory conceptualization. I provide examples and draw on my own experience of investigating and mapping out some of the intricate connections between the cognitions and the classroom practices of twelve English as a foreign language (EFL) writing teachers, on the one hand, and consider how their cognitions and pedagogical practices interplay with the ecological contexts where they teach, on the other hand. I highlight the flexibility of the proposed design to enable researchers to build models that effectively capture language teacher cognition and explain their pedagogical practices. In doing so, this article also provides a valuable contribution to the discussion of the research methods which have been used to examine L2 teacher cognition. Keywords: Language Teacher Cognition, Qualitative Methods, Multiple-Case Study, Constructivist Grounded Theory, L2 Writing Instruction

Introduction

Second Language (L2) teacher education research has shown that teachers' cognitions have a significant impact on the way they teach in the classroom (Borg, 2006; Flores, 2005; Phipps & Borg, 2009). To understand how teachers teach, it is necessary to understand their cognitions because these lie at the heart of what they do. Teacher cognition is defined as "teachers' beliefs, knowledge, theories, attitudes, images, assumptions, metaphors, conceptions, perspectives about teaching, teachers, learning, students, subject matter, curricula, materials, instructional activities, (and) self" (Borg, 2006, p. 41). Studies of teacher cognition have "helped capture the complexities of who teachers are, what they know and believe, how they learn to teach, and how they carry out their work in diverse contexts throughout their careers" (Johnson, 2006, p. 236). From a methodological perspective, the challenges have been for L2 teacher researchers to find appropriate methods of exploring and analyzing cognitions because cognitions are not directly observable (Borg, 2006). This article provides theoretical and practical guidance to enable researchers to design qualitative multiple case study research and to use constructivist grounded theory to data analysis to generate theoretical models from the data, in order to capture L2 teachers' cognitions. I attempt to achieve this purpose by

drawing on my experience of investigating and mapping out some of the intricate connections between the cognitions and the pedagogical practices of twelve L2 writing instructors teaching in Palestinian universities, on the one hand, and consider how their cognitions and pedagogical practices interplay with the ecological contexts where they teach, on the other hand. The article is structured as follows: First, I explain the rationale for using a qualitative multiple case research situated within the constructivist paradigm to investigate language teacher cognition. Second, I discuss why researchers adopting the proposed design need to reflect on their positioning within their research. Third, I report on the procedures appropriate to gain access to the research site, recruit appropriate participants and collect data through interviews, observations and document reviews. I then describe how the main principles of constructivist grounded theory can inform data analysis in L2 teacher cognition research through the use of initial and focus coding, constant comparison method, memo writing, diagramming and memo sorting. Finally, I outline the criteria to evaluate and maintain the trustworthiness of the qualitative research in L2 language teacher cognition research, and thus its findings.

Why a Qualitative Multiple Case Methodology Within a Constructivist Paradigm?

After exploring a wide range of qualitative research methodologies, I believe L2 teacher cognition research is most appropriately conducted within the constructivist paradigm, because a constructivist approach is best suited to capture the richness and diversity of teachers' cognitions and their classroom practices. The constructivist paradigm regards knowledge as a "human construction," that recognizes "multiple realities," and sees the research as a process through which the "researcher and the participant co-construct understandings" (Hatch, 2002, p. 13). The aim of the constructivist research is to understand phenomena through the meanings people assign to them. The researcher(s) also participates in constructing meaning: "their interpretation of the studied phenomenon is itself a construction" (Charmaz, 2006, p. 187). This collaboration between the inquirer and the informants is a pathway to generating candid accounts (Creswell & Miller, 2000). In L2 teachers' cognitions research, this shared pattern permits the co-construction of meaning by researchers and their participants, which informs a comprehensive model that encapsulates the interplay between cognitions, pedagogical practices, and contextual factors in the L2 classroom

Researchers adopting the constructivist paradigm tend to employ qualitative research methodologies to investigate, interpret and describe social realities (Cohen, Manion, & Morrison, 2007). Creswell (2007) comments that qualitative researchers try to develop a complex picture of the problem or issue under study by reporting many perspectives, identifying many factors, and sketching the larger picture that emerges. The approach is primarily inductive, pulling detailed pieces of information from a few cases to paint an overall picture of a context or phenomenon (Hatch, 2002). The goal of qualitative research is to rely as much as possible on the participants' views of the topic being studied. This goal is aligned with the aims of language teacher cognition research, which aims to discover what teachers believe about teaching and learning language and how and to what extent they translate these cognitions into classroom practices. The purpose is to capture the perspectives of the participants not those of the researcher or the literature.

In my study, the perspectives were varied, multiple and led me to look for a complexity of views that depicts the reality of teaching writing in Palestinian universities. I did not begin with a theory or pattern of meanings. I relied as much as possible on the participants' expression of the views and perspectives of their hidden cognitions and L2 writing teaching experiences.

In adopting a qualitative research approach, a suitable qualitative strategy of inquiry needs to be chosen. The selected strategy will shape the types of questions asked, the form of data collected, and the steps of how data are analysed (Creswell, 2009). Strauss (1987)

recommend combining case studies and grounded theory when the researcher aim is to develop theoretical models grounded on the data. To promote a constructivist perspective, researchers can draw predominantly from case study design (Merriam, 1998; Stake, 2006; Yin, 2003) and constructivist grounded theory approach to data analysis (Charmaz, 2006). Merriam (1998) notes, "A case study design is employed to gain an in-depth understanding of the situation and meaning for those involved" (p. 19). This is done in part to be able to create a thick description to convey what the reader would have experienced if he or she had been present. A case is "a specific … complex, functioning thing" (Stake, 1995, p. 2), such as an individual, a program or an event.

A multiple case study approach was most appropriate for my study of teachers' cognitions for the following reasons. First, a multiple, or collective case study design helped me research the cognitions of twelve L2 writing teachers to gain a broader understanding of the teaching of L2 writing in Palestinian universities. Investigating multiple case studies enabled me to compare and contrast the cognitions and pedagogical practices of the cases to sort them into three clusters based on their classroom teaching approach of L2 writing, to facilitate my analysis and interpretation of the findings, and to build up an emerging theoretical model of L2 writing instruction. When more than one case is studied, the researcher can seek out the multiple perspectives of those involved and conduct cross-case analyses for comparison purposes. Thus, multiple case studies are often considered rigorous and robust. Thus, this approach is well-suited to uncover the hidden cognitions of language teachers and to investigate their classroom practices.

My analysis of multiple cases strived to respect the integrity of each case and sought commonalities as well as differences across cases (Stake, 2005). My research involved the in-depth analysis of twelve individual cases, followed by a cross-case analysis that allowed for the examination of similar or different relationships across case elements. Therefore, data gathered about an individual teacher were collated and analysed as an individual case and then compared and contrasted with those of the cases of the other teachers. I additionally used a multiple case design to protect the identity of the participating teachers. Such an approach enabled the identity of each case member to remain protected, while still drawing on individual data to support the emergent model. I decided that this would be the safest way ethically to report the findings of the study. Thus, the use of the multiple case studies for data collection and organization and the constructivist grounded theory to data analysis is congruent with the constructivist research paradigm. This design facilitated the development of findings across all cases and the synthesis of these findings into a comprehensive theoretical model which uncovers the L2 writing teachers' cognitions and pedagogical practices instead of forcing or fitting the findings into an already existing model.

Why Reflect on the Researcher's Positioning?

As discussed above, situating L2 teacher cognition research within the constructivist paradigm enables the researcher(s) and participants to co-construct experiences and meanings about the phenomenon under investigation. Thus, the role of the researcher(s) in the co-construction of meanings in constructivist research requires that researchers conduct research in a reflective and transparent process (Mills, Bonner, & Francis, 2006). Reflection recognises that the researcher is the primary instrument of data collection and analysis (Creswell, 2009). Acknowledging one's background, professional identity, familiarity with the context, and biases should be part of the research process (Mason, 2002). In conducting my study, developing reflexivity raised my awareness of the personal and professional biases I might have brought into the research. Smith (2008) stresses that "when one is researching one's own context, it is important to acknowledge the perspective one brings; however, the goal is not to

overcome or change this perspective, but later make known how it has affected the research" (p. 18). I am an L2 writer myself, and an L2 writing teacher. These experiences may have caused bias in my worldview of the L2 writing learning and teaching. Therefore, I needed to begin the study by practicing reflexivity about writing teachers' cognitions; I needed to reflect on how my own cognitions, feelings and beliefs might influence the data I collect, analyse and interpret. Reporting my assumptions and experiences through writing reflective and analytical memos assisted me in achieving transparency (Mills, Bonner, & Francis, 2006) and ensured that the findings were based on the data and not on my own beliefs and perceptions. Furthermore, I realize that my teacher role in one of the research sites gave me an insider's perspective during the research process. My insider's perspective actually strengthened my views; my contribution to the research setting was worthwhile and positive (Creswell, 2009). In this regard, my insider status has allowed for prolonged exposure and insider knowledge of the context. Such a prolonged exposure to the research participants and site enabled better understanding and representation of multiple influences. My understanding of the research setting enriched my attentiveness, knowledge, and sensitivity to various challenges and issues faced by L2 writing teachers at the university setting. Throughout the research process, I developed good relationships with the participants while retaining my credibility as a researcher.

Methods

When researching L2 teacher cognition, it is important to decide on the most appropriate method of gathering relevant and useful data that can answer the main research questions and that align with the chosen research paradigm and its associated methodologies.

How Are Teacher Participants Selected?

Prior to participants' recruitment, ethical approval from the relevant Research Ethics Board to conduct the research should be obtained. A purposive sampling strategy is necessary to identify teachers to participate in studies of teacher cognition. Researchers need to decide on the characteristics of the cases which will provide rich data to answer the research questions. Creswell (2009) emphasizes that the sampling should be underpinned by clear criteria and rationales for these criteria. The purposive sampling in my study was based on three criteria: English as a Foreign Language (EFL) Palestinian writing teachers who have been teaching for one year at least in the research sites; those who are employed full time; and those who got their master's and doctoral degrees from an English-speaking country. In the research sites, teachers have to hold a master's degree at minimum in order to teach language skills courses for EFL major students. EFL teachers who had the opportunity to study in English-speaking countries were likely to improve their own English proficiency levels and to have been exposed to academic writing practices and/or to L2 writing research, and thus to provide rich data to answer the research questions about teaching EFL writing in the Palestinian universities. I sought to identify informants from two universities in Palestine "based on their ability to contribute to an evolving theory" (Creswell, 2007, p. 125). As I had worked in the first research site (University A) for six years and have had a colleague teaching English in the second research site (University B), gaining access was not difficult.

I explained the aim and the procedures of the study to the Heads of the English Department in University A and University B and permission was given to me to carry out the research. Each Head provided me with a list of the writing teachers who met the selection criteria and their contact details. They welcomed the study as it might help them become more aware of the EFL writing teachers' cognitions, expectations and needs and thus provide useful

input to improve L2 writing instruction. As soon as access was gained, I sent an email to the instructors. In the email, I described the focus, objectives, procedures, benefits and significance of the research, and I sought their voluntary participation through a response to that email. Twelve teachers who made up the twelve cases in my study expressed their willingness and interest to participate. Seven out of the twelve teachers were teaching in the first semester, and the other five teachers taught in the second semester.

Then, I contacted the teachers by phone to schedule up individual appointments with each teacher to meet and explain the nature of the research and what was required from them during the study. After a verbal explanation in Arabic, participants were given the information sheet and a written consent form and briefed on the data collection methods, benefits of participating in the study, confidentiality and assurance of no risk. A written consent form was also provided in which they were assured that only I and my Ph.D. supervisors would have access to the data and that they would be given pseudonyms in order to preserve their anonymity. Moreover, I told them that participation was voluntary, and they were free to withdraw from the study at any time. My meeting with each participant lasted approximately an hour. We also talked about my experience studying in New Zealand. I believe that by providing detailed information about the study and myself, I gained their trust and built a good rapport with them to facilitate my collection of rich data and to enhance the co-construction of meanings and interpretations.

How are Data Collected in Teacher Cognition Research?

As is consistent with Stakes' (2005) constructivist approach to case study design, research inlanguage teacher cognition can employ the most common types of data collection for qualitative case studies: interviewing, classroom observation, and document analysis (Creswell, 2009; Yin, 2011). Interpretive researchers emphasize understanding of the world through first-hand experience, truthful reporting and quotations of actual conversation form insider's perspectives (Merriam, 1998). I employed these data gathering methods because they are more likely to enable rich and detailed, or thick descriptions of the teaching of EFL writing and the role of cognition and contextual factors in shaping the pedagogical practices. These methods had the potential to encourage participants to speak freely about their L2 writing teaching experience.

Teacher Interviews

When conducting interviews from a constructivist perspective, researchers need to be flexible in order to co-construct knowledge and interpretations with their interviewees. Interviews are the best means to access the minds of research participants so that their knowledge values, preferences, attitudes and beliefs could be reflected (Cohen et al., 2007). Charmaz (2006) comments that "the in-depth nature of intensive interviews fosters eliciting each participant's interpretation of his or her experience" (p. 25). For this study, I conducted one-to-one interviews in English with twelve EFL writing teachers in the research sites. Teachers were asked whether they preferred to be interviewed in English or Arabic; all of them chose English. The semi-structured interviews were guided by a list of broad open-ended questions (reproduced as Appendix A), which focused on each participant's cognition about L2 writing teaching and their reported classroom practices in the writing classroom. Each individual interview was audio-recorded by an MP3 device and transcribed, then provided to the participant for an accuracy check as a means of member checking. Flexibility was built into the interview process to enable me as the researcher to seek further clarification of issues from the participants depending on the progress of the interviews. All person-to-person interviews

were scheduled at a time convenient for the participants and were conducted in their offices in the university.

Non-Participant Observation

Another primary source of data which enriched and complemented the interview data was non-participant observations. According to Cohen et al. (2007), non-participant observations are advantageous because the researcher is less influenced by the group and the data are more objective because the researcher is less invested in the observed phenomenon and is less likely to overstate what is observed. The purpose of observation in my research was not to assess the teaching. Rather, observing the teachers in action enabled me to evaluate the extent to which the teachers' cognitions and reported practices corresponded to their actions in the classroom. It was also a form of data triangulation, particularly because key observations made were discussed with the teachers in the stimulated recall interviews as a means to validate the observations. Data triangulation via using a variety of data collection methods and sources enhanced the quality and trustworthiness of my L2 teacher cognition research when checking the emerging findings against various data sources and perspectives. The main advantage of using observation is that it allows direct collection of data in the natural setting. Cohen et al. (2007) noted that observational data are attractive as they afford the researcher the opportunity to gather "live" data from live situations. The observation technique also enables the researcher to acquire data which cannot be obtained with other techniques and to verify the validity of participants' reported responses (Bryman, 2004) and to cross-check issues under study as well as to capture data that can otherwise not be collected through interviews (Creswell, 2009).

I conducted two classroom observations for each teacher. The duration of every class ranged from fifty minutes to an hour. I asked each teacher participant to choose two consecutive classes to be observed to avoid potential lack of coherence when analyzing the data. During the observations, I maintained detailed written descriptions of the teacher's classroom practices when teaching writing. The observation notes of these lessons then formed a starting point for the post-lesson interview; the purpose was not so much for analyzing the particular lesson as for looking at the writing teachers' teaching practices and the underlying beliefs behind such practices and the contextual factors affecting their teaching.

Stimulated Recall Interview

Apart from observations and interviews, stimulated recall interviews are also appropriate tools to collect data for teacher cognition research situated within constructivist paradigm. Stimulated recall interviews enable the researcher to construct a conception and an understanding about the classroom practices together with the interviewee. Henderson and Tallman (2006) rightly recognize that stimulated recall interviews are a reliable tool to collect data about the thoughts participants had during performing specific tasks, especially when the interviews are conducted within 48 hours of the observation. The main aim of stimulated recall interviews is to help the teacher recalls his/her thought strategies and reflect on what was happening during his/her teaching (Borg, 2006). After observing each of the two classes for each teacher, I arranged a time during the same day or on the following day and got him/her to recall the actual thoughts during teaching and the cognitions behind her/his practices as well as the problems he/she encountered when teaching that lesson. I used the notes taken during the observation as the stimulus for the stimulated recall interview. I invited each teacher to talk about what s/he had done during the lesson and why (Woods, 1996, p. 28) in order to investigate the interplay between the teachers' cognitions and practices. Discussion did not focus solely on the lesson content itself; rather, the lesson was used as a starting point for wider-ranging

conversation which was recorded on MP3 device. The transcripts were then provided to each individual and the teachers were asked to verify accuracy and make comments on any points they felt were pertinent. This supported the reliability of the data.

Document Analysis

Analysis of documents is another useful tool to provide a rich source of information to complement the data collected through interviews, stimulated recalls, and observations. Obtaining data from a variety of sources and perspectives can strengthen the robustness of the research findings. In case study design, Yin (2011) states that documents can "yield invaluable data about things not directly observable" (p. 147). Merriam (1998) also comments that data obtained from analyzing documents can inform research by enhancing the credibility of the research findings and interpretations.

In my study of teacher cognition, a writing course description and a sample writing test were collected and analyzed from each participant for any evidence of teachers' cognitions and actual practices in the writing classroom. I also sought to triangulate my findings of the analyzed documents with those resulting from the interviews and the observations. Weiss (1998) noted that documents are "a good place to search for answers as they provide a useful check on information gathered in an interview" (p. 260).

NVivo 9 is one of the qualitative data analysis software programs that can be used for data management. In my research, all interviews were recorded, transcribed, reviewed for accuracy and entered into NVivo 9, as were field notes from observations, and reflective memos. Electronic copies of course documents were also stored in NVivo 9.

Data Analysis

In this section, I describe how the constructivist grounded theory can guide data analysis process through phases of coding, the constant comparison method, category extraction, memo writing, diagramming and memo sorting. Using this method has the potential to strengthen the analysis process while maintaining the participants' voices. Charmaz (2006) states that researchers can use grounded theory techniques with varied forms of data collection and within different qualitative traditions. Case study design promotes the collection of rich data from multiple sources and the constructivist grounded theory approaches to data analysis enable researchers to generate theoretical models from within the data. A theory grounded in the data provides a better explanation than a theory borrowed "off the shelf," because it fits the situation, actually works in practice, is sensitive to individuals in a setting and may represent all of the complexities actually found in the process (Charmaz, 2006, p. 423).

Three Stages of Data Analysis

A constructivist grounded theory to data analysis occurs in three stages as detailed below. The first stage involves the independent, in-depth analysis of each case; the second stage focuses on the clustering of similar cases. The clustered cases are cross analyzed and interpreted in the third stage. I will describe these stages based on my experience doing my own research:

Stages 1 and 2: Individual and Clustered Case Descriptions. In my multiple case study research, the first data analysis stage involved the independent, in-depth analysis of each case; the second stage focused on the clustering of similar cases. As soon as I finished conducting the first interview with my first participant, I transcribed the interview data. Corbin and Strauss (2008) stress that the process of data coding should start after the first interview is completed

because further data collection and analysis will be based on the first data. The first step of analysis was coding the data. Charmaz (2006) states that coding consists of three phases: initial coding, focused coding, and theoretical coding. When combined, these three stages of coding move the analysis from the "ground" to a higher, abstract theoretical level.

Initial Coding. Line-by-line initial coding is the first step. Initial coding is essential, as it represents the first step towards interpreting the data. It is recommended to use gerund forms when coding because coding with gerunds "helps to define what is happening in a fragment of data" and to "see implicit processes, to make connections between codes and to keep their analyses active and emergent" (Charmaz, 2008, p. 164). For each case, I coded the teacher's interview data, the notes from the two classroom observations, the teacher's two stimulated recall interviews, and the data from the course description and the sample test. At this initial stage of coding, Charmaz (2006) suggests searching for implicit assumptions, illuminating actions and meanings, comparing data with data and identifying gaps in the data. As part of initial coding, in-vivo codes may be generated. These are "codes of participants' special terms" and are a means to preserve participants' views and actions in the coding itself (Charmaz, 2006, p. 55).

The process of initial coding in my research produced over 1000 codes. The very large number of initial codes made me realize the complexity of coding and interpreting data. Some of these codes contained just a single segment of data while others contained multiple segments. The greater the number of references within a single code is, the greater the density of that code would be. While the density of a code is not a necessarily an indication of its importance to the research objective, dense codes may highlight ideas, actions, or processes which are frequent in the data. Examples of initial codes and the segments of data which each represents are shown in Table 1:

Table 1. Examples of Initial Coding

Original Transcript	Initial Codes
"I will follow them-up and give them feedback. Feedback is the most important thing" (P4, Int.3).	Giving feedback on students' writing is essential.
"Classes will primarily focus on editing texts for organizational, stylistic and grammatical problems such as 'verb tense consistency, sentence structure and punctuation, word choice, collocation, writer's voice, etc.' Various writing activities will be geared towards avoiding errors in those areas." (P5's course description).	Prioritizing teaching grammatical forms
"They do not know how to specify themselves; they just speak in Arabic, they give me topic sentences in Arabic in a right way, but when they want to express themselves in English, they do not know how."	Teaching linguistically low-level students
Also as I mentioned before, some students do not make effort, some students do not change as they come as they go. (P4, Int1)	Teaching unmotivated students
"The first moment I come inside, I need to know what their schools do for them, how they destroyed their minds and fossilized their brains." (P1, Int.1)	Traditional national educational system as a barrier

Focused Coding. Focused coding activities aim to classify the most significant and frequent earlier codes under broader conceptual categories to facilitate theoretical development. Focused or selective coding can be utilized after a researcher establishes the most frequent and significant initial codes. Charmaz (2006) explains, "Focused coding means using the most significant and/or frequent earlier codes to sift through large amounts of data. Focused coding requires decisions about which initial codes make the most analytic sense to categorize your data incisively and completely" (p. 57). Analytic categories that enhance the theoretical development result from comparing and contrasting the data. Focused coding therefore generates analytic categories, which act as abstract umbrella concepts encompassing multiple initial codes. In my research of teacher cognition, I analyzed the lists of initial codes and identified higher categories into which initial codes could fit. Here is an example of the emergence of a category from Initial Coding.

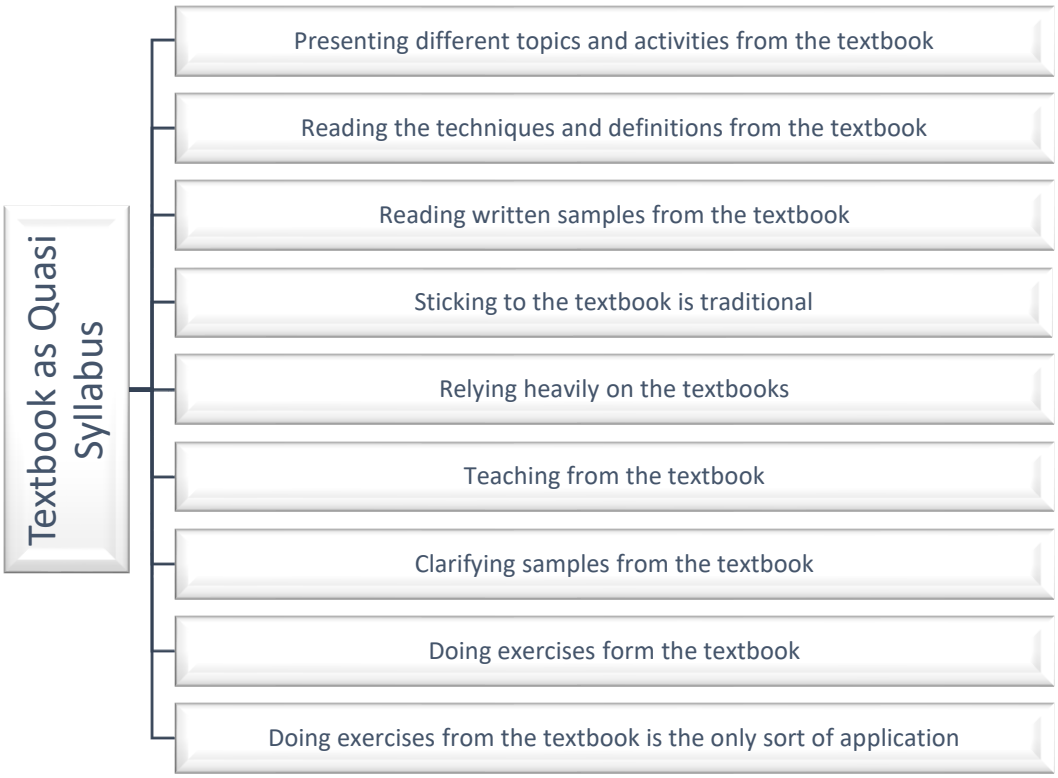

Figure 1. Example of the emergence of a category

The process of categorization was challenging to me. I was aware not to force the data into certain categories because forcing these codes into existing categories will distort the overall quality of the analysis. As Creswell (2007) indicates, not all coded data will be used in the theoretical development. Certain codes will simply not fit into the emerging conceptual categories. Creswell recommends filtering and grouping the data into 25-30 categories, which are then further distilled into 5 or 6 main categories. Throughout this process, I revisited the initial codes and checked if the categories I had assigned them were appropriate and representative. Therefore, many new categories were created, others removed, and others merged or changed, so that all relevant initial codes fitted well. Overall, the process of focused coding, which produced conceptual categories to compress the existing and emerging initial codes, produced 21 categories. In this way, focused coding deepens the analysis process of data. Examples of focused codes are listed below.

- Focusing on teaching grammar and mechanics
- Focusing on teaching paragraph and essay structures
- Lack of integrating writing with other skills
- Students' lack of knowledge about the world
- The physical organisation of the classroom
- The low proficiency level of the student
- Main focus when teaching academic writing
- Problematic course plans
- Sources of teachers' beliefs and practices
- Participants' conceptualisations of writing
- Prior Experience of the student
- Teachers' attitudes towards teaching writing
- The impact of prior learning experience
- The role of the writing teacher
- Students' negative attitudes towards learning writing
- Lack of facilities in the classroom

Theoretical Coding. The next coding stage was to decide how the conceptual categories emerging from focused codes are related to each other. This can be done using theoretical coding. Theoretical coding takes the analysis towards a more abstract, theoretical level. Theoretical coding aims at exploring relationships between the conceptual categories that have emerged during focused coding and synthesizing them into more abstract, core categories. Core categories are fundamental to elucidating the nature of the phenomenon under investigation from the researcher's perspective. When doing coding, the researcher is occasionally struck by emergent theories, theoretical formulations and ideas about data. These revelations should be documented and are referred to as theoretical memos. During the process of building the emerging model in my research, I strived to recognize core categories that I felt where central to understanding the phenomenon of teaching EFL writing from Palestinian university teachers' perspective. Combined, these core categories included the categories generated during focused coding and expose links between them.

In my study, the following seven core categories were generated:

1. Pedagogical practices
2. Teachers' cognitions about teaching and learning EFL writing
3. Sources of Cognitions and practices
4. The nature of students
5. The classroom context
6. The institutional context.
7. Broader national educational context

The main challenge of theoretical coding was to create broad, solid concepts that might be synthesized in a theoretical model representing EFL writing instruction in Palestinian universities.

Memo Writing. A key aspect of grounded theory to data analysis is memo writing which assists in "capturing ideas in process and in progress" (Charmaz, 2008). Memos are "informal analytical notes" which the researcher produces during the research process (Charmaz, 2006, p. 72). Memo writing "constitutes a crucial method in grounded theory because it prompts you to analyze your data and codes early in the research process" (Charmaz,

2006, p. 72). Writing many memos during the research process can keep the researcher involved and assist in deriving theoretical categories. I wrote memos during data collection and data analysis stages. During data collection, I wrote memos after I conducted the interviews to record key ideas and potential questions for follow-up, as well as emerging issues that required further exploration. During data analysis, memo-writing facilitated the reconstruction of data in new ways, making connections between categories and sub-categories. Writing memos helped me to express my thoughts and the relationships among the different categories that I identified during the data analysis. The process of initial coding produced many independent memos detailing my emerging thoughts on the nature of the phenomenon. During focused and theoretical coding, my memos were more organized and informative and assisted me to explore relations, gaps, and contradictions between codes and categories, to find questions for future interviews, to construct my model from the abstract concepts, and thus complete my research. Writing memos also facilitated my writing of individual case reports. It is through memos that I was able to record my thoughts, capture the connections I made and directed my research process. An example of a memo on the impact of teachers' practices on their students' learning is provided below.

> The way the teacher uses textbook is very important. For example, for writing 2, the teacher said the exam is from the book, so the students' only concern was to do all exercises even without understanding the material. Because the teacher did not do enough practice with students, students asked for help from students in higher levels to do the exercises and just memorized the answer without understanding. This practice by students is stimulated by the teacher's way in using the textbook. This means that students are unable to handle topics that were not covered in the book. This raises an important question of whether Palestinian teachers of writing teach strategies/ skills that enable students to deal with several topics or do they just focus on certain material in the book to be memorized for the exam?

Much of the memo writing was concerned with making comparisons between codes and categories by employing the constant comparison method (Charmaz, 2006).

Diagramming and Memo Sorting. Diagramming categories within and across cases can enhance the distilling of the main categories that make up emerging, grounded models which depict the interplay between L2 teachers' cognitions and pedagogical practices. In addition, the memos and summary diagrams of each individual case should be examined and compared to those of other cases, allowing further grouping of similar cognitions, practices, and perceptions through sorting.

Stage 3: Cross-Case Analysis. In the third stage of analysis, memos from key categories and individual case diagrams should be investigated across cases to determine shared and variant processes and to categorize individual cases into clusters based on similarities and differences in L2 teachers' cognitions and classroom practices. Thus, comparing the main categories across cases helps to explore how different cognitions, pedagogical practices and perceptions of contexts and processes varied across the participants. In my research, the cross-case analysis involved the grouping of the twelve cases into three clusters based on their instruction focus: Cluster A focused on teaching linguistic forms, Cluster B focused on teaching rhetorical patterns, and Cluster C focused on teaching writing as a process and a genre. Detailed reporting and discussion of the study's findings has been delineated in my doctoral thesis (Alzaanin, 2014). I synthesized the main categories emerging from the cross-cluster analysis in an evolving cognitive-ecological model (CEM) of teaching EFL writing. The term cognitive is used to signify the influence of teachers' cognitions on their teaching behaviors

and classroom practices. The term ecological is used to denote the nested contexts that shape teachers' cognitions and influence their teaching practices. The pictorial representation of the CEM is a rainbow-like figure of seven bands as shown in Figure 2

Figure 2. A cognitive-ecological model (CEM) of teaching EFL writing

At the core of the model are the teachers' instructional practices in the writing classroom. The other six bands can be thought of as filters to classroom practices that operate at different levels with a degree of overlap. The term filter is used to reflect the subtle impact of these factors on practice. The first filter is teachers' cognition, and it operates at the intrapersonal micro level of individual teachers. The intrapersonal level refers to the micro personal factors that influence the teachers' practices, such as their attitudes, pedagogical beliefs, conceptualizations and their perceptions of themselves as professionals. The classroom social environment, the third band, involves teacher-student interpersonal relationships and teachers' perceptions of their students' characteristics. This filter impacts on how teachers act on the classroom and orient their focus.

The third filter to practice is the classroom physical environment. The teachers' perception of the classroom physical environment operates as a hindrance to the implementation of desired classroom practices. The classroom-related barriers were class size, space availability, environmental conditions, teaching materials, and classroom resources. The last three filters are the macro ecological factors. These macro ecological factors are the institutional context, national educational context, and global community discourse. The mediating positioning of the teacher cognition band between practices and the different contextual contexts may show that cognition determines the weight that teachers assign to different ecological constraints. This may explain why teachers working under the same conditions may exhibit different teaching practices.

Discussion

What Criteria Might Evaluate the Trustworthiness of the Qualitative Research Design?

It is crucial to maintain the trustworthiness of the research, and thus its findings. Lincoln and Guba (1985) suggest that the aim of trustworthiness in a qualitative inquiry is to support the argument that the inquiry's findings are "worth paying attention to" (p. 290). The trustworthiness criteria include the notions of credibility, transferability, dependability, and confirmability (Creswell, 2009).

Credibility assesses whether the research findings represent a "credible" conceptual interpretation of the data based on the participants' original data (Lincoln & Guba, 1985, p. 296). The credibility of the findings of a qualitative multiple-case study design can be enhanced through peer debriefing, prolonged engagement in the field, and data and method triangulation. Peer debriefing is the process of presenting analysis to a peer to explore meanings, interpretations, bias and inconsistencies (Lincoln & Guba, 1985). Peer debriefing was employed by presenting various parts of my data analysis to my supervisors. Prolonged engagement in the field was another means to seek credibility. I was onsite for data collection for each case for two weeks so that extensive data were collected from multiple sources. Data and method triangulation was the third technique to maintain credibility. A variety of data collection methods was used at each site. All those techniques have strengthened the credibility of the study.

Transferability is the degree to which the findings of an inquiry can apply or transfer beyond the boundaries of the study (Lincoln & Guba, 1985). In other words, it is the extent to which the findings from a study can be applied to other contexts. One strategy to enhance the transferability is to collect deep, thick, descriptions through using open-ended questions to elicit detailed, lengthy, and contextualized responses. Providing rich, thick description can allow readers to determine how closely their situations match and whether or not the findings of this study can be transferred to their local context. In my study, a detailed description of each cluster aimed to provide readers with adequate information to reflect on their situations and to compare and contrast the research context with theirs.

Dependability is described as the extent to which the research process is consistent over time. Dependability was achieved in my study of teacher cognition by repeating the same procedures of data collection and analysis across all cases. This was achieved by using interview prompts, observation protocols and documents analysis to cover the same major issues in each case. Reflexivity of the researcher as described previously strengthened the dependability of the study. I kept a field journal during data collection and memoed my reactions and emerging interpretations throughout data analysis. Another technique to enhance the dependability of my research was to carefully document each stage of the data collection

and analysis process through field notes and memos in order to construct an audit trail of the research process available for review by my supervisors as necessary.

Confirmability refers to the degree to which research results can be verified, confirmed, and validated by others. It requires that the conclusions of a study be based on the participants' experiences and the data they provide rather than the researcher's intuition or own biases and agenda. Another strategy employed to enhance the confirmability of my study was keeping a reflexive journal through field notes and memos recording my personal feelings and insights that emerge throughout the course of conducting the study to ensure that the findings were based on the data and not my own beliefs and perceptions. Confirmability was also achieved by providing a clear audit trail, which would describe in detail how data were collected, how categories were derived, and how decisions were arrived at throughout the inquiry. Data were stored, coded and analyzed using NVivo 9. This allowed data to be easily traced through codes and categories to the original sources. Examples of data analysis and coding are presented in the text and interpretations are backed up with extensive quotes from the data.

Conclusion

In this article, I explained and illustrated why combining a qualitative, collective case study design and constructivist grounded theory to data analysis is an appropriate and valuable methodology to capture and analyze language teachers' cognition, experiences, pedagogical practices, and their perceptions of ecological contexts from the participants' perspectives. In doing so, this study provides a valuable contribution to the discussion of methods of data collection and analysis in the language teacher cognition research. The proposed design is robust, appropriate, rigorous, and credible and can provide theoretical and practical guidance to researchers undertaking similar L2 teacher cognition research.

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Appendix A: Teachers' Interview Guide

1. What would you say is the focus when you teach EFL writing? Please give examples.
2. What are the most important aspects of English writing / academic writing? Can you further explain what you mean by ----------?
3. Could you please describe a typical routine for conducting your writing class?
4. What are the factors that constrain you from teaching in a way that you consider ideal? What are these barriers?
5. How would you characterise their influences? education, language learning experience, and work experience.
6. In your opinion, how should writing teachers teach English writing to Palestinian EFL university students? Why? Please explain in detail.
7. How do you think EFL students learn English Writing?
8. If at the end of the school term you were to overhear a student discussing

your class with another student, what would you most like to hear that student saying was learned in your class?

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