The Pennsylvania State University
The Graduate School
College of Education

AGENCY, IDEOLOGY, AND INFORMATION/COMMUNICATION TECHNOLOGY: ENGLISH LANGUAGE INSTRUCTOR USE OF INSTRUCTIONAL TECHNOLOGY AT A SOUTH KOREAN COLLEGE

A Dissertation in
Curriculum and Instruction
by
Brandon James Sherman

© 2016 Brandon James Sherman

Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

December 2016
The dissertation of Brandon James Sherman was reviewed and approved* by the following:

Mari Haneda  
Associate Professor of Education and Applied Linguistics  
Dissertation Adviser  
Chair of Committee

Patrick W. Shannon  
Distinguished Professor of Education

Jamie Myers  
Professor of Education

Meredith Doran  
Director, English for Professional Purposes Intercultural Center

William Carlsen  
Director of Graduate Studies, Curriculum and Instruction

*Signatures are on file in the Graduate School
Abstract

The objective of this study was to investigate the ways that instructors think about classroom technology and how this might relate to their classroom use of it. This qualitative case study explores the relationship between instructors and classroom information/communication technology (ICT). Specifically, this study followed three native English-speaking English Language instructors at a South Korean vocational college over the course of a semester. Through a variety of data collection methods, many different aspects of the participants' relationships with instructional ICT were explored. This study focused on participants' espoused ideas and beliefs about what ICT was, how it was meant to be used, and what it could accomplish in a classroom setting. In addition to interviews, instructors' actual technology usage was explored through classroom observations.

The findings strongly suggest that instructors’ relationships to instructional ICT are differentiated individually by a number of factors, such as an instructor’s history of learning and teaching with ICT, their understanding of what it is, and what it can and cannot do. By exploring these individual instructors’ perspectives and their use of ICTs in their classrooms, this study makes a case that the educational impact and benefit of ICT should be understood as a result of relationships between instructors and technology, or in broader terms, relationships between humans and machines. Furthermore, it was found that instructors’ relationships with instructional technology can be understood in terms of their ability to reshape it and apply it in innovative ways to accomplish their pedagogical goals. To aid in this understanding, the findings are used to posit, develop, and refine two theoretical constructs, technological agency and ideologies of technology. These are offered as conceptual lenses through which to view one particular aspect of a instructor’s relationship to technology, that of reinterpretation of technological artifacts through the discovery of new affordances. By casting the instructor as the interpreter and employer of educational technology, and the true key to its success, this dissertation stands as a response to deterministic and/or essentialist notions of technology in classrooms.
# Table Of Contents

List of Tables .................................................................................................................. viii  
List of Figures .................................................................................................................. ix  
Acknowledgements ......................................................................................................... x  

Section I .................................................................................................................................. 1  
Ch. 1 – Introduction ............................................................................................................. 1  
1. Turning to the phenomenon ....................................................................................... 1  
2. Statement of purpose ................................................................................................. 3  
3. Overview of study ..................................................................................................... 3  
4. Research questions .................................................................................................. 4  
5. Organization of the dissertation ............................................................................. 4  

Ch. 2 – Review of the Literature ....................................................................................... 6  
1. Bringing technology into the classroom ...................................................................... 6  
2. Teacher cognition, teacher belief ............................................................................. 9  
3. Teacher belief and ICT ............................................................................................. 13  
4. Teacher cognition and CALL .................................................................................... 16  
5. Moving to a theoretical articulation ........................................................................ 24  

Ch. 3 – Conceptual Framework ....................................................................................... 26  
1. Technology ................................................................................................................ 26  
   1.1 – What is technology .............................................................................................. 26  
   1.2 – Turning to affordance ......................................................................................... 28  
   1.3 – Focusing on ICT ................................................................................................. 32  
2. Teacher cognition: Beyond belief ............................................................................. 33  
3. The conceptual framework ......................................................................................... 36  
   3.1 – Models: Cultural, mental, theoretical ................................................................. 36  
   3.2 – Technological agency ......................................................................................... 38  
   3.3 – Ideology ............................................................................................................ 41  
   3.4 – Ideologies of technology ................................................................................. 44  
   3.5 – The importance of context ............................................................................. 45  

Ch. 4 – Methodology and Method ................................................................................. 47  
1. Methodology ............................................................................................................. 48  
   1.1 Paradigm ............................................................................................................... 48  
   1.2 Epistemology ....................................................................................................... 49  
   1.3 Axiology ............................................................................................................... 51  
2. Method ....................................................................................................................... 53  
   2.1 The Pilot ............................................................................................................... 53  
   2.2 Context ................................................................................................................ 53  
   2.3 Participants .......................................................................................................... 54  
   2.4 Researcher ........................................................................................................... 55
1.3 Card sorting .................................................................................................................. 138
2. ICT and Teaching ......................................................................................................... 144
   2.1 What it means to teach ............................................................................................... 144
   2.2 Teaching with technology ......................................................................................... 145
   2.3 What ICT can do in the classroom ............................................................................. 150
   2.4 Drawbacks of ICT .................................................................................................... 153
   2.5 Students and ICT ..................................................................................................... 156
   2.6 How ICT is learned .................................................................................................. 159
   2.7 ICT and teaching in the future ................................................................................ 164
3. Jessie’s classroom use .................................................................................................. 165
4. Jessie’s ideology of technology .................................................................................... 171

Ch. 8 – Fiona ...................................................................................................................... 173
1. Fiona and ICT ................................................................................................................ 173
   1.1 Personal approach to ICT ......................................................................................... 173
   1.2 ICT is ........................................................................................................................ 177
   1.3 Card sorting .............................................................................................................. 177
2. ICT and Teaching ......................................................................................................... 183
   2.1 What it means to teach ............................................................................................... 183
   2.2 Teaching with technology ......................................................................................... 184
   2.3 What ICT can do in the class .................................................................................... 191
   2.4 Drawbacks of ICT .................................................................................................... 194
   2.5 Students and ICT ..................................................................................................... 195
   2.6 How ICT is learned .................................................................................................. 197
   2.7 ICT and teaching in the future ................................................................................ 202
3. Fiona’s classroom use .................................................................................................. 204
4. Fiona’s ideology of technology .................................................................................... 207

Section III – Discussion and Conclusion ........................................................................ 210

Ch. 9 – Discussion ............................................................................................................ 211
1. Patterns and points of interest in participant talk ....................................................... 211
   1.1 – Interview themes .................................................................................................. 211
   1.2 – Specific technologies ............................................................................................ 220
   1.3 – Metaphors ............................................................................................................ 224
   1.4 – Espoused theories-of-action ................................................................................. 229
2. ICT in use ..................................................................................................................... 231
   2.1 – Technologies employed ......................................................................................... 231
   2.2 – Dynamics of use .................................................................................................. 246
   2.3 – Espoused ideas versus use .................................................................................. 250
3. Ideologies of technology .............................................................................................. 254
   3.1 – Approaches to technology ................................................................................... 254
   3.2 – Consumer ideologies of technology ..................................................................... 258
   3.3 – The social construction of technology ................................................................... 263
   3.4 – Returning to technological agency ....................................................................... 266
3.5 – The user and the tinkerer: Returning to ideologies of technology ........ 270
4. Follow-up: Member checking and catalytic validity .......................... 281

Ch. 10 – Conclusion ........................................................................... 286
1. Implications .................................................................................. 286
2. Contributions of this dissertation .................................................. 289
3. Future study .................................................................................. 293
4. Limitations of study ....................................................................... 296
5. In closing ........................................................................................ 297

References .......................................................................................... 299
Appendices ......................................................................................... 308
    Appendix A – Classroom technology use survey .............................. 308
    Appendix B – Classroom observation guide .................................... 309
    Appendix C – Administrator interview guide ................................... 311
    Appendix D – Three-stage semi-structured interviews ....................... 314
    Appendix E – Video cued interview guide ....................................... 317
    Appendix F – Focus group guide .................................................... 320
    Appendix G – Follow-up interview guide ......................................... 323
    Appendix H – Card sorting ............................................................. 326
List of Tables

4.1 – Stages of data collection................................................................. 60
4.2 – Research questions and data......................................................... 63
4.3 – Stages of analysis........................................................................ 73
6.1 – Hugh’s ICT examples................................................................. 91
6.2 – Hugh’s first card layout............................................................... 94
6.3 – Categorization derived from Hugh’s first description............... 95
6.4 – Hugh’s second card layout.......................................................... 96
6.5 – Categorization derived from Hugh’s second description......... 97
7.1 – Jessie’s ICT examples............................................................... 136
7.2 – Jessie’s first card layout.............................................................. 139
7.3 – Categorization derived from Jessie’s first description.......... 140
7.4 – Jessie’s second card layout......................................................... 141
7.5 – Categorization derived from Jessie’s second description..... 142
8.1 – Fiona’s ICT examples............................................................... 175
8.2 – Fiona’s first card layout............................................................. 178
8.3 – Categorization derived from Fiona’s first description......... 179
8.4 – Fiona’s second card layout.......................................................... 180
8.5 – Categorization derived from Fiona’s second description...... 182
9.1 - Participants’ ideologies of technology consumption.............. 259
9.2 - Teacher ideologies of technology.............................................. 272
List of Figures

4.1 – The SAMR model of technology integration……………………………………… 65
Acknowledgements

I wish to offer thanks to the members of my committee, Dr. Mari Haneda, Dr. Patrick Shannon, Dr. Jamie Myers, and Dr. Meredith Doran. Their guidance was invaluable on the long path of bringing this project from an idea to a reality. Conversation with each, whether in formal or informal contexts, was always a pleasure, and I never walked away without a great deal more to think about. Thanks to each of you for lighting the way. In particular, I offer deep gratitude to Dr. Haneda, who has been a constant source of encouragement and support throughout my academic journey. I was incredibly fortunate, during my time at Penn State, to have the friendship and support of a wonderful cohort (both official and honorary). It will give me great joy to see the wonderful things each of you go on to accomplish in years to come.

It goes without saying that I could not have managed without the patience, candor, and generosity of the pseudonymous participants of this study. I’ll say it anyway, for I am in their debt.

More than anything, I offer my profound appreciation to Eun Kyung, without whose patience, understand, and trust, none of this could have happened. I give thanks to her family who supported us as I undertook my quixotic intellectual endeavor. To Evelyn, your boundless curiosity and energy are my wellspring. To Ada… See you soon.
Chapter 1 - Introduction

1 Turning to the phenomenon

As with the majority of human endeavors, the task of teaching has long been conducted through, augmented by, or otherwise intertwined with, technology in various forms. The advantages technologies could bring to the classroom were heralded throughout the 20th century (Cuban, 1986), and as we move through the information age and beyond, information/communication technology (ICT), and its attendant literacies, have been identified as fundamental to teaching and learning (Partnership for 21st Century Skills, 2007; UNESCO, 2002). And yet, while undeniable benefits have emerged from the employment of ICT in classrooms, complications and shortcomings in cases such as the One Laptop per Child initiative (Selwyn, 2013) serve to remind that technology in the classroom is not a mere neutral, technical affair, but is political, cultural, and historical as well.

Technology in the classroom is a site of great debate and conflict, both in the abstracted realm of pedagogy research and in the concrete realms of policy and practice. A number of narratives surround instructional technology, making claims and foregrounding particular aspects. One position, perhaps more common in policy and mainstream discourse than in academia, holds the beneficial nature of instructional technology in general, and information/communication technology (ICT) in particular, as self-evident (Ertmer, & Ottenbreit-Leftwich, 2010; Negroponte, 1996; Prensky, 2001). This position is well represented by Ertmer and Ottenbreit-Leftwich’s (2010) declaration that “It is time to shift our mindsets away from the notion that technology provides a supplemental teaching tool and assume, as with other professions, that technology is essential to successful performance outcomes…” (p. 256, italics in original).

However, this narrative of necessary and inherently beneficial technology is held by some to be deeply problematic, failing to capture the reality of how technology is actually employed in the classroom (Burbules & Callister, 2000; Cuban, Kirkpatrick, & Peck, 2001; Selwyn, 2011). In too many cases, the situation in the classroom simply does not reflect the glowing discourse of technology’s potential (Cuban & Cuban, 2009; NESTA, 2012). With technology’s value for
learning lately being questioned internationally, from primary to post-secondary education (Kamenetz, 2016), an inquiry into the realities of classroom technology use is both timely and necessary.

Warschauer (1998) describes much of the research in educational technology in language acquisition as ‘deterministic’, based in the assumption that technology is some essential thing, has some essential effect, or has essential uses. Technology in learning contexts has often been surrounded by a discourse of technological determinism that attempts to cast it as a neutral force, one that operates independent of society and context (Buckingham, 2008). As Hodas (1993) notes, the technological deterministic approach entails the belief that “the transformative power resides in the box itself rather than the uses to which it is put” (p. 7). In practice, these deterministic (mis)conceptions of what technology is can lead to what Bax (2003) terms the *sole agent* fallacy, “the common assumption that the key or only factor in successful implementation of the technology is the technology itself” (p. 26).

Perrotta (2013) cautions that deterministic conceptualizations of technology in educational policy and application can not only work counter to potential benefits technology might have, but can also lead to reluctant teachers being positioned within a discourse of deficiency. Regardless of broad claims of ICT’s potential for transformative learning, every individual teacher makes daily decisions about the place and purpose of technology in their classroom (Vrasidas, 2015). What is needed is a nuanced understanding of classroom technology use that focuses on the relations between humans and technology at the individual level. Thus, this study proceeds at the individual scope, focusing on teacher understanding of classroom technology and its use. Though this work situates this study in the realm of language teaching and acquisition and in the context of South Korean tertiary education, the theoretical implications may have relevance for pedagogy in general.
2 Statement of purpose
This work starts from a foundational assumption that the impact of technology in the classroom is more an outcome of the way it is used than the fact that it is used (Levy, 2009; Vrasidas, 2015). It takes a bottom-up rather than top-down approach to the phenomenon of teacher technology use. Given this, it is important to explore what factors might influence that use. While technology and protocols for employing it are often prescribed by policy, protocol, convention, and/or instructions, responsibility for the actual use of the technology (and in most cases the learning outcomes) falls to the teacher in the classroom (Goodson, Knobel, Lankshear, and Mangan, 2002). If we accept that the transformative power of ICT in the class depends on the way it is used by individual teachers, we must ask what leads teachers to use ICT in particular ways. Of the many factors that may influence a teacher’s implementation of technology, it is cognitive factors that serve as the focus of this study. It is argued here that one major influence on teacher use of ICT is individual teacher attitudes towards, or conceptions of, ICT. The task is to find a way to conceptualize and explore these attitudes and see what relation they might have to actual classroom ICT practices.

3 Overview of the study
This study follows three University English language instructors1 over the course of a semester, exploring their understanding and use of technology both discursively and empirically. Using a variety of different methods to achieve triangulation and thick description, a picture of these teachers’ relationship with classroom technology emerges. These relationships are explored in terms of the conceptual constructs of technological agency and ideologies of technology. Finally, consideration is given to potential catalytic impact of the research.

---

1 A note on terminology: Though the terms teacher and instructor are largely interchangeable, within this work teacher is used to refer to educators in general, and instructor specifically to the research participants and their colleagues at the research site.
4 The research questions

The phenomenon of interest in this research is teachers’ relationship with classroom ICT as reflected in their espoused ideas and opinions and their practices. The following questions form the foundation for the conceptual framework and research design. The study is guided by the following research question:

How does the understanding and interpretation of technology of English language instructors at a Korean university relate to their classroom use of information/communication technology?

The following secondary questions relate to different facets of the primary question:

1. What understandings or interpretations of technology do EFL instructors report concerning the affordances of ICT in the classroom context? (What ICT is in terms of what it can do)
2. How can instructors’ approach to ICT be understood in terms of technological agency and ideologies of technology?
3. How do these ideologies relate to instructors’ reported pedagogical goals? (What ICT is in terms of what it is for)
4. How do these ideologies relate to instructors’ observed classroom technology practices?
5. What contextual factors (such as institutional policy and professional culture and/or ideologies of technology) might influence these practices?
6. What changes in practices might be observed over the course of the study?

Given the central importance of these questions, they will be referenced explicitly throughout this dissertation.

5 Organization of the dissertation

The dissertation is divided into three sections. Section I, comprising chapters one through four, establishes the foundation of the research. Chapter one orients towards the phenomenon broadly, and introduces the research questions.
Chapter two presents a review of literature relevant to the intersections of the various aspects of the phenomenon of interest: Classroom technology, teacher cognition, and language acquisition. This review serves to situate the current research among extant work, and to justify the current study by identifying a gap in the literature. Chapter three introduces the various elements of the theoretical framework, relating them both to each other and to the research questions to form a theoretical foundation for the study. Finally, chapter four concerns methodology and research design. This chapter addresses methodological assumptions in the study, exploring implications of the interpretive stance taken here. The details and rationale for methods of data collection and analysis are then provided.

Section II of the dissertation, chapters five through nine, explores teacher understanding and use of ICT. Chapter five presents the teachers’ context of technology use, exploring the institution and context in which the teachers operate professionally. Chapters six through eight each focus on one teacher, touching on the teacher’s background, espoused ideas and opinions about technology, and their observed classroom technology use. Each chapter also makes some initial statements about participants’ ideologies of technology.

Section III, chapters nine and ten, connects the thick description of section II to the concepts introduced in chapter four and brings the dissertation to a close. Chapter nine, the discussion chapter, first returns to instructors’ espoused ideas and opinions on technology, with discussion of teacher theories and metaphors emerging from interviews. Discussion then focuses on teacher technology use, discussing patterns emerging from classroom observations. Throughout this chapter, consideration is given to specific technologies referred to and used by the participants. Finally, all of this is brought together, with discussion returning to research questions and conceptual framework. Findings are used to develop and refine the concepts of technological agency and ideologies of technology. In closing, chapter ten presents a discussion of implications, contributions to the field, limitations, potential avenues of future study.
Chapter 2 – Review of the Literature

This chapter introduces literature pertinent to the central phenomenon of language teacher attitudes toward and use of information/communication technology (ICT) in the classroom, and in doing so begins to lay out concepts foundational to the theoretical framework articulated in the following chapter. This chapter will start broad and become more specific. First, literature on technology in the classroom will be addressed, followed by work on teacher belief and cognition, relevant research in teacher beliefs and ICT, and finally work that looks at teacher cognition as it appears in various forms in computer assisted language learning (CALL) literature.

1 Bringing technology into the classroom

This review will begin by situating the current research within broad trends of studies of technology and classrooms. As Cuban (1986) stressed, the promise of technological classroom reform is nothing new, but is rather a cycle that has seemed to repeat over the last century as new have technologies emerge. He chronicled how, in the context of United States at the very least, overly optimistic (and arguably technologically deterministic) promises have long been made about the pedagogical potential of technology. Today, there are many who point out benefits that ICT can have for various aspects of classroom learning. Many of these potentialities address teacher-centered concerns such as efficiency and production (Kearsley, Hunter, & Furlong, 1992), greater access to material (Sutherland, 2009), improved evaluation (Pachler, 2005), and better classroom
management (Webb, 2005). ICT has also been said to afford greater student experiences such as autonomy, self-directed learning and modal flexibility (Christensen, Horn, & Johnson, 2008), greater accessibility (Beltrán & Abbott, 2013), critical literacy (Myers, 2007), and engagement with critical concerns (New London Group, 1996).

Despite this optimistic discourse on the pedagogical potential of ICT, the actual implementations and impact of classroom technology often failed to live up to its purported promise. It has been pointed out repeatedly how simple access to classroom ICT resources (provided at considerable expense) has not automatically resulted in use (Apple, 2004; Cuban & Cuban, 2009; Cuban, Kirkpatrick, & Peck, 2001). While there are a number of factors that might be influencing this lack of use, from institutional, administrative, and legal barriers (Hodas, 1996; Shutkin, 2013) to student resistance (Hunt, Thomas, & Eagle, 2002), many have asserted that it is teachers that are ultimately responsible for the use or non-use of classroom technology (Cuban, 1986; Egbert et al, 2011; Hodas, 1996). Perrotta (2013) noted a dangerous trend of moral imperatives in discourse surrounding teacher ICT use, deriving from deterministic ideas of the benefits of technology that position non-ICT-using teachers in a discourse of deficiency.

Teacher use or non-use of technology, or similar binaries, such as technophobia/technophilia, are helpful for orienting to the issue, but are ultimately not nuanced enough to represent what is actually happening with technology use (Lam, 2000, Kozinets, 2008). Technology can be integrated into classrooms to different extents, and in different ways (Bax, 2003). To take one example,
Puentedura (2009) offered the SAMR model to distinguish different ways in which particular technologies are used. Within this model, technology is seen as substituting, augmenting, modifying, or redefining the pedagogical task to which it is applied. While the model allows for differentiation of use, it also has a normative element, as these levels are listed from least to most beneficial use of technology. Thus, its use runs the risk of positioning teachers as deficient (Perrotta, 2013) if context and other factors are not taken into account. Fabian and MacLean (2014) used the SAMR model to investigate the ways tablet computers were used in school settings. Among the influencing factors they discovered, teacher attitudes towards technology (in the form of enthusiasm and “buy-in”) figured prominently the level of technology implementation. In other works, similar sorts of factors have been said to influence teacher technology use, from pedagogical philosophy (with Becker & Riel, 2000, finding a correlation between professed constructivist philosophies and higher technology integration), to openness to change and the contribution of extra time to familiarization and implementation (Vannatta & Fordham, 2004). These works share a common thread in that some form of teacher cognition is held to influence technology use in the classroom, whether characterized as philosophy, mindset, disposition, or belief.

It should be noted that it is a very common theme in the literature to assert that technology use should follow pedagogical goals and not the other way around. This sentiment is present in pedagogical theory and literature (Egbert et al 2011; Kern 2006), as well as from reported perspectives of teachers (Lam, 2000). As with the concept of technological determinism, it is difficult to find scholars
defending outright the position that pedagogical goals should be secondary to
technology use. Rather, this notion seems to come from technology as it is often
implemented in classrooms, as guided by policy and administration (Cuban, 1986;
Cuban & Cuban, 2009; Selwyn, 2011). The idea of technology first, pedagogy
second seems to stem from situations where teachers are not allowed flexibility
and choice in their use of technology (Perrotta, 2013).

Much of the recent research on classroom technology utilizes the
Technology, Pedagogy, and Content Knowledge (TPACK) framework (Koehler &
Mishra, 2009; Koh et al, 2013; Liu et al, 2014). This framework considers each of
these three areas (technology, pedagogy, and content) as discrete realms of
knowledge that can also be understood in combination (i.e. knowledge of using
technology to present content, or using technology in pedagogically sound ways).
One element of the theory, the relation between technology and pedagogy, stands
out as being more germane to the research questions than those related to content.
That said, while TPACK is important in recognizing the role of teachers in the
implementation of technology, its focus on teacher knowledge rather than meaning
and perception makes it a less than ideal fit for the research questions explored
here.

2 Teacher cognition, teacher belief

While teacher use of technology presents one focus of the current research, the
other concerns (in ways that will be clarified in the next chapter) teacher cognition
about technology. This section will address some of the literature on teacher
cognition in general, and the following will introduce literature that focuses on teacher cognition as it relates to technology specifically.

Teacher cognition is an umbrella term, covering a number of different terms that relate to teacher thought and belief. In Borg’s (2003) overview of teacher cognition research in language literature alone, the terms principles, theories, routines, conceptions, knowledge, beliefs, maxims, convictions, and reasoning all fall within the realm of teacher cognition research. To these terms can be added attitudes, dispositions, intentions, perceptions, and models, each of which are used in research presented below. As Borg notes, there exists both a superficial diversity masking a considerable overlap in these terms. That said, they are not synonymous either, in that each term has unique nuances, focuses, and foundational assumptions. The following chapter will take pains to clarify the term that will be ultimately used, and to justify its use over others presented in this section.

Kubanyiova and Feryok (2015) noted that much of the research in teacher cognition (specifically, language teacher cognition) is informed by a cognitivist perspective that treats cognition (however it is termed) as reified and discrete, easily articulated and applied. Research taking this stance often characterizes differences between belief and practice as problems to be rectified (e.g. Farrell & Ives, 2015; Lee, 2009). In these approaches, it is common to see cognition explored through questionnaires, a number of which are cited below. As an alternative, Kubanyiova and Feryok advocate a research approach that considers cognition and practice in context and in tandem, using ethnographic methods. They assert that discrepant beliefs and practices
can be approached as co-existing rather than contradicting each other, a point well taken, and one that informs the analysis in the current research.

While teacher cognition covers numerous concepts, it has likely been characterized most often as belief. A wide range of literature has been developed on the topic (Priestley, Burbules, and Robinson, 2015). The sheer volume of research on teacher belief makes it worthy of special attention, particularly where ICT is concerned. Belief is notoriously difficult to define. Pajares (1992) notes that belief has been represented in literature by all of the terms included above under the umbrella of cognition, plus a great deal more. Belief has been characterized by Nespor (1987) as being distinct from knowledge, better understood as affective and narrative in nature. Beliefs have been seen by some as synonymous with a person’s preconceptions and implicit theories (Clark, 1988 in Pajares, 1992).

In their discussion of factors contributing to change in teacher technology practices, Ertmer and Ottenbreit-Leftwich’s (2010) argument of a connection between teacher beliefs and practices is exemplary of a larger body of teacher belief-focused research. For example, Korthagen (2004) advanced teacher beliefs, along with identity, as a major influence on their teaching. Xu (2012) recognized the potential of belief to affect classroom practices in subtle ways, positing reflection and recognition as having potential to reshape these beliefs. This approach is joined by Gebhard and Oprandy’s (1999) work on the use of reflection to change teacher beliefs and practices.

One work that seems in line with Kubanyiova and Feryok’s recommended approach is that of Adamson (2004), who interviewed 10 ELT professionals in
various positions, and considered how to go about ‘unpacking’ their beliefs. The focus of the work was not the findings so much as methodological considerations for the investigation of belief. Adamson’s work stands out for its consideration and representation of research context and reflexivity. Similar concerns are noted by Kane, Sandretto, and Heath (2014), who offered a detailed critique of extant literature on teacher beliefs at the tertiary level. They note that research on teacher belief that only considers reported beliefs only tells “half the story” if it does not also feature some exploration of actual practices. Further, they criticized studies that rely on questionnaire instruments for lacking the necessary flexibility that allows teachers to express their own beliefs. These sorts of study, they contended, run a great risk of manifesting self-fulfilling prophecies with regards to teacher belief. Many of these one-sided studies are based on quantitative data derived from surveys wherein teacher articulations of their beliefs, often reported on Likert scales, are taken at face value.

Studies that have taken both sides of the story into account have found a disjuncture between teachers’ professed beliefs and actual classroom practices. For example, in Lee’s (2009) study ten specific mismatches were found between teachers’ reported beliefs and actual practices. Within language teaching in particular, Basturkmen (2012) undertook a review of the literature exploring language teacher beliefs and practices. She found that most studies found a limited correspondence between teacher belief and practice, and a greater correspondence in cases of experienced teachers. She recommended a focus on unplanned classroom incidents that, she asserted, reflected teachers’ ‘implicit beliefs’ rather
than their reported beliefs.

3 Teacher belief and ICT

Echoing Perrotta’s (2013) concerns about teachers positioned in a discourse of deficiency, Priestly, Biesta, & Robinson (2015) noted that one trend in teacher belief research concerns the integration of technology in the face of negative teacher beliefs. Among the examples they offered was the work of Song and Looi (2012), who followed two teachers in a cross-case comparison study, characterizing the two different approaches observed as reflecting innovation-centered beliefs and teacher-centered beliefs, respectively. The former approach, they found, made better use of the affordances of classroom technology in an inquiry-based lesson than the latter. Priestley, Biesta, and Robinson (2015) also identified the aforementioned work of Ertmer and Ottenbreit-Leftwich (2010) as reflecting negatively on anti-technology teacher beliefs. Whether or not they take the side of teachers these works, along with many of the scholars listed above, recognize individual teachers as having the ultimate responsibility to decide how to leverage ICT in pedagogically meaningful ways.

This focus on changing beliefs can also be found in Lumpe and Chambers (2001), who approached teacher technology practices in relation to personal agency belief patterns. This framework considered the overlap of self-efficacy (internal, ability, self) beliefs and context (external, enabling, environment) beliefs. With the assistance of 327 participants, they developed an instrument to measure context-related technology beliefs (beliefs about teaching with technology, or BATT). Their findings suggested an emphasis on teacher context is likely the best
way to encourage changed beliefs by providing opportunities for reflection.

Other research into teacher technology beliefs has relied on questionnaire methods. Hermans (2008), for example, submitted a questionnaire to 525 primary school teachers in Belgium. This questionnaire considered a potential connection between teacher pedagogical beliefs (traditionalism vs constructivism) and technology use, and did indeed find a positive connection between reported constructivist beliefs and higher classroom computer use.

Anderson (2007) asked 76 preservice teachers to complete surveys before and after taking an introductory technology course. These surveys explored teacher self-efficacy (ability) beliefs, value (utility) beliefs, and intentions. While the researchers found that teacher beliefs in their abilities and the value of ICT increased following the course, they recognize that this does not necessarily reflect what will happen in the classroom. Indeed, bearing in mind the critique of Kane, Sandretto, and Heath (2014), any study that does not take actual teacher practices into account is lacking.

Exploring teacher practices calls for an ethnographic approach. A number of relevant studies have taken such an approach. Windschitl (2002) took an ethnographic perspective, following three teachers over two years with a focus on the interplay between teacher beliefs and context regarding the implementation of laptop program at a high school. He found that teacher beliefs about both the affordances of technology and practices seemed to have links to use, stating that teachers’ belief systems influenced participants’ conceptions of what was proper and
possible in their classrooms. Teachers imagined the affordances and constraints of technology and indexed them against the potential for the technology to create learning conditions that were congruent with their beliefs about learners and their needs, were consistent with images of what counted as legitimate learning activities in specific subject areas, and/or allowed control over the learning environment to be placed in the hands of the students or the teacher (p. 201).

Loveless (2004) undertook a qualitative case study at a junior school in England over the course of 18 months. Employing Interviews, observations, narrative description, and documentation to follow 12 teachers and the head teacher, she found teacher beliefs about ICT to fall roughly into the categories of perceptions of ICT in society, ICT capability, and ICT in schools. Loveless found that teacher perceptions of ICT interacted with their practices in different ways corresponding to these three categories. One important note she makes, not always acknowledged in studies of this sort, is that interesting findings can come not only from what is present, but also from what is absent. For example, Loveless noted that none of the teachers reported perceiving technology as affording higher-level thinking. Angers and Machtimes (2005) employed an ethnographic case study design to explore teacher technology beliefs, context, and practices, with three teachers observed and interviewed. Echoing Windschitl, they found that “Teachers’ beliefs about classroom practice appear to shape their goals for technology use as well as the weight they assign to different barriers” (p. 774).

These represent just a few of the numerous works that have approached this
subject. That said, the term ‘belief’ is problematic in ways that are worth exploring, and will be explored in relation to the conceptual framework in the following chapter.

4 Teacher cognition and CALL

Having considered extant work on classroom technology use, teacher cognition, and the overlap between the two, this chapter finally turns to works within the TESOL literature that explores teacher cognition (in its various guises) as it relates to technology use in TESOL classrooms. Naturally, much of this work comes from computer-assisted language learning (CALL) literature. Warschauer (1998) characterized research in this field as deterministic, instrumental, or critical in approach. Deterministic approaches to research are based on the assumptions of technological determinism and essential properties of classroom technologies. Instrumental and critical approaches, on the other hand, emphasize the central role of humans in classroom technology’s implementation and impact. The instrumental approach emphasizes that technology is what it is because of the uses to which it can be put (its instrumentality), as chosen by the teacher guided by pedagogical goals. The critical approach to technology goes a bit further by emphasizing technology as a site of conflict, where uses are determined by sociocultural, contextual, and institutional forces. In both of these latter two approaches, teacher attitudes towards technology are taken as an influence on how it is implemented.

In CALL literature, teacher cognition is often addressed as teacher attitudes
(Guichon & Hauck, 2011). For example, Kessler (2007) surveyed 108 TESOL graduate students to explore relations between their attitudes towards technology and their teacher preparation programs. Kessler concluded that student-teacher attitudes towards technology to be a crucial part of successful use of ICT in their teaching careers, but that the students’ programs were not giving them adequate preparation. Del Puerto and Gamboa (2009) conducted an analysis of an online questionnaire completed by 166 second-language teachers, concluding that teacher attitudes were among the most prominent factors influencing classroom technology use.

Lam (2000) used questionnaires and interviews to explore factors influencing the classroom technology use of ten graduate students with varying degrees of language teaching experience, and to challenge the notion of teachers as ‘technophobes’. Lam discovered that teachers reported a number of reasons for technology use (such as student motivation, availability and authentic nature of materials, and personal experience as a student) as well as a number of barriers (lack of knowledge, access, and confidence, inappropriateness for language teaching). Factors reported as influencing use included money, time, and administrator and parent attitudes. Lam concluded that teachers’ decisions about technology use were a matter of personal conviction rather than fear, these convictions likely concerning the appropriateness of the technology for the pedagogical task. Here, it was concluded, teacher attitudes towards technology were the key to improving classroom application and integration.

Lam’s work is joined by a number of studies that cite factors influencing
classroom technology use, as reported by the teachers themselves. Reasons for use include technology’s potential for authentic context and availability of materials (Lam, 2000), motivation (Ertmer et al, 1999; Lam, 2000), multimodality (Arnold, 2007). Reported barriers include lack of knowledge, training, funding, and time (Del Puerto & Gamboa, 2009; Egbert Jones, 2001; Lam, 2000). Arnold (2007) reported age as a factor influencing tech use, though this is challenged by Lam (2000), who found no connection. These themes, along with those identified by Zapata (2004, discussed below) provided a reference point for analysis of the participants’ interview data in the current study.

Rather than consider teacher attitudes, Meskill, Mossop, DiAngelo, and Pasquale (2002) framed their investigation in terms of teacher “precepts, concepts, and misconcepts associated with instructional technology” (p. 46). They conducted a comparative study using this focus, interviewing three groups: Five novice TESOL pre-service teachers, two technology expert veteran language teachers, and one veteran teacher transitioning to greater technology competence. They found differences in the way members of these groups talked about, and thus conceptualized technology. They identified four themes of contrast (locus, focus, practice, and emphasis), and concluded that veteran teachers who made greater use of instructional technology made use of a more developed conceptual schema in discussing technology. They surmised that teachers can reach a greater proficiency with classroom technology by reflecting and cultivating a greater awareness of their conceptions of technology.

While the above studies looked at factors influencing teacher technology
use, some theoretical works have focused on the ways it is used. Levy (2009), in offering a survey of how technology use differed across various language skill areas, held technology use to be determined by teachers’ knowledge and understanding, noting that “It is the teacher or learner’s understanding of what a technology can accomplish that is critical in practice (p. 777)”.

Both teacher attitudes and technology use figure in Bax’s (2003) work theorization of stages of classroom technology integration. Expanding on and revising Warschauer and Healey’s (1998) articulation of CALL history as behavioristic, communicative, and integrative, Bax provided three broad approaches for using technology in language learning. Restricted approaches tend to correspond with deterministic conceptions of technology (and with a behavioristic approach to CALL), in that they tend to restrict learning outcomes in predetermined ways. Instructors relying on this approach are likely to use ICT in ways where students are expected to provide correct or incorrect answers. Examples of this include digital quizzes or games in which student responses are either right or wrong. In contrast, Bax’s open (corresponding to the communicative stage) and integrated approaches are more likely to focus on ICT affor- dances that encourage student learning in more flexible ways, corresponding to an instrumental conception of ICT. A teacher taking these approaches with technology might have students record speech using their smart phones, or write posts on a class blog, provided these outcomes are in line with the teacher’s pedagogical goals.

One thing that differentiates these last two approaches is their characterization of teacher attitudes towards technology. Bax holds that teacher
attitudes towards ICT in both the closed and open approaches are characterized by “Exaggerated fear and/or awe” (p. 21), whereas teachers employing ICT in an integrated manner deal with it as a normalized part of practice. Normalization, according to Bax (2003), is the process by which technology is no longer considered a remarkable phenomenon in the learning process, but comes to be taken for granted and thus not even considered technology. He illustrates this by noting the fact that while we speak about Computer Assisted Language Learning (CALL), we do not have analogous terms for other instructional artifacts, such as Book Assisted Language Learning (BALL).

Bax’s work is valuable for the current study, but is not adopted completely. While Bax’s first two approaches (restricted and open) remain useful for describing ICT use in classrooms, the third (integrated) may be more usefully articulated not as an endpoint (normalization of ICT) but as a continuum measured along the lines of teacher familiarity with technology in general. Bax seems to say that technology is approached by fear or unrealistic expectations at first, before becoming an unremarkable and natural part of the classroom. It is quite likely that, beyond the fear and awe stage, ICT need not become invisible as technologies (as have books), but can be a great many things to different people, and teacher attitudes towards ICT might account for that difference. That said, Bax’s approaches stand as interesting examples of mindsets that can be used to understand teacher conceptions of technology, which will be discussed in the following chapter.

Along with CALL literature, mobile assisted language learning has also
taken teacher cognition into account in exploring classroom ICT integration. As the most common form of ICT in many contexts (including that of the current study), mobile technology and its place in language learning can also be considered in terms of teacher cognition. One recent study taking this approach is that of Van Praag and Sanchez (2015), who undertook a case study of three teachers at a private language school in the UK, exploring teacher attitudes toward and use of mobile technology in the classroom. Though the current study was developed prior to that article’s publication (evidenced by the 2014 pilot), there are similarities in Van Praag and Sanchez’s phenomenon of interest and method of inquiry. That study drew on background interviews, video-recorded observations, and post-observation interviews. The researchers found that teacher beliefs regarding the value and harm of mobile technology in language classrooms interacted with contextual influences (a school prohibition on smartphone use in class) and the culture(s) of the students (ubiquity of smartphones, reliance on smartphones) to result in a classroom culture where teachers tolerated limited smartphone use, and acknowledged utility of student smartphone use for language acquisition, but did not themselves make use of mobile technology in their lessons. Teachers had a negative overall view of smartphones, viewing them as an ‘invasion of their territory’. In practice, however, they allowed students to use smartphones in limited ways. Ultimately, teachers found themselves with the additional role of either approving of or restricting smartphone use.

Finally, three studies within CALL stand out for exploring the influence of teacher attitudes and institutional factors on technology use in language
instruction. These studies focus on the same phenomenon as the current study, with notable differences in context and theoretical approach.

Zapata (2002, 2004) undertook an interpretive case study of the classroom technology use of five Spanish-language teaching assistants in an American ESL program. Zapata (2004) identified five institutional factors and eleven pedagogical factors that can influence the application of ICT in language classrooms. While these factors all have bearing on the contextual facet of the research at hand, several of them were conceptual in nature. These included the potential influence of institutional conceptualizations of CALL and instructors’ views, perceptions, and conceptualizations of CALL. Zapata developed a theoretical framework for exploring these influences drawing largely on activity theory (Engeström, 2014) and Gee’s discourse analysis (2011). These theories were buttressed by the inclusion of speaker roles from Goffman (1981) such as animator, author, and principal, and innovation roles from Markee (1997), such as implementer, supplier, adopter, and resister.

While Gee’s discourse analysis (discussed in the following chapter) relates to the theoretical framework of this research, the scope of activity theory (with its focus on systems of activity) goes beyond the questions at hand. For this reason Zapata’s work informs but does not form the basis of the current research. Zapata’s findings are helpful for exploring the context of the current research, and the

---

2 Institutional Factors: Objectives for implementation of CALL; financial support; institutional conceptualization of CALL; infrastructure; personnel training. Pedagogical factors: Department/program conceptualization of L2 instruction; department/program conceptualization of CALL; role of CALL in curriculum; division of labor in community where CALL is implemented; personnel training; infrastructure; instructor’s educational, cultural, and professional background; instructors’ views, perceptions, and conceptualizations of L2 instruction; instructors’ views, perceptions, and conceptualizations of L2 CALL; instructors’ classroom role; students’ classroom role.
findings that focus on conceptual factors in ICT use support the research questions through their emphasis on the importance of teacher conceptions (or ideologies) of technology use. Aside from differences of context, the conceptual distinctions between this work and Zapata’s will be clear in the following chapter, as the theoretical framework is introduced.

Both Zapata (2004) and Bax (2003) informed Sumi’s (2011) exploration of factors affecting integration and normalization of ICT in language classrooms in Japan. Sumi emphasized an ecological approach to understanding ICT use in language classrooms, including an acknowledgment of Norman’s (2002) conception of affordance as influencing the way technology is used. This ecological understanding might be understood through Sumi’s proposed formula of \( U = f(PCT) \), where use of tech (U) in foreign language learning (f) is a result of people (P), classroom context (C), and tools (T). While this formula might seem an oversimplification or overly abstract, glossing over many factors that are expressed with greater detail and nuance by Zapata (2004), the emphasis on the actual use of technology is appreciated. The intent of the proposed research is to explore a similar phenomenon (instructor use of technology) in a relatively similar context (Korean EFL classrooms), but with an emphasis on the influence of instructor meaning making processes and the formation of ideologies of ICT.

An emphasis on language teacher perception of the affordances of technology can also be found in Haines (2015), who interviewed sixteen university language teachers at 5 universities in Australia. Haines discussed the cases of two teachers, exploring their classroom use of blogs and wikis, and noting changes in
use over time. While broadly situating her work within teacher cognition research, she approaches the phenomenon in terms of teacher perceptions of technologies and their affordances. This concept is central to the current research, and will be explored in depth in the following chapter. Haines notes that these perceptions develop over time, and can be understood as both context-dependent and as somewhat generalizable. While Haines’ research is somewhat similar to the current one in terms of context and approach, there are crucial theoretical differences that will become apparent in the following chapter.

5 Moving to a theoretical articulation

Thus far this work has introduced literature relating to larger themes of teachers and technology use, literature exploring teacher cognition and teacher belief, and literature that considers teacher beliefs about technology use. Furthermore literature within CALL specifically has been considered. Much of this research has involved questionnaires that, while valuable in some ways, may gloss over or abstract away from the real decisions teachers make regarding technology in their classroom. Bearing in mind the cautions of Kane, Sandretto, and Heath (2002) to tell the whole story of teacher cognition from both discourse and action, there is room for an inquiry into the phenomena of teacher cognitive approaches to technology as they relate to actual classroom practices.

These phenomena have been characterized as views and conceptualizations (Meskill et al, 2002; Zapata, 2004), attitudes (Bax, 2003; Guichon & Hauck, 2011; Kessler, 2007), beliefs (Ertmer Ottenbreit-Leftwich, 2010, amongst many others)
and perceptions of affordances (Haines, 2015). These terms, while not synonymous, all represent attempts to capture what is the admittedly ephemeral and elusive phenomenon of teacher cognition concerning ICT. In the following chapter, after establishing theoretical positions regarding technology, the quandary of teacher cognition and technology will be revisited, and a conceptual framework will be established that allows for an articulation of the phenomenon that sets the stage for the present research questions to be addressed.
Chapter 3 – Conceptual Framework

The previous chapter has introduced literature bearing on the phenomenon of teacher cognition and use of technology, and in doing so established key theoretical concepts that shall be used to make sense of the phenomenon in this study. So far, these have included affordance, teacher cognition, and teacher belief. This chapter begins by introducing a theoretical foundation establishing what sort of thing technology is considered to be within this dissertation, and how it relates to human beings.

In the second section, the concepts of teacher cognition and belief introduced in the previous chapter is first problematized, then augmented with theory from social and philosophical work on technology. Ultimately, all of this is woven into a coherent theoretical framework against which the central phenomena of the study can be understood. The research questions serve as the connective thread running through this study, and so will be discussed in relation to the framework as appropriate. It is well to begin this unfolding and weaving of theory with reference to the central guiding question of the research:

How does the understanding and interpretation of technology of language instructors at a Korean university relate to their classroom use of information/communication technology?

1 Technology
1.1 What is technology?
In exploring the ways that teachers think about ICT, it is crucial to start with a clear idea of what sort of thing technology is, and how it is to be understood in relation to human endeavor. This section will begin with the establishment of foundational theoretical assumptions about technology that will crucial to the theoretical framework.
In broad theoretical terms, this study is grounded in a particular view of what technology is, and what it is not. In simple terms, a technology’s identity can be understood as the answer to the question “What is this thing?” This question, who it is posed to, and how it is answered, is fundamental to this dissertation’s articulation of technology. As stated in the introduction, this work is rooted in an opposition to technological determinism, i.e. the notion that simply adding technology to a situation will result in a predetermined effect. Grint and Woolgar (1997) note that technological determinism, while widely railed against in philosophy of technology literature, is in recent times rarely championed directly (p. 11). Rather, it is more common to see theorists drawing on what Grint and Woolgar term technicism, the assumption that a given piece of technology has an essential, objective, or natural attribute or function that makes it what it is. This view of technology holds that the capacity and meaning of particular technologies are predetermined and unproblematic. In contrast, here technology is treated as something with an identity that is malleable, open to interpretation and reinterpretation by various users. Indeed, it is this interpretation that serves as focal interest of the research.

This flexible approach to technology goes at least as far back as Heidegger’s (1996) treatment of technological artifacts (notably, a hammer) in terms of their uses rather than any essential identity. Ihde (1990) expanded on this idea, emphasizing that technologies are not things-in-themselves and thus are ambiguous. “A thing becomes what it is,” he states, “through its uses” (p. 69). This becoming is often shaped by social contexts, as is addressed by Pinch and Bijker’s (1984) theory of the social construction of technology. This theory holds that technological artifacts are conceived, developed, adopted, and abandoned through social and cultural processes. They posit technology as being developed, adopted, and/or repurposed within networks of social groups, to address problems as defined by said groups. In this way, particular groups can become associated with particular technological artifacts, and the same artifact can have different meanings.

---

3 This deployment of technological determinism differs from that used in the social shaping of technology literature, wherein the term refers to a theory of technological development independent of broad social influences (see Mackay & Gillespie, 1992).
to different groups who use it in different ways to solve different problems. Technologies can thus be seen to have a measure of interpretive flexibility (Kline & Pinch, 1999), whereby groups can interpret and shape the identity of technological artifacts based on their needs, goals, perceptions, histories, etc. This resonates with Grint and Woolgar’s (1997) metaphorical treatment of the technological artifact as a text. Within this sense, the design and construction of an artifact is seen as writing, while the use of the artifact is seen as reading. This metaphor foregrounds the use of technology as an act of interpretation. Interpretive flexibility stands as a rebuttal to the essentialist or deterministic definitions of technology mentioned above. Insofar as the research questions are concerned with the meanings of ICT within a particular group (EFL instructors), social construction of technology serves as a foundational theoretical element in the overall framework. That said, interpretive flexibility need not apply solely to social groups. It is argued here that the act of interpretation of a technological artifact can also occur on the individual level, and as such will figure into the articulation of ideology developed below.

1.2 Turning to affordance

While opposition to technological determinism has occasionally been interpreted as painting technology as completely socially determined (Buckingham, 2008, p. 12), this needn’t be the case. Holding that technology is subject to interpretive flexibility is not the same as saying that any given technology can do anything. As Grint and Woolgar (1997) admit, “…the ‘actual’ effects of technology are usually plain to see, and often brutally incontrovertible” (p. 70). There is an undeniable tension between non-essentialist accounts of technology on one hand, and physical realities of particular artifacts on the other. Addressing Grint and Woolgar’s metaphor of technology as text, Hutchby (2001) reasonably questions the extent to which a fruit machine and a telephone are “…open to the same set of possible readings” (p. 23). To address this tension, Hutchby turns to Gibson’s (1979) notion of affordances, the possibilities that objects offer for human action.
Technologies are physically limited in the things they are able to accomplish. A knife, for example, might be employed in turning a screw. It would not be as suited to this task as a screwdriver, but would be better suited to the task than a pencil. These three objects could be seen as affording the turning of a screw to different extents (or none at all). In a sense, these affordances amount to undeniable essential realities about these objects. However, as Gibson (1979) states:

An important fact about the affordances of the environment is that they are in a sense objective, real and physical, unlike values and meanings, which are often supposed to be subjective, phenomenal, and mental. But actually, an affordance is neither an objective property nor a subjective property; or it is both if you like… An affordance points both ways, to the environment and the observer (p. 129).

In this way, the notion of affordance is situated within the tension mentioned above. As a concept, affordance refers not only to physical realities of artifacts, but also to human perceptions of those artifacts. This emphasis on perception can be found in Norman’s (2002) formulation of affordances as the possible uses for an artifact that are apparent to the user. In this way individual users, along with their values, beliefs, and context, are placed at the center of the phenomenon of technology use, while still allowing for the physical constraints of particular artifacts. The human relation with affordance occurs in a cycle of action, perception, and interpretation (van Lier, 2006), with the physical realities of an artifact leading to particular actions, leading (potentially) to new perceptions, leading (potentially) to new actions with the same artifact.

The notion of affordances figures into the questions of teacher technology use for, as Hutchby (2001) notes, “when people interact through, around, and with technologies, it is necessary for them to find ways of managing the constraints on their possibilities for action that emerge from the affordances of given technological forms” (p. 30). The importance of emphasizing affordance in classroom technology is that it allows us to explore how teacher perceptions of technology influence their use of it. Within language education in particular,
Haines (2015) employed a notably specific articulation of affordance as “... the potential that teachers perceive in a particular technology tool that will support learning and teaching activities in their educational context” (p. 166). This definition draws on culture-based conceptions of affordance that have been developed over time, such as contextual affordance (Turner, 2005) and affordance as mediated action (Kaptelinin & Nardi, 2012). These articulations take into account familiarity and cultural norms of use, bringing it in line with social shaping of technology.

There is a sense in which the affordances of any particular technology are already there in terms of its prescribed use or what may seem obvious in its design (what Procee, in Verbeek, 2010, calls the implicit user’s manual). In this sense, technology is not neutral, but is designed for, and tends to lend itself to, particular purposes. To return to the metaphor of technology as text, Grint and Woolgar (1997), technologies are often “written” (or designed) in a way that particular “readings” (or set of affordances) are immediately evident to the user. A certain set of affordances may be presented in actual texts associated with the artifact, such as instruction manuals and packaging. Many technologies, particularly complex ones introduced into professional contexts, come along with training or professional development designed to instruct users in proper use of the artifact. These texts and training work towards what Pinch and Bijker (1984) term “rhetorical closure”, wherein the identity of the technology is established, and is no longer open to interpretation. Beyond the intent of a technological artifact’s designers and marketers, particular affordances come to be prescribed by cultural and contextual norms of use as well. DeSanctis and Poole (1994) refer to the “spirit” of a technology, presumably referring to a technology’s identity as determined by its designers and by the context in which it is situated.

This notion of a technology’s affordances existing in the artifact independently of individual context is tempting, but can lead to projects such as the establishment of a taxonomy of ICT affordances (Conole & Dyke, 2004; Ng, 2015). An attempt to establish such a taxonomy can certainly have benefits in terms of teacher training, but can also lead to further rhetorical closure.
Kallinokos (2002) holds that interpretive flexibility (he uses the arguably synonymous term *technological malleability*) is restricted in contexts where there is greater rhetorical closure. If this is the case, it must not be assumed that this restriction will be the same for every person. Bearing this in mind, the focus of this research is the individual’s discovery and use of an artifact’s affordances through the application of interpretive flexibility. In this respect, it follows Haines (2015), who noted that teacher perceptions of affordance are specific to individuals, and develop over time and use.

It is at this individual frame that, in spite of all of these influences, a person may find affordances in an object that no one else has conceived of. According to Desanctis and Poole (1994), *faithful* uses of technology are “consistent with the spirit and structural design…” whereas *unfaithful* uses of a technology are “out of line with the spirit of a technology” (p. 130). If an individual brings a particular mindset to a given piece of technology, their use of it may focus more on what it can do (or be made to do) rather than what it has been designed to do, or is popularly held to do. They may not be concerned with being *faithful* to a technology. This mindset, based on a particular conception of technology (or ideology of technology, a term introduced in detail below), can be often found in hacker, maker, or “Do It Yourself” cultures (Tannenbaum et al, 2013). It is also exhibited in what Oroza (2012) terms *technological disobedience*, a rejection of the identities of technologies as completed, designed, or coherent wholes, an *unfaithful* appropriation of technology. Boudreau and Robey (2005) go so far as to state that, “In the extreme, human agents may be resourceful enough to overcome technology’s material constraints, thus rendering any technology malleable” (p. 5). In the classroom context, insofar as it entails greater interpretive flexibility, this sort of unfaithful or disobedient approach to technology may allow for a greater focus on pedagogical goals, making beneficial (as opposed to superficial) integration of technology into the classroom all the more likely. For the time being, the idea of this mindset is introduced to emphasize the importance of affordance. It will be explored in greater detail below.
In summary, two crucial elements of this work’s theoretical framework are interpretive flexibility and affordance. This dissertation is predicated on a conception of technological artifacts (and ICT artifacts in particular) as objects that, while subject to limitations with regard to their affordances, are open to varying ranges of interpretive flexibility. While the affordances of an artifact derive both from its physical properties and the way the artifact is perceived in a particular context, it is the latter phenomenon of perception of affordance that is the concern of this work.

1.3 Focusing on ICT

Within this dissertation, the technology in question is ICT rather than technology in general. Defined loosely, ICT is any technology that extends an actor’s ability to send and receive information. However, rather than include writing and semaphore under this umbrella, in practice ICT most often refers to digital technology, particularly computer software and hardware. ICT includes, but is not limited to, such technologies as computers, smartphones, and the internet. In terms of specificity, this is arguably a meso-level scope of technology, with the broadest scope being technology in general, and the smallest scope being one particular technology. For the questions at hand, a larger scope (technology in general) was deemed too broad to be productively explored, and the smaller scope (a specific technology) too specific. As a category, ICT errs on the broad side, allowing for great flexibility of definition and including a great number of specific technologies. ICT’s association with the digital revolution does suggest modernity, and in the context of education generally encompasses cutting edge technology. Where technology is a part of school reform, new technologies brought into the classroom are generally considered ICT (Cuban & Cuban, 2009).

Finally, ICT was chosen because it offers a vast array of affordances in comparison with other types of technology. As Orlikowski (2000) notes, software based technologies are often associated with a wider range of uses than physical technological artifacts. Insofar as ICT artifacts often encompass both hardware and

---

[^4]: That said, specific technologies are included in later chapters as illustrations.
software, it can be said that they allow for a wider range of interpretive flexibility. Most ICT technologies are relatively flexible in their potential uses. The wider the range of affordances a technology might have, the greater potential an artifact has to have different meanings for different groups, to be important to different people in different ways. This arguably makes ICT a greater potential site for conflict, and for interpretive flexibility. As Mackay and Gillespie (1992) note, personal computers offers such a wide range of uses that they can actually become a reflection of the people who use them. A computer can serve as a device for leisure, business, artistic creation, or any number of other endeavors, depending on the needs, desires, whims, and abilities of the user. In this way the computer, says Turkle (1995) “…resembles the psychologist’s Rorschach test, whose inkblots resemble many shapes but commit themselves to none” (p. 31). Owing to this flexibility of affordance, ICT was chosen as the technological frame of investigation. Henceforth, unless noted otherwise the word technology will refer to ICT specifically.

2 Teacher cognition: Beyond belief

Thus far, the central phenomenon of the study, language teacher understanding and interpretation, has been identified as concerning teacher cognition. In the previous chapter, literature on teacher cognition was considered, and within that it was noted that the concept of belief holds a prominent role in work exploring teacher cognition and technology. The concept of teacher belief is here problematized, justifying an alternative theoretical approach to teacher cognition and technology use, which will be introduced below.

As Skott (2015) notes, a general theme across the extant research is an explanatory link between belief and practice. Setting Kubanyiova and Feryok’s (2015) reservations momentarily aside (not to mention the findings of Basturkmen, 2012, discussed in the previous chapter), even if we accept the premise that there is some connection between the way teachers think about technology and they way they use it, there are a number of reasons why belief is likely not the best choice for exploring this connection. Pajares (1992), while maintaining its importance
in educational research, recognizes belief to be a messy construct. Its ephemeral nature makes it not only difficult to articulate with precision, but also impossible to observe directly. Beliefs can only be reported, making it difficult to link them to practice.

While there is a well-established history of investigating teacher beliefs, it is arguably worthwhile to seek an alternative, one that perhaps can be articulated with more precision and nuance. Initially, this alternative was sought within socio-cultural approaches, particularly in the concept of cultural models. In the design and analysis of the pilot study (discussed in the following chapter), Gee and Green’s (1998) articulation of cultural models served as the guiding theoretical lens. Drawing on the work of D’Andrade and Strauss (1992) and Holland and Quinn (1987), among others, Gee and Green (1998) explain:

Cultural models are ‘story lines’, families of connected images (like a mental movie), or (informal) ‘theories’ shared by people belonging to specific social or cultural groups... Cultural models "explain," relative to the standards (norms) of a particular social group, why words have the range of situated meanings they do for members and shape members' ability to construct new ones. They also serve as resources that members of a group can use to guide their actions and interpretations in new situations. (p.123)

Expressed another way, Holland and Quinn (1987) define as cultural models as: presupposed, taken-for-granted models of the world that are widely shared (although not necessarily to the exclusion of other, alternative models) by the members of a society and that play an enormous role in their understanding of that world and their behavior in it. (p.4)

These are, in other words, the models which individuals construct to make sense of the world around them, and which have a tendency to be shared across populations of various sizes. One advantage this concept has over belief (often expressed as an individual phenomenon) is its cultural or shared aspect,
distributed as it is over groups. It allows for engagement with the social construction of technology referenced above by situating individual approaches to a phenomenon (technology, in this case) within a social context.

One further advantage the concept of cultural models holds over beliefs is the fact that the former is far more anchored in language in a theoretical sense, allowing it to be investigated through discourse analysis. Gee and Green (1998) proposed a form of discourse analysis guided by an ethnographic perspective to construct (or articulate) cultural models. Notably, two studies have employed this approach to examine the cultural models of teachers with regard to ICT in the classroom. Curwood (2014) employed surveys, interviews, class observations, and focus groups to identify potential cultural models of ICT being used by teachers. She suggests that these models might be used to expand upon the deterministic and prescriptive programs that characterize much ICT professional development. Chandler-Olcott and Lewis (2010) utilized interviews and focus groups to investigate teacher cultural models of ICT, finding themes related to the way ICT impacted student thinking and communication in general, and school based learning in particular. Notably, they found that some teachers used models of student ICT use reminiscent of Prensky’s (2001) digital native argument. They conclude that cultural models inform the way that teachers deal with ICT, and that these models, if unexamined, can lead to erroneous assumptions that can underpin detrimental practices. They also make the important point that the transformations engendered by the introduction of various forms of ICT into the classroom may not always be positive, and that teacher skepticism is an important way to ensure students benefit. In other words, they do not propose encouraging teachers to examine their cultural models as a way of overcoming all teacher resistance to ICT (which would imply a deterministically beneficial approach to technology). Rather, the reflection on, and uncovering of cultural models related to ICT is recommended as a way of helping teachers better understand technology and integrate it in beneficial ways.

However, as the research evolved, so did the theoretical framework. While cultural models certainly remain a viable route for exploring the
phenomenon of teacher technology use, this study ultimately considers specific elements of the construct in conjunction with others (considered below) to propose a new way of considering teacher cognition as it relates to technology in particular. This approach to cognition is very specific to use of technology, and may very well not be as applicable to teacher cognition about other subjects, such as pedagogical theories or professional identity.

3 The conceptual framework

3.1 Models: Cultural, mental, theoretical

The concept of cultural models was preceded by, and perhaps differs slightly from, the notion of folk theories. D’Andrade (2005) holds that folk theories consist of *gist propositions*, i.e. value statements or assumptions about the world that can be extracted from stretches of discourse. Folk theories seem to differ from cultural models by emphasizing individual cognition (an individual’s informal representation of a system, object, or process) over shared cultural resources (i.e. shared models). This is not to say folk theories lack a shared element, but simply that there is a greater focus on the individual. Folk theories can be differentiated from standard conceptions of theories (what Gee, 2008 refers to as primary theories) in that the former tend to be unexamined, untested, and/or unarticulated (Windschitl, 2003). In other words, folk theories tend not to be conscious.

In considering the phenomenon of teacher technology use, it is possible that individuals’ perceptions of affordances in ICT artifacts are related to their folk theories about those artifacts. Related to folk theories, the concept of mental models has been employed in human-computer interaction literature to understand technology use (Payne, 2003). When faced with situations of great complexity or informational opacity, individuals often simplify or fill in knowledge gaps by constructing mental models (Denzau & North, 1994). In the context of technology (which is often both opaque and complex), mental models are the theories (folk or primary) that users of technology employ, whether consciously or not, to explain

---

5 Gee (2008) holds that a process of articulation, examination, and reflection can cause folk theories to become primary theories. This contention served as one justification for the catalytic validity portion of the study.
how an artifact functions. These models guide how people interact with the artifact. For example, Kempton (1987) found that groups of people who reported two distinct theories (or models) of how thermostats worked also demonstrated two distinct use patterns, and Payne (2003) found that students interacted with ATMs based on their (inaccurate) models of the devices’ processes and capabilities. In practical terms, the concept of mental models has often been employed as a user-centered design principle that allows designers to anticipate how users will understand and make use of software (Preece, 2015). Reflecting a broader use of the concept, van Dijk (2009) defines mental models as “the subjective representations of the events and situations observed, participated in or referred to by discourse” (p. 65).

The concept of mental models takes the most individual focus (Denzau, 1994), while cultural models focuses on shared cognitive resources amongst groups. This recalls the present definition of technology as both a socially shaped and socially shaping phenomenon. We can see how cultural models parallel the social construction of technology (SCOT) articulation of ICT in important ways. Just as Gee and Green (1998) hold words to have “a range of situated meanings” (p. 123) in a given social context, SCOT holds that technological artifacts have interpretive flexibility that allows them to have different meanings, and different uses, amongst different social groups. Consideration of mental models allows these acts of interpretation to be understood as they occur at the individual level. Together, these models allow for a focus on the affordances of technology as both a delimiter and mediator of the meanings and possible uses of technology. As Holland and Cole (1995) note, “every hammer can be seen as an encapsulated ‘theory of the task’ and simultaneously as a ‘theory of the person’ who fulfills the task” (p. 482). Interestingly, this presentation of affordance suggests an essential aspect of technology that both limits and suggests what it can be. Recalling Haines’ (2015) definition of affordance as “the potential that teachers perceive in a particular technology tool that will support learning and teaching activities in their educational context” (p. 166), we can see a tension that presents not a contradiction, but a site of conflict. These theories of the task derive from the
meaning making processes of teachers in terms of history and cultural norms as well as the physical realities of an artifact (for a ball-peen hammer is not very helpful for removing a phillips-head screw). They are not so much encapsulated (which would imply that the theories are an essential property within the artifact) as much as performed, manifesting in the interplay of person, artifact, and context.

In their discussion of research on teacher belief, Kane, Sandretto, and Heath (2002) approach the phenomena in terms of teachers’ theories of action, and further distinguish between espoused theories-of-action (how individuals articulate their theories) and theories-in-use (the implicit assumptions underlying actions taken). These two concepts, which call for distinctly different methods of inquiry (discussed in the following chapter), can be considered in tandem with cultural models and mental models to understand teacher technology practices.

By analyzing instructor talk in which these theories are discursively employed, and observing contexts where they are actively employed, a researcher can approach (for this is an interpretive endeavor) core ideas behind the reasoning or meaning making process of a particular individual or group regarding a particular subject.

3.2 Technological agency

If mental and cultural models provide one way of approaching the phenomenon of teacher perception of affordance, there is room for further nuance. The notion of interpretive flexibility, originally applied within SCOT theory at the social/cultural group level, can also be considered at the level of the individual. Doing so allows for consideration of differentiation between individuals in their use of technology. This differentiation can be articulated as a very specific sort of agency, here termed technological agency.

In extremely rough terms (glossing over a multifaceted, nuanced debate), agency has been applied within education literature to theorize the potential an individual has to influence their surroundings or society (Eteläpelto et al, 2013). It has also been theorized as an ecological phenomenon, temporally situated, manifesting between individuals and their context (Biesta & Tedder, 2007; Priestly et al 2015), as opposed to an individual
This sort of agency is relevant in considerations of teachers’ context and their actions within them.

However, at the level of relations between individuals and technology, it is possible to employ a more specific articulation of agency. Technological agency concerns a person’s perceived ability to interpret or reinterpret a technology, and to act with that technology based on that interpretation. There is a tension between the designer’s intentions, the physical properties of a particular artifact, and the individual’s interpretation. Technological agency allows for differentiation between individual approaches to this tension. This is not posited as a capacity, much less an essential and unchangeable property of a person. Rather, like ecological models of agency, technological agency manifests in context, and so can differ from context to context, technology to technology. In this way, it is possible that a teacher may exhibit greater or lesser technological agency with different artifacts. This conception of agency emphasizes that it is not something to be granted or a skill to be trained, but rather something to be encouraged through the establishment and maintenance of favorable conditions.

The proposed differentiation can be one of degree, distinguishing between high and low technological agency. This distinction is not necessarily meant to be precisely gradated or quantifiable, but is a qualitative one. An individual manifesting little agency would privilege the identity of a technology as designed, following the affordances indicated by others. In extreme absence of agency, an individual’s relationship with technology would be one of alienation, marked by an overabundance of caution or fear that an artifact might be used incorrectly, or worse, broken. This recalls the fear and awe of Bax’s (2003) open and closed approaches to teacher ICT use. In the absence of technological agency, an artifact’s identity is inert and monolithic. The theory of what the technology is and its associated theories of action have already been predetermined, as has the task to which the technology is to be applied. A task for which the technology was not prescribed would not be considered, and if the use of the technology were required by outside forces (such as administrators or policy) tasks may be undertaken that

---

6 Another form of alienation, rejection of technology or the neo-Luddite position, does not necessarily entail a lack of technological agency. If anything, such irreverence may lead to greater interpretive flexibility, with a computer’s affordance as a doorstop discovered and applied with little reservation.
would not have been otherwise. In other words, a lack of technological agency might lead to a scenario where, rather than employing technology to accomplish a goal, an individual may employ a goal to accomplish a technology. A teacher with a low technological agency approach to ICT may actually modify tasks to accommodate a technology. This sort of relationship with technology lends itself to what Jordan (2008) termed “everyday technological determinism” (p. 14), where technology determines or limits the outcome of a person’s use of it. An example of everyday determinism is the breaking down of a car that determines a user’s ability to reach their destination.

Hill (1988) referred to machine opacity and transparency, stating that an artifact is opaque when it is used without understanding of the underlying principles that allow it to work (i.e. when the artifact is a black box), and transparent when an individual is, through a deeper understanding of the artifact, able to reshape or redefine it. While opacity suggests low technological agency, transparency suggest a relationship between an individual and technology displaying a high level of agency or interpretation that is more personal, creative, and goal directed. People displaying high technological agency would perceive themselves as having ability to reshape technology, or repurpose it to suit their own ends. Mackie and Gillespie (1992) refer to this as appropriation. In this case, a technology’s identity, as shaped by the intentions of its designers, is merely the starting point. A person can interpret, or reinterpret, a technology’s identity by perceiving it in terms of its affordances, or in terms of the affordances of its component parts, going beyond those the artifact was designed to have.

Technological agency means a technology is not a foregone conclusion, but rather a site of possibility. This disregard for the designed, coherent identity of a technology is what Oroza (2012) termed technological disobedience. What is being disobeyed, in this case, is the will of the designer, and the identity of technological artifacts as finished, complete, and whole. In addition, considering technology as a site for possibility allows it to be explored as a site for other forms of disobedience.

---

7 Whereas previously discusses uses of the term technological determinism operate on a broad societal scale (see Grint and Woolgar, 1997; and Mackenzie and Wajcman, 1998), this particular articulation focuses on the individual scale.
as well, answering Warschauer’s (1998) call for critical technology research in TESOL.

3.3 Ideology

Taking a somewhat deterministic approach, Keirsey (1998) contended that different approaches to tool use are a matter of temperament, with roughly half of the (United States) population inclined to be utilitarian in their use of artifacts (goals over convention), and half to be cooperative (convention over goals). While Keirsey’s theory is rooted in a premise of essentialism not compatible with the current theoretical framework, it does raise an interesting question: Is there a particular sort of mindset or approach to technology that is more likely to exhibit higher technological agency, perceiving and using a greater range of affordances in an artifact?

Whereas mental models concern particular instances of interaction with technology, might patterns be discerned in a person’s approach to technology? This idea is reflected in literature about teacher attitudes towards technology discussed in the previous chapter. Outside of educational literature, this question has been pursued in consumer research. Kozinets (2008) surveyed a wide range of technological literature and interviewed consumers to establish a schema for understanding discourses and narratives surrounding technology as articulating particular ideologies. Noting that attitudes towards technology are often presented as dichotomies (such as technophile/technophobe) that are lacking in nuance, he presents four ideological positions. The techtopian views technology as the purveyor of progress and improvement of the human condition. The green luddite ideology, on the other hand, casts technology as problematic, and champions the natural. The work machine ideology emphasizes technology’s potential for increased efficiency and wealth production. Finally, the techspessive position is concerned with pleasure and self expression derived from and through the use of technology. These four positions are, in various ways, in harmony and discord with one another, and in discourse individuals can move fluidly between the positions even when they are contradictory.
Kozinets’ framework is valuable in this research as it provides a stepping off point for dealing with teacher attitudes towards technology. These ideological positions are useful for analyzing participant discourse, providing rough guides for identifying ideologies at play. However, the phenomenon of interest, teacher’s interpretation of technology’s affordances, does not align perfectly with Kozinets’ framework. If this phenomenon is to map onto the four ideological positions, it likely falls within the realm of work machine and techspressive. Tellingly, Kozinets identifies these positions as being individually, as opposed to collectively, oriented. In addition, while Kozinets holds that his framework “represents in its totality the ideological field of technology” (p. 868), it is important to allow for other positions to reveal themselves in the course of research.

Even if Kozinets’ technology ideologies are not directly adopted here, the notion of ideology as positions emerging from narrative and discourse remains valuable. Given its history and the great variation of ways in which it has been utilized, the term ideology as used here must be clarified. The conception of ideology used in this work draws from a number of scholars. Striving for the broadest possible amalgamation of extant definitions of the word, Hamilton (1987) held ideology to be:

a system of collectively held normative and reputedly factual ideas and beliefs and attitudes advocating a particular pattern of social relationships and arrangements, and/or aimed at justifying a particular pattern of social conduct, which its proponents seek to promote, realize, pursue, or maintain.

(p. 38)

Althusser (1971) succintly defines ideology as “the imaginary relationship of individuals to their real conditions of existence” (p. 15) and emphasizes ideology as having a material existence. This material aspect resonates with the real limitations that the affordances of particular technologies represent while still allowing for interpretive flexibility. In addition, Althusser holds ideology to be largely unconscious, which is echoed in Gee’s (2008) articulation of cultural models as often being tacit or common sense assumptions about the world.

Within the realm of teaching, Sharp and Green (1975) utilize a definition of ideology as “a connected set of systematically related beliefs and ideas about
what are felt to be the essential features of teaching” which entails “a broad
definition of the task and a set of prescriptions for performing it” (pp. 68-69, in
Pajares, 1992). Here we find an articulation of ideology that not only takes the task
into account, but also the relation between it and the means of accomplishing it.
Approaching technology in terms of theories of the task also foregrounds the
importance of the teacher’s ideology of the task at hand, or in other words their
understanding of their pedagogical goals. These goals, whether set by the teacher
or by outside forces, are also subject to greater or lesser degrees of interpretive
flexibility on the teacher’s part, and are involved in the interplay of forces that
influence a teacher’s ideology of what a given technological artifact is for and
what it can do.

A major foundation for this dissertation’s articulation of ideology comes
from the work of van Dijk (2006; 2009). Within van Dijk’s sociocognitive
approach, ideology is related to, but is not synonymous with, a number of terms
such as approach, mindset, attitude (2009). As noted above, this approach includes
the concept of mental models, making it very appropriate for analysis in this work.
Van Dijk (2006) contends that ideologies are not specific beliefs, values, or
attitudes, but rather patterns by which these are organized. Though suggestive of
collective or shared ways of thinking, the term ideology need not be employed on
exclusively on a mass scale. The ideologies explored in this dissertation are
understood at the scope of the individual, even while acknowledging that the
individual is connected to, and draws on, resources larger than themselves in the
formation and application of their ideologies (van Dijk, 2009). Furthermore,
though often associated with political or societal phenomena, ideology need not be
associated with any particular established political philosophy. Rather, political
can be understood at the individual scale as concerning power and context. While
technology is a potential site of conflict and critical study (Feenberg, 2012;
Warschauer, 1998), an individual’s resistance or acquiescence in their use of
technology may foreground elements of their immediate ecology, or it may
concern greater spheres such as culture or society. This work is more concerned
with the politics of the immediate, of teachers’ ideology of technology within
their professional institution. Naturally, theoretical threads will extend beyond this scope, and will be pursued as far as feasible.

3.4 Ideologies of technology
Given the number of theoretical elements thus far presented, it is helpful to summarize their relations briefly before introducing the keystone concept that ultimately guides this study.

Each technological artifact (ICT in particular) can be used in a number of different ways. These uses can go far beyond those for which it was designed. The uses to which a technology can be put can be understood as its affordances. A particular set of affordances are initially associated with a technology by its designers and purveyors, and more come to be associated with it by social factors such as custom or tradition. In this way, the identity of a technology is set through a process of rhetorical closure. To find new affordances in technology is to reshape its identity. Interpretive flexibility is the notion that the identity of a technology can be reshaped, or reinterpreted.

This reinterpretation, as carried out by instructors, is the phenomenon of interest in this dissertation. As a function of cognition, this reinterpretation can be understood in terms of mental models and cultural models, which refer to cognitive representation at the individual and shared levels, respectively. At the individual level, a teacher’s interpretation of a technology or perception of new affordances with it may differ from others. This differentiation can be understood as technological agency (high, low). The concept of ideology can be used to help understand this differentiation. In particular, it can be understood through the specific articulation of technological ideology.

Drawing from the works discussed above, a technological ideology can be understood as:

---

8 This concept is similar with Kozinets’ (2008) technology ideologies in that it is explored through discourse and narrative, yet differs in that the former is not built on differentiations in the perception and application of affordance, and does not differentiate between espoused theories-of-action and theories-in-use.
A pattern of related subjective theories and representations about essential features (or affordances) of various technologies as they relate to a particular task and/or context.

Technological ideology should be explored both discursively (espoused theories of action) and through observation (theories-in-use). This exploration focuses on three key phenomena:

A: The teacher’s theories of what technology is (i.e. what it is for and what it can do)

B: The teacher’s theories of what the task is (i.e. what is to be done)

C: The teacher’s theories of their relation to the task and the technology (professional identity and agency)

The nature of these phenomena lend themselves to interpretive inquiry, the implications of which will be explored in the next chapter.

3.5 The importance of context

One element of the theoretical framework remains to be discussed. Teacher ideologies of technology, while important, are not the only factors that potentially influence technology use in the classroom. The fifth research question acknowledges that teachers are not completely free to determine the way technology is used in their classrooms by focusing on the potential influences of contextual factors on ICT use. The importance of institutional context has been addressed in literature in the previous chapter. Among the numerous factors influencing use, Ertmer and Ottenbreit-Leftwich (2010) note the importance of culture. Here, culture refers to the professional culture of a particular school context rather than broader culture (which is not to say that broad culture cannot also affect teacher ICT use). Looking at institutional cultures of ICT use situates teacher practices within the expectations and obligations of their professional context. The work of Zapata (2004), while looking at the influence of teacher approaches to ICT on its use, also situates this phenomenon within numerous institutional factors, including institutional objectives, financial support,
infrastructure, curriculum, and division of labor. Taken together, these works establish that any study of the phenomenon of teacher use of ICT must take contextual factors as understood by the teachers into account, even if said factors are not the focus of the study.

Indeed, it may be possible that an investigation of contextual forces can uncover overt and covert ideologies of technology operating at the institutional level. If this is the case (and it likely is), classroom technology becomes a site of conflict between individual teacher and institutional ideologies of technology as defined by administrators and policy.

**Moving forward**

With key conceptual terminology established and the foundational theoretical framework in place, the design of the study itself can now be established. Building on this chapter, the following chapter will detail how the phenomena of interest were explored and analyzed.
Chapter 4 – Methodology and Method

This chapter presents the details and rationale for a five-month multistage qualitative case study design. Every element of the design, from methodological assumptions to methods of analysis, was informed by the primary and secondary research questions, provided again here for reference:

Primary question: How does the understanding and interpretation of technology of English language instructors at a Korean university relate to their classroom use of information/communication technology?

Secondary questions:

1. What understandings or interpretations of technology do EFL instructors report concerning the affordances of ICT in the classroom context? (What ICT is in terms of what it can do)
2. How can instructors’ approach to ICT be characterized in terms of technological agency and ideologies of technology?
3. How do these ideologies relate to instructors’ reported pedagogical goals? (What ICT is in terms of what it is for)
4. How do these ideologies relate to instructors’ observed classroom technology practices?
5. What contextual factors (such as institutional policy and professional culture and/or ideologies of technology) might influence these practices?
6. What changes in practices might be observed over the course of the study?
In keeping with these research questions, this design was used to collect and analyze data in order to shed light on the relation between instructor understanding and interpretations of technology and classroom technology use practices in one specific context, the English language program of a vocational college in South Korea. This chapter is divided into two sections. The methodology section articulates key theoretical assumptions that underpin the study design. The method section details and provides rationale for the data collection and analysis design of the study.

1 Methodology

Before addressing the specifics of the methods of inquiry deployed in this research, it is helpful to first consider some of the methodological assumptions that form the foundation of the study. These assumptions should be evident in every element present in the research design, and so merit explicit consideration and explanation. This means addressing the research paradigm, epistemology, and axiology of the research.

1.1 The paradigm

Broadly, this study is rooted in the pragmatist research paradigm. This is perhaps best represented by Cherryholmes (1992), who presents pragmatism as anti-representationalist, anti-essentialist, anti-foundationalist, fallibilist, democratic, and pluralist, concerned with context and, chiefly, concerned with the consequences of research. While it is not reasonable to unpack each of these claims here, this paradigm has implications for epistemology, validity, and generalizability that will be discussed below.
With more specificity, it can be said that this study is situated within what Gee and Green (1998) term the *ethnographic perspective*, which allows the discourse of a group to be analyzed with the aim of:

identifying what members of a social group (e.g., a classroom or other educational setting) need to know, produce, predict, interpret, and evaluate in a given setting or social group to participate appropriately (Heath, 1982) and, through that participation, learn (i.e., acquire and construct the cultural knowledge of the group). (p. 126)

In terms of research, this means focusing on meaning, understanding, and the participants’ interpretation of phenomena. The goal of the research is not to establish direct correlation or causal relationships between these phenomena, but instead to describe what elements are at play in EFL instructors’ understandings of their professional context, and to explore the overall dynamic between these elements and observed instructor use of ICT in one particular context.

1.2 Epistemology

A research approach’s epistemological assumptions are important because they predetermine what can and can’t be known in a study, and the ways in which things can come to be known. Stated otherwise, these assumptions delimit and highlight the assertions that the researcher can make, and the warrants that strengthen these assertions.⁹

---

⁹ Barad (2007) goes even further to suggest that epistemology and ontology are so inseparably entangled as to warrant the term epistontology. While such a radical moved is not necessarily called upon here, it can be noted that ontological assumptions are not addressed.
This is a particularly important element to consider, as it pertains to every facet of the study design.

This study focuses on the phenomena of elements surrounding and potentially influencing instructor use of ICT in the classroom, and on teacher conceptions of ICT as revealed through discourse. The former, the instructors’ use of technology and elements of the teacher’s professional context, is largely a matter of observation and description, though it is important to note that this study is not attempting to establish correlations or causal links. The latter phenomena are another matter entirely, as instructor conceptions, ideas, meanings, etc, cannot be observed or described directly. They must instead be explored indirectly, understood through glimpses of themes and patterns that emerge in discourse and behavior, analyzed, pieced together, and interpreted by the researcher.

Ultimately, the phenomenon of interest is meaning. Even observed phenomena must be subjected to interpretation if their meaning is to be considered. Thus, the epistemological assumption underlying this research is interpretivist in nature.

Klein and Meyers (1999) offer a number of principles for interpretivist fieldwork, including contextualization, reflexivity, multiple interpretations, and dialogical reasoning. These principles have been taken into consideration in the research design, and figure into the rationale for specific design elements in section 2 of this chapter. In keeping with these principles, meaning is not held to be something that has an objective existence, but rather something that must always be considered in context, and must always be mediated through interpretive process. The results of this study are not statements of fact or universal causal law (such as those results sought by the positivist and post-positivist paradigms) but assertions backed by the warrant of evidence, supported by rigorous
research design. Even though multiple steps have been taken to strengthen that warrant (triangulation, member checking, construct validity), alternative interpretations are always possible. It is with this possibility in mind that chapter 12, critique and counter-arguments, is included in this work. Ultimately, this study is meant to inform and expand our understanding of how instructors relate to, think about, and make use of classroom technology.

The results are, in one sense, not generalizable in that they are embedded in context and not meant to be correlative, predictive, or causal (Lincoln & Guba, 2000). Yet, in another sense, there is theoretical generalizability (Lee & Baskerville, 2012) present in that the understanding of meanings developed here inform a larger theoretical construct that can be of use in understanding similar phenomena in different contexts. This has been termed naturalistic generalization (Gomm, Hammersley, & Foster, 2000).

1.3 Axiology

Among methodological considerations, axiology is an oft-neglected concern. It is a common assumption in many research paradigms that, in service to validity, researchers should remain impartial and unbiased, or at least endeavor to be so. Questions of the place of values in research are often considered foregone conclusions, with researcher values assumed be a detriment rather than an asset. This is not the case for every paradigm, however. Critical research is predicated on researcher values, and pragmatic research, with its consideration of consequent as well as antecedent phenomena, requires values against which these consequences are to be judged. As Lather (1986) notes, there can be no neutral research. The researcher must take a perspective, and so must decide
whether to make that perspective explicit, or mask its existence. Should the former path be taken (as it is in this study), the researcher’s values can be a strength, and there are ways to avoid the dangers of bias and distortion. These include triangulation of methods and data sources, construct validity (i.e. theoretical reflexivity), face validity (member checking), and catalytic validity (or the practical impact of the research on the participants and broader populations) (Lather, 1986). Each of these elements are present to some extent in the research design.

The researcher’s values that lie at the heart of the study derive from a belief in the potential of technology to have both positive and negative impacts in education, and the belief that the humans that deploy technology ultimately determine this difference. The phenomenon at the heart of the study remains the human element at play in the deployment and use of ICT in the educational endeavor. It is rooted in a conception of classroom ICT as a potential site of interpretation, a site of conflict, and a site of resistance (Warschauer, 1998). The transformative potential of classroom ICT lies not in the devices themselves, but in the teachers that guide and model their use. If this human element is ignored, classroom devices may remain educationally inert, or could serve as little more than shiny, impressive distractions. Through this research, the researcher is concerned with the pragmatic consequence of achieving a better understand the dynamic between educators and educational ICT, and in so doing help teachers employ ICT to achieve the potential that has been so often ascribed to it.
2 Method

2.1 The Pilot

In the winter of 2014, a short pilot study was conducted at a Korean university associated with the site of the current study. This pilot had the aim of exploring how instructors’ use of ICT in the classroom might be at least partially influenced by their conceptions of what ICT is, what it is for, and how it is meant to be used. Guided by this purpose, the pilot was meant to test the feasibility of these questions, and to refine a research design for investigating them. Three classes were observed and recorded, and their instructors participated in individual interviews (one of which was video-cued) and one group interview. The design of the current study was informed by the practical and analytic results of the pilot. In practical terms, it led to the inclusion of both video-cued and traditional semi-structured interviews. Emergent themes from the pilot also led to a study design that further explored the institutional ecology of ICT use, and allowed for consideration of the participants’ personal language learning histories. These themes were also used to partially guide analysis, which will be discussed below.

2.2 Context

While a deeper, qualitatively richer description of the research context comprises chapter 5, a short description is included here for purposes of orientation. The study was conducted over the spring and summer semesters of an English language program at a vocational college in central South Korea. This college, located in central South Korea, boasted a large English language program due to its requirement that every student take at least one academic year of English courses. At the time of the study, it employed 33
non-Korean citizen language instructors. This context was relevant to the research for all of the reasons it was relevant to the pilot (large participant pool, well equipped classrooms, student population with access to ICT) and was also feasible in terms of accessibility and resources. Originally, the study was meant to be conducted at the site of the pilot, but owing to a number of different factors, research was moved to the associated vocational school. Foremost among these factors was the fact that the researcher was employed at the college in largely the same position as the research participants, allowing for a measure of participant observation.

2.3 Participants

The three participants in the study (referred to pseudonymously as Hugh, Jessie, and Fiona) were experienced language instructors (ranging from 8 to 30 years in the classroom) with graduate degrees, who had been teaching at the college for at least 3 years, and had lived in Korea for at least that long. Each was held the position of assistant professor of EFL\textsuperscript{10}, and two held administrative positions as well. Jessie was an active language learner (Korean), while the other two participants had studied languages in the past. The participants were middle-aged or older. Further details for these participants will be provided in their respective chapters (chapters 6 – 8).

The participants in the study were selected for their self-reported high use of technology relative to other volunteers from the same institution, and for their availability. This decision was based on the theoretical consideration that higher-level users of technology may have a wider range of views about it than those who use it less

\textsuperscript{10} Participants are referred to as instructors, not professors, in order to emphasize that the greater (if not entire) part of their responsibilities lay in English instruction.
often, and on the practical consideration that observations focused on instances of technology use, and required instructors to actually use technology to be of value.

In order to explore the context from a different perspective, prior to the participant observations and interviews two interviews were conducted with NES instructors who also held administrative positions or responsibilities related to ICT. While these individuals (referred to pseudonymously as Maria and Alan) were technically employed by the university, they had been involved in ICT training and troubleshooting for college instructors, and so were in a position to comment on various aspects of teacher ICT use at the college.

2.4 Researcher

As van Dijk (2009) notes, a communicative event is generally influenced by individuals’ assumptions about what the other person does and does not know. Within the context of research that relies heavily on interviews, this makes transparency about the researcher’s background a central concern, as it has bearing on the shape of the participants’ discourse.

It is thus important to note the researcher’s position within the research context. The researcher had previously taught and performed administrative duties within the English program at the college/university for five years, and had been away for two years. From this experience, the researcher had first hand knowledge of the institution’s history, and had professional acquaintances with many current teachers and administrators. Two participants were known to the researcher prior to the start of the research, and one had been employed at the college when the researcher left. When
working with the participants in the former group, the researcher had the advantage of rapport, but also needed to be cognizant of assumptions participants might be making about his own knowledge, leading them to be implicit where the research might be better served by explicit discourse. With both groups it was necessary for the researcher to conduct the interview with an affected naïveté in order to elicit interview data with adequate detail.

As the data collection commenced, the researcher began instructing at the college. This put the researcher in a good position to observe the professional context of the English program from the inside, carrying out participant observation. The researcher went through new teacher orientation, and was included in all program-wide emails. This allowed him to represent the ICT training and aspects of the ICT use culture at Namu.

2.5 Design

Given the phenomena of interest and the proposed research questions, a qualitative case study approach, inspired by the ethnographic case study approach of Angers and Machtmes (2005), provided an appropriate research design. Angers and Machtmes presented their approach as “prolonged observations over time in a natural setting within a bounded system (p. 777)”. Like this study, their study explored teacher beliefs, contextual factors, and practices, albeit with important differences. The contexts differed significantly (science teachers in American middle schools versus English as a foreign language teacher at Korean universities), and in this study the concept of belief was eschewed for reasons discussed in the previous chapter. A combination of theoretical frames (discussed in the previous chapter) and data collection methods (discussed below)
was employed to explore participant meaning and social process, as in an ethnographic study.

The methods proposed below were developed in light of the pilot study discussed above. Using a nascent form of the current theoretical framework, that pilot explored similar phenomena over a short time frame through observations and interviews. The current research design was thus informed by both practical and theoretical considerations emerging from the pilot.

2.6 Tinkerer teacher’s toolkit

As the study was being developed, consideration was given to including a participatory research element in which the participants would collaborate to produce a professional development resource for teacher technology use in the form of a PDF document. This resource, tentatively titled the “Tinkerer teacher’s toolkit”, was to be a co-developed set of practices and ideas for using various technologies in the language classroom. Whereas the study is concerned with broad principles behind teacher understanding and use of technology in classrooms, the toolkit would have a more concrete and specific focus. Though the participants would determine the ultimate shape of the document, it would likely include sections on specific technologies, principles of technology use, and illustrative cases. This format was loosely inspired by the Human Centered Design Toolkit (IDEO, 2009).

The production of this document would serve multiple functions. First, it would provide an alternative purpose for the study that assisted in the investigation of the participants’ ideas or assumptions about technology (inasmuch as these are unconscious).
Beyond this, the participants would be considered co-producers of the document, and would receive publication credit for their part in the project, adding some incentive for participation. Finally, the production of the artifact would add a concrete benefit to the completion of the study, one that can be easily shared and distributed, supporting a wide population of language teachers in their use and appropriation of technology.

For a number of reasons, this step was ultimately determined to be untenable within the bounds of the study itself. The researcher concluded that intermingling the task of producing the artifact with the collection of data was more likely to complicate than enable the study. Moreover, the participants’ busy schedules made coordination of the project difficult to accomplish within a reasonable time frame. Finally, whereas participant roles in interviews and observations were not subject to great variation (the researcher posed questions, and the participants answered), participant roles in collaborative projects could vary drastically. In the end, the researcher decided to wait until after data collection to initiate the project. As of the time of writing, the project was in an incipient state, and likely to bear fruit.

2.7 Sampling

Sampling for this study followed the pilot in that it drew from a similar population of participants, foreign English language teachers at the same South Korean educational organization. Sampling was purposive, seeking out members of the population that self reported high use of technology relative to other members. This could also be considered opportunity sampling, in that the study relied on volunteers. In order to identify respondents who used classroom ICT relatively frequently compared to other
respondents, the participants were selected after completing an online questionnaire similar to that used in the pilot (adapted from Vannatta & Fordham, 2004, see appendix A). In contrast to the pilot, where questionnaire data was not referred to after participant selection, this data played a minor part in the final analysis.

Beyond use of classroom ICT, the findings from the pilot suggested that language learner status might also be an important category to consider. Bearing this in mind, efforts were made to include one or two participants who have recently studied (or are currently studying) a language, and one or two who have not recently (or have never) studied a language. An item was added to the questionnaire eliciting this information. While each of the three participants had studied a language at different times in their life, only one was actively studying at the time of the study.

2.8 Data Collection

For this study, triangulation by method (Meijer, Verloop, & Beijaard, 2002) was achieved through the use of a three-stage design incorporating ten data collection methods, chiefly classroom observation and types of interviews (see tables 4.1 and 4.2). This variety verges on bricolage (Kincheloe, 2001). Stage 1 occurred in the intersession preceding the spring semester (Winter 2016), stage 2 occurred over the course of a single academic semester (Spring 2016), and stage 3 occurred in the following intersession (Summer 2016).
<table>
<thead>
<tr>
<th>Stage 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter intersession</td>
<td>a. Questionnaire</td>
</tr>
<tr>
<td></td>
<td>b. Administrator interviews (2)</td>
</tr>
<tr>
<td>Stage 2</td>
<td>c. Ongoing class observations (4 per participant)</td>
</tr>
<tr>
<td>Spring semester</td>
<td>d. Semi-structured interviews (3 per participant)</td>
</tr>
<tr>
<td></td>
<td>e. First card sort</td>
</tr>
<tr>
<td></td>
<td>f. Video-cued interview</td>
</tr>
<tr>
<td></td>
<td>g. Focus group</td>
</tr>
<tr>
<td></td>
<td>h. Participant observation</td>
</tr>
<tr>
<td>Stage 3</td>
<td>h. Document analysis</td>
</tr>
<tr>
<td>Summer intersession</td>
<td>i. Member checking interview</td>
</tr>
<tr>
<td></td>
<td>j. Second card sort</td>
</tr>
</tbody>
</table>

Table 4.1 Stages of data collection

In stage 1, preparatory data was collected. Prior to participant recruitment, two audio-recorded interviews (see appendix C) were conducted with two administrators within the English program who were directly involved with instructor technology training. These interviews provided context by exploring institutional technology use norms and policies. These interviews helped shape semi-structured interview questions in stage 2. Over the entire course of the study, the researcher collected institutional technology training and policy documents provided to teachers. These helped establish a picture of institutional ecology of technology use, critical for interpretation of interview data (Adamson, 2004).

The first participant data collected (questionnaire data) mirrored the questionnaire
that preceded selection of the participants. The first questionnaire was used to select participants but was inadmissible as data as it preceded obtainment of consent. The second questionnaire (identical to the first) was completed by the participants after consent was provided, and is included as part of the final analysis. Once three participants were selected from the initial respondents, the researcher met with them to explain the research and obtain signed consent.

At the center of the study, stage 2 explored the meanings that the participants associated with technology, the ways they thought about it, and how these could be understood as ideologies of technology they draw upon. As D’Andrade (2005) notes, one of the challenges of exploring the participants’ meaning making processes and ways of understanding the world is that they are not best explored directly. Due to the largely unconscious nature of these phenomena (Gee, 2008), inquiry is best carried out by obliquely encouraging the participants to draw on, rather than comment on, their conceptions and understandings in interview. In other words, rather than ask questions that approach the phenomenon directly, it is better to engage participants in intellectual tasks that reveal their assumptions. Through observation and interviews, the aim of this phase was thick description of the participants’ teaching practices and ideologies of technology. In this stage, each participant took part in three semi-structured interviews, one video cued interview, and a focus group (all audio recorded). The three semi-structured interviews (see appendix D) followed Seidmann’s (2012) model of three-stage qualitative interviewing. Overall, these interviews focused on broad questions of technology use, values, and philosophy. A card sorting activity was conducted in the same sitting as the first interview. Over the course of the semester, four video-recorded
class observations were carried out for each teacher. These observations were between 75 – 90 minutes each. Field notes were taken (refer to observation guide, appendix B). The video-cued interview followed the last observation. In these interviews (see appendix E) the researcher used an edited set of clips from the participants’ class observations to elicit commentary and explanation of technology use from the participant. Finally, one audio-recorded focus group (see appendix F) was held with all participants to explore discussion of ICT in a group setting.

Stage 3 served as a follow-up to support and expand upon previously collected data. A follow-up interview was conducted with each instructor, with a second card sorting activity. This allowed for both member checking and for an exploration of the catalytic potential of the stage 2 interviews for reflection and development. These data collection methods relate to the research questions as addressed in table 4.2. Overall, this study involved a complex course of data collection spanning seven months.
<table>
<thead>
<tr>
<th>Research questions</th>
<th>Corresponding data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary question:</strong> How does the understanding and interpretation of technology of English language instructors at a Korean university relate to their classroom use of information/communication technology?</td>
<td>Entire study</td>
</tr>
<tr>
<td>1. What understandings or interpretations of technology do EFL instructors report concerning the affordances of ICT in the classroom context? (What ICT is in terms of what it can do)</td>
<td>Semi-structured interviews Video-cued interview Focus group Card sorting (both sorts)</td>
</tr>
<tr>
<td>2. How can instructors’ understanding of ICT be understood in terms of technological agency and ideologies of technology?</td>
<td>Semi-structured interviews Video-cued interview Focus group Card sorting (both sorts)</td>
</tr>
<tr>
<td>3. How do these ideologies relate to instructors’ reported pedagogical goals? (What ICT is in terms of what it is for)</td>
<td>Class observations Semi-structured interviews Video-cued interview Focus group</td>
</tr>
<tr>
<td>4. How do these ideologies relate to instructors’ observed classroom technology practices? Are they discrepant, or congruent?</td>
<td>Class observations Semi-structured interviews Video-cued interview Focus group</td>
</tr>
<tr>
<td>5. What contextual factors (such as institutional policy and professional culture and/or ideologies of technology) might influence these practices?</td>
<td>Questionnaire Administrator interviews Class observations Semi-structured interviews Focus group Document analysis</td>
</tr>
<tr>
<td>6. What changes in practices might result from the study?</td>
<td>Follow-up interview Second card sort</td>
</tr>
</tbody>
</table>

Table 4.2 – Research questions and data
3 Methods in depth

3.1 Classroom observations

In order to explore the phenomenon in question, it is crucial for the researcher to go beyond participant interview and actually observe firsthand the practices of technology use. This helps establish a context for understanding the phenomenon, in this case the classrooms conditions in which ICT was employed and how it was employed. As has already been noted in previous chapters, when considering cognitive phenomena such as teacher beliefs, it important to consider both espoused theories-in-action and theories-in-use (Kane, Sandretto, & Heath, 2002), the latter of which is approached through observation. This data is then able to inform interview questions. Use of video recording allows for later analysis beyond field notes, beyond providing material for video-cued interviews (Goldman, Pea, Barron, & Derry, 2014).

Over the three stages of the research, the researcher observed four English language classes for each participant. The researcher did not observe classes at random, but rather worked with the participants to select which classes to observe. While the researcher attempted to observe classes that the participants considered ‘normal’ or representative of usual practices and conditions, classes were selected with the understanding that technology would be used. In order to avoid influencing the participant or affecting the class, the researcher did not express preference for particular sorts of technology use.

For the purposes of the study, the exact focus of the class (e.g. conversation, writing, listening) was not important provided the instructor made use of ICT in some way. For Hugh and Jessie, all observed classes were conversational English. Fiona’s
observed classes were English writing. For Jessie and Fiona, the same group of students was observed each time. Owing to scheduling issues, three different groups were observed for Hugh. Each observation covered 75 – 90 minutes of the class period, and all observations were video recorded. The phenomenon of interest in these observations was instructor use of ICT, specifically what technology was used, how frequently and for how long, how technology was used, and how successful this use appeared in the context of the lesson and in relation to the participants’ apparent pedagogical goals. These last two focuses, being somewhat evaluative in nature, were initially guided by the SAMR model (figure 4.1, see page 7 for a description), which provided a basis for evaluating classroom technology use along four levels of integration. While this model was used to guide observations, it did not ultimately figure into the analysis. Field notes were taken with reference to an observation guide (appendix B). Any noteworthy patterns or behavior were recorded. Observations informed questions for subsequent interviews and the focus group.

![Figure 4.1 - The SAMR model of technology integration (Puentedura, 2009)](image)
For the most part, the observations and interviews alternated. The four observations were conducted prior to both the video-cued interview and the focus group. The observations provided data for analysis, and served as a basis for discussion during semi-structured interviews. Data from interviews were later compared to observation notes.

3.2 Interviews

Given the research focus on instructor meaning and understanding, interviews were the central data collection method in this study. Adamson (2004) noted that semi-structured interviews can be particularly effective for ‘unpacking’ teacher beliefs, particularly if context is considered in interpretation and analysis. It is presumed that this extends to broader sorts of teacher cognition, such as conceptualization and interpretation of ICT. This study employed three varieties of interview, a sort of triangulation-within-triangulation design.

Prior to the recruitment of the participants, two interviews were conducted with individuals in administrative positions within the English language program. These individuals were chosen for their firsthand involvement with instructor professional development and technology training. These semi-structured interviews were conducted in order to draw an idea of the institutional culture and context of technology use, including available and mandatory technology and training.

The results of the pilot study suggested that different insights might emerge from traditional semi-structured, video cued, and focus group interviews. Thus, each
participant took part in three sorts of interview, with a total (including the follow up interview) of six interviews per participant. Each of these sorts of interviews was employed as a way to explore the participants’ personal understanding and articulations of ICT and its uses in the classroom. The first interviews followed Seidmann’s (2012) three-stage qualitative interview model. These semi-structured interviews focused on general topics related to ICT and pedagogy. Following Seidmann’s model, a series of three interviews were conducted (spaced from one to three weeks apart), focusing on different themes in order to explore different facets of a participant’s understanding and experience. The first interview focused on broad themes of life histories, in this case participant histories of technology use both in and out of the classroom. This interview also served to establish rapport between the interviewer and the researcher. The second interview focused on day-to-day themes, particularly the participant’s present day use of technology both in and out of the classroom. Finally, the third interview in the series aimed to explore abstract themes, focusing on broad questions of meaning and understanding. This last interview came the closest to approaching participant ideologies of technology. The interviews were semi-structured in order to allow the participants the freedom to express themselves discursively, though the researcher also kept the discussion germane to the research questions. Each interview was guided (but not limited) by a loose interview protocol composed of questions shaped prior to the start of the study (see appendix D). These questions were informed by the theoretical framework developed in chapter 2. Additional questions also arose from observations and administrator interviews.

In the same session as the first interview, a card sorting activity was conducted.
Card sorting is an interview technique commonly employed in human/computer interaction research in order to gain insights into the participants’ mental models, the ways they group, categorize, define, and understand various things (Lazar, 2001; Spencer, 2004). In the card sorting exercise, the participants were presented with an unordered array of 19 cards featuring different technologies loosely based on the ICT use questionnaire (see appendix H). The participants were then asked to sort these cards into categories of their own making (thus making this an open card sorting activity), with the encouragement to vocalize their reasoning throughout the activity, and some questions posed by the researcher for clarification. In this way, at least some aspects of the participants’ understanding of technologies were given explicit form.

In practice, a comparison of the ICT examples included in the card sorting activity with the ICT mentioned in interviews highlighted one potential weakness in the method. The items on the cards, which had been predetermined, did not necessarily reflect those that the participants actually used in their personal and professional lives. Some of the examples (such as the scanner) had very little place in the participants’ use habits, while many that were prominent (flashcard applications, smartboards) were not included. In order to account for this discrepancy, an additional card sorting exercise was undertaken with the follow up interview, incorporating a new set of cards based on the ICT examples the participants offered in interview (see appendix H). Both layouts, with interpretations, are included in each participant’s respective chapter in part II.

Following both the Seidmann interviews and the three classroom observations, video-cued interviews were conducted. In these interviews, the participants’ responses were elicited by edited footage of their four observed classes (compiled into one video
roughly 5 minutes long). The video clips ranged from 30 to 90 seconds, and focused on incidents of classroom ICT use. The participants were only shown clips from their own classes, and were invited to comment on what they saw. While a standard set of prompts was prepared (see appendix E), the format of the interview allowed for the researcher to pose new questions, and for the participant to discuss whatever they felt was most salient. In contrast to the traditional semi-structured interviews, these interviews were meant to draw participant commentary that was more grounded in ICT use practices that actually occurred in the classroom. In analysis, participant data from these interviews was not overly privileged (i.e. held as an authoritative perspective), but rather treated as an informed interpretation. In the pilot study, this interview technique was adapted from Tobin, Hseuh, and Karasawa (2009). For this research design, however, the technique drew directly from ethnographic research using stimulated recall (Dempsey, 2010; Gass and Mackey, 2000). In other words, rather than adapt the process from research that was actually attempting to accomplish a different goal (Tobin’s use of video did not necessarily hinge on recall, as the video clips were shown to a variety of participants), it was instead adopted directly from research that pursued the analogous goal of using video to elicit participant comment and reflection on classroom events.

Finally, the focus group interview gave the participants an opportunity to comment on ICT use in a group setting, capitalizing on the “group effect” (Carey and Asbury, 2012) to approach instructors’ ideas about ICT from yet another direction. This stage consisted of one group with all participants. The focus group was conducted with flexible reference to a question guide (See appendix F). As the pilot suggested that information about institutional/contextual influences was likely to emerge in a focus
group setting, many of the questions were included with the intent of guiding discussion in this direction. The pilot focus group data also suggested that some participants may be reluctant to speak in a group setting, a difficulty that was offset by the one on one interviews and intentional guidance from the investigator.

One final interview was conducted in the intersession, following the bulk of analysis (See appendix G). This interview served two purposes. The first was to give the participants an opportunity to comment on how their thoughts about technology changed over the course of the semester, if at all. The second purpose, in line with the concept of face validity (Lather, 1986), was to conduct member checking. In these interviews, the participants were given the opportunity to comment on preliminary findings from the spring semester data.

3.3 Document Analysis

In order to add further dimension to the understanding of the professional culture in which instructor ICT use was situated, documents pertaining to ICT use policies and expectations were collected by the researcher. These included evaluation forms, policy documents, and program-wide emails. These documents were analyzed for patterns and themes. This data is addressed in the context chapter.

3.4 Questionnaire

As mentioned above, an identical questionnaire both preceded and followed the participant selection process. The questionnaire, which was adapted from one used by Vannatta and Fordham (2004), elicited self reported frequencies of use of various
technologies in the classroom. This questionnaire was modified slightly from that used in the pilot, in that it included some questions about participant language learning history. Given the small sample size, this data was not collected with any intent to leverage statistical analysis. Rather, it was used to add another dimension to the portraits of technology use by highlighting particular sorts of technologies that the participants report using most frequently.

3.5 Data analysis

Given the research focus on the participants’ understandings and uses of ICT in the classroom, the researcher employed a recursive qualitative thematic hybrid analysis. Coding was hybrid in that it combined a priori coding (based on the pilot findings) and open coding with the interview data, and recursive in that coding involved multiple passes, and coding in later stages (and from separate data) was brought to bear on prior coding. The a priori codes from the pilot study were institutional factors, models of students and ICT, models of ICT and pedagogy, and broad models of ICT. These turned out to be a valuable starting point for analysis, but did not encompass all findings.

Loosely following Burnard’s (1991) thematic content analysis, analysis proceeded in stages (see table 4.3). First, interview data was transcribed in total, a step that is recognized to be crucial in familiarization with the data and an interpretive process in and of itself (Lapadat & Lindsey, 1999; Riessman, 1993). In the initial coding stage each data type was coded independently, using qualitative thematic coding (Braun & Clarke, 2006). Three distinct sets of interview data were considered at this stage. The first, collected during the first interview, was data related to the card sorting exercise (transcribed talk-
aloud and card layout). The second set of interview data, related to traditional forms of semi-structured interviews, encompassed the three-stage interview and focus group interview data. Finally, interview data emerging from the video-cued interview was treated as a separate set, as it related to instructor reactions and descriptions of classroom observation videos. In this stage, note was made of the concrete examples of ICT the participants referenced, and enumeration was conducted. In addition, special attention was given to metaphors utilized by the participants in their description of technology. Drawing from Lakoff and Johnson (2008), participant’s metaphors were treated as one further channel by which participant’s meanings and theorization of technology could be explored. Data from administrator interviews was considered at this point, and used to inform chapter 5.

The second stage of analysis involved returning to coded passages and developing themes, and looking for connections and overlaps across different interview data. This was done for each individual participant, and forms the basis for the thick description of chapters 6 - 8. In particular, attention was given to places where the participants’ interview data seemed not to match up with observed practice. These were not treated as inconsistencies or contradictions. In plain terms, the goal was not to sniff out hypocrisy, or to have one set of data throw the other into doubt. Rather, an ‘and… and…’ attitude was taken with these apparently ‘discordant’ moments, which were taken to highlight the nuance and complexity involved in translating idea into action in a finite and circumscribed environment.

In the third stage, themes were compared across the participants. The goal of this stage was to establish a description of the elements at play in instructors’ understandings
of their professional context, and to consider congruent and discrepant themes across the three cases. Findings from this stage are discussed in chapters 9 and 10, considering espoused theories-in-action and theories-in-use, respectively.

The culminating stage of analysis, informing chapter 11, was to develop propositional explanations about the overall dynamic between these elements and observed instructor use of ICT, framed in terms of technological agency and ideologies of technology. Finally, it must be noted that theoretical flexibility was an integral part of the analytic process. Though a particular theoretical lens was used at the outset of the study to guide both data collection and analysis, the researcher remained open to different potential theories that might emerge in the course of inquiry.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-coding</td>
<td>Complete transcription</td>
</tr>
<tr>
<td>Stage 1</td>
<td>Identifying and coding passages separately</td>
</tr>
<tr>
<td>Stage 2</td>
<td>Comparing across data and thematizing</td>
</tr>
<tr>
<td>Stage 3</td>
<td>Comparison across participants, description of phenomenon</td>
</tr>
<tr>
<td>Stage 4</td>
<td>Propositional explanations. Ideologies of technology.</td>
</tr>
<tr>
<td>Coda</td>
<td>Catalytic potential</td>
</tr>
</tbody>
</table>

Table 4.3 Stages of analysis

3.6 Catalytic effect

Lather (1986) posits catalytic validity as one way of strengthening the warrant of a
researcher’s assertions. While catalytic effect was not a major concern of the research (RQ. 6 is admittedly something of an outlier compared to the other research questions), it is reasonable, given the pragmatic foundations of this research, to question what impact the research process may have had on the participants. At the very least, such questions lay the foundation for future inquiries.

Gee (2008) notes that cultural models, being largely unconscious, can be susceptible to change if reflected upon. If this dynamic extends to other forms of human conception and understanding, such as those considered in this study, this suggests that the study may have a measure of catalytic potential (Guba & Lincoln, 1994), in that it may lead to participants coming to know, and act upon, their understandings and/or ideologies of technology. It is possible that the interviews and focus group discussion may lead to reflection on the part of the participants, and thus to changes in instructor practices. As a sort of coda, one last data collection/analysis stage was included to address the potentially catalytic potential of the research process. Stage three follow-up interviews and card sorts served to investigate this potential. It is important to note that this last stage was not meant to be framed as an experimental approach, but remained within the bounds of qualitative investigation. Furthermore, while it is beyond the scope of the research to assess, the resource toolkit may go on to have a positive impact on the English teaching community at large, and is certainly being designed with such intent.
Section II – The Instructors

In the following four chapters, the context of Namu is explored in greater detail, and portraits of the three participants are presented. The chapters of this section highlight relevant aspects of ICT use in the participants’ lives and classrooms, and represent a space in which their perspectives can be presented in their own words to a greater extent than in the discussion chapter. Following the Namu chapter, each of these chapters is composed of four sections. The first provides context to the participant’s approaches to ICT by offering a description of the instructor’s reported relationship to ICT in their personal life, including analysis of the two card sorting exercises. The second section focuses on the classroom context, exploring each participant’s ideas of what it means to teach English (recalling RQ3, an instructor’s pedagogical goals), how technology can be used in the classroom and what affordances did they report (RQ1, what ICT can do), their student’s relation to ICT, how ICT is learned, and how they see ICT being used in the future. The third section contains discussion of the instructors’ actual ICT use during classroom observations (RQ4, relating to classroom practices). Each chapter concludes with a summarizing discussion connecting the three preceding sections to offer some early observations on each instructor’s stance on ICT and its classroom applications in light of the concept of technological agency (RQ 2) prior to the higher-level comparative analysis in section III.
Chapter 5 – The Context of Technology Use

In order to explore teacher use of technology, it is crucial to take account of the context in which this technology is employed (Adamson, 2004). The aim of this chapter is to take account of a number of aspects of the institutional context in which the study occurred. The representation presented here draws on four sources: Administrator interviews, participant interviews, researcher observation (participant and non-participant), and official institutional documents. The latter were obtained by the researcher in his capacity as an instructor at the institution, and represent those encountered by the average instructor.

After establishing some basic information about Namu College, this chapter will consider three aspects of the Namu ICT context: Material, institutional, and cultural. The material aspect accounts for concrete elements of the context, such as facilities. The institutional aspect accounts for administrative and organizational elements such as ICT training and policy. Finally, the cultural attempts a brief look at shared norms and expectations of ICT use amongst professionals in the organization. Taken together, this provides a picture of the culture of technology use at the institution that serves as a starting point for understanding the perspectives of the three participants presented in subsequent chapters. The observations in this chapter are drawn from the 15-week spring semester of 2016.

1 Namu College

Established in 1963, Namu College (hereafter Namu) existed as one branch of the larger Namu educational foundation. A two-year vocational college, located in central South
Korea, Namu shared a campus with Namu University, a four-year institution with a similar vocational emphasis. At the time of the study, Namu had an enrollment of about 5,000 students.

Though reference is made to the larger Namu context, the context addressed in this study is the English Language program, specifically that part of it consisting of native English speaking (NES) instructors. English language classes were required for all first year students at Namu and many second year students as well. Consequently, Namu maintained a relatively large EFL faculty comprising 33 NES instructors and a number of Korean EFL instructors. While the university and the information college held some elements in common (such as some administration\(^\text{11}\) and responsibility for a language institute also under the Namu Educational Foundation purview), Namu largely operated independently. Its English language program was administered by a number of NES instructors working in concert with native Korean administrators. Most general communication with instructors was carried out by this group. Instructors taught an average of 18 hours per week, generally over 6 – 8 class periods, with classes ranging from 8 to 30 students. Most instructors taught from an English conversation syllabus developed by a single curriculum coordinator, and used the same textbook. The majority of instructors taught students from the same department, though they were sometimes called on to teach in others.

\(^{11}\) It should be noted that the two administrators interviewed, while technically a part of the university, were part of that overlap in some respects and so were in a position to comment on Namu College.
2 The material

The first aspect of the Namu context to take into account is the concrete reality of the equipment available in the classrooms and campus in general. While the ICT actually used by instructors exceeded that provided by the institution, available equipment and its condition establishes the baseline for classroom use. This section addresses the general availability of ICT through standard facilities, and specific concerns of the condition of ICT at Namu.

2.1 Facilities

Though classes were held at varying locations across the campus, the classroom layout, and thus available technology, was fairly standardized. The majority of classrooms contained a hardware-integrated lectern with a monitor, desktop computer, and stereo receiver system connected to ceiling mounted speakers. Though these lecterns featured control panels meant to be connected to features of the classroom such as the projector and screen, these elements were often disconnected, leaving the lecterns function limited to holding the computer and monitor. These computers included an Internet connection that, while generally stable, was subject to occasional disruption. While free Wi-Fi was technically available in many campus locations, most NES instructors were not able to navigate the Korean protocols for gaining access. The software installed on these computers varied from classroom to classroom and even (as one participant discovered in the middle of class) from week to week. All used the Windows operating system, and contained the Microsoft Office suite, notably Microsoft Word and PowerPoint. Though not mentioned as a difficulty by the participants (only one of whom spoke more than
basic Korean), it bears mentioning that the majority of the software on these machines, including the operating systems, was in the Korean language. The textbook (Richards and Bohlke, 2016) used by most teachers in the 2016 spring semester included a teaching software, or courseware, called ‘iTools’. This software was installed on the majority of the college computers.

Most classrooms also contained a projector and screen, sometimes operated from controls on the lectern, more often operated by remote. Classrooms also had white boards at the front of the room, sometimes supplemented with a freestanding white board on a wheeled chassis. A few classrooms still boasted chalkboards. Student seating varied, taking the form of desks or tables. With some exceptions, most classrooms were (in terms of seating and equipment) oriented towards the front of the class by default, suggesting (or reflecting) a tendency towards teacher-centered pedagogy. In some classrooms, the seats could not be moved.

In addition to the officially provided ICT, instructors could generally take for granted student possession of ICT in the form of smartphones. As of 2015, South Korean smartphone ownership between the ages of 18 – 34 was near 100% (Poushter, 2016). In practice, this meant instructors could plan on students being able to use their phones for class activities without worrying about issues of inclusion. Student smartphones were, in effect, standard classroom equipment. In some respects, students’ smartphones were the most reliable equipment in the classroom, with 4G cellular internet access a standard affordance. Students occasionally had laptops or tablet computers as well, but not nearly to the extent that they could be relied upon in the conduct of a lesson.

Finally, outside of the classroom teachers at Namu were provided with shared
offices in which they had internet-connected computers networked to printers. Teachers had varying degrees of access (depending on their department and location) to scanners and copy machines. While a number of computer labs were available on campus, they were not commonly used by NES instructors. In interview, only one mention of computer labs was made (by Hugh), and that was hypothetical rather than a reference to actual practice at Namu.

Each teacher was issued an official email account that they were expected to use for professional correspondence. This account was linked to a cloud-based file sharing application that allowed instructors to access administrative documents and teaching resources, and to share these resources with each other. The email account was also linked to a suite of other applications that allowed for, among other things, the creation of websites and chat forums.

2.2 Computer reliability/security

In the case of technology in general, and ICT in particular, it is not enough to merely have access. The technology must also function. As ICT has increased in complexity, so too has the number of ways in which it can fail. In this regard, two issues raised by the participants merit additional attention. These concerns, reliability and security, were prominent in teacher considerations of ICT at Namu. In interview, Fiona noted that “…sometimes classrooms are, they don’t have (internet) access, or it’s broken, or the projector’s broken…” This was supported by the policy handbook, which advised, “As a general rule where technology is concerned, it is a good idea to have a backup plan in the event that said technology fails”. At one point, Hugh described the vulnerability of ICT
as a “teetering pyramid, it's all built on one little thing, and if one little thing goes off, the whole rest of it collapses”. This concern is by no means unique to Namu, but is present almost any time ICT is used in a classroom. Nonetheless, ICT’s ever-present potential to malfunction was recognized by Namu teachers.

In interview, Hugh noted another potential failing of classroom ICT in the form of viruses and other malware, holding that, “the computers that are available in the (...) classrooms are not password protected, and they have every disease known to man”. Whether or not this was the case, Hugh reported exercising caution in using the classroom computers wherever personal information (such as a password protected email account) might come into play. Aside from issues of security, this problem could also result in disruptions in the use of ICT. This became apparent during observation of one of Hugh’s classes, as a number of persistent pop-up ads (resulting from malware) prevented him from making use of the ICT for a short time. Though security software was installed on all college computers, a general attitude of caution was common among Namu teachers.

3 The institutional

Following North (1990), the institutional aspect of the Namu context is here characterized as formal and informal constraints that structure professional interaction and ICT use. Emphasizing the formal side of this aspect, this section takes into account the administrative concerns of policies, professional development, and official communication relating to ICT.
3.1 Policies

Upon joining Namu, new instructors underwent a one-day orientation to become familiarized with the structure and expectations of their new professional context. In this training (conducted by PowerPoint), instructors were introduced to the policies to which they were expected to adhere. Aside from mention of the online documents teachers were required to use to track student attendance and scores, there was little mention of ICT.

The policies of Namu were in greatest evidence in the text of the policy handbook itself, a 59-page document emailed to all instructors and made available through the file sharing application. Within this document, ICT was only mentioned in six places. Two items detailed the generally available classroom technologies and digital resources, described in greater detail in the previous section. Two items were concerned with instructor communication, establishing instructor responsibility for checking email daily and strongly encouraging (though not requiring) instructors to have a cell phone (not specifically a smartphone). Finally, two items addressed the digital resources that instructors were required to use to track student data over the semester. These were a shared spreadsheet and an intranet attendance site, both of which were monitored over the semester. Threat of disciplinary action was levied should the instructors fail to keep these up to date. Notably absent from these policies was any description of how technology was or was not to be used. In interview, both administrators noted that there was no specific requirement as to how ICT ought to be used for teaching purposes. Though Maria (one of the administrators interviewed) emphasized that basic computer literacy was a prerequisite for the position, this had more bearing on the required digital grade reporting and management. Alan (the other administrator) advocated for the lack of such
a policy, saying,

I think it’s ok that there’s no specific policy. The fact that they do suggest that you should use a variety of methods, which can include technology, I think that’s probably a better situation than saying you must use technology in the classroom.

By ‘a variety of methods’, Alan referred to an item used to evaluate classes during observation. One major way policy is generally directly relevant to instructors comes in the form of evaluations and evaluation criteria. Instructors underwent at least one scheduled observation from an NES administrator every semester. These observations were guided by a set of criteria on an observation form that was freely available to all instructors on the file sharing application. On this form, only two references to ICT were made. One item, concerning the explicit listing of lesson objectives, offered PowerPoint as one option for doing so. The second item listed presentation software (i.e. PowerPoint) as one example of a supplemental material or activity to support the textbook. In both of these cases, ICT was listed as one choice among alternatives, and so was optional as far as evaluation was concerned.

3.2 Training

One common theme that arose in participant discussion was the place of teacher training and ICT use. While this will be discussed in later chapters, it is helpful at this point to discuss what training was available at Namu in Spring 2016. Training came in the form of the aforementioned new teacher orientation, mandatory continuing professional development (CPD) meetings that were conducted by administration four times over the
semester, and voluntary professional development workshops that were conducted by instructors. Being mostly concerned with policy, the orientation did not touch on ICT to a great extent. That said, it did involve introducing new instructors to the digital resources of the file sharing application. CPD meetings focused on logistical, organizational, and policy concerns, and so functioned as de facto staff meetings. Any mention of ICT in these meetings related to use of online data tracking, with one meeting dedicated entirely to navigation of the online Korean language grade submission system.

Instructor led workshops, on the other hand, did address professional development. Of the six workshops offered that semester, two involved use of classroom ICT. In one, an instructor shared a website he had created and discussed applications of the resources offered there. In the other, the instructor provided a tutorial for the use of Prezi, a presentation software serving as an alternative to PowerPoint. Attendance in these workshops was, again, voluntary.

Fiona, who held some responsibility for instructor training, presented the situation thus: “On the university side, there seems to be quite a few, and on our side, the college side, it seems to be, we’ve started”. Alan, who had conducted many ICT workshops for both the university and the college, said the following:

Most of the workshops are really presentation workshops. This is what I do, this is how you can do it. There’s not a lot of hands on concerning technology, which would probably be kind of a benefit, if we could actually sit teachers down with technology and walk them through things. That would probably help a lot. But there’s no real hands on training. More presentations and stuff.
Naturally, consideration of training in context can take account of both actual opportunities and teacher’s perceived opportunities. While Jessie did mention the availability of the workshops (in particular, the Prezi workshop), Hugh’s response to the question of ICT training at Namu differed: “I’ve not seen any training available to teachers yet”.

3.3 Email

One final way in which the institutional aspect of Namu’s ICT use can be explored is in the communications sent to all teachers through their Namu email accounts. This official channel of communication was available to the researcher as a participant instructor. Three sorts of ICT related email were sent out. The first, instituted in the middle of the semester by Fiona in her administrative capacity, was a weekly memo containing important information for all instructors. The format of this memo contained a ‘tech corner/professional growth’ section. Of the six memos sent out in the semester, four of these contained a suggestion for using an ICT resource with a link. In each case, these were internet-based resources (such as Twitter or memes).

In addition, others sent emails to all NES instructors as well. These emails were from administrators or teachers, and can be further distinguished as concerning ICT use for teaching and for management of classroom data (such as student grades). Over the course of the semester, administrators sent out six emails related to ICT and teaching, and twenty-three related to ICT and data management. In contrast, teachers sent five emails concerning ICT and teaching (such as the sharing of a digital resource) and five concerning data management (generally expressing concerns or difficulties). In addition,
over the course of the semester, a number of instructional English videos were produced and disseminated by a group of instructors (including Jessie). This tally does not count these emails.

4 The cultural

The last aspect of the context considered here, the professional culture of technology use at Namu, is the most ephemeral and so the most difficult to represent. As much as the approach taken in this study resulted in the researcher’s immersion in the professional culture of Namu (such as there was one), this does not necessarily merit statements about such a culture. To explore and capture such a culture would likely require a more extensive approach (as opposed to the intensive approach taken here), with interview data from a larger number of instructors. Nonetheless, some speculation may be justified based on participant comments.

When asked if Namu had a culture of ICT use, all three participants felt that this was the case, though they did not provide much descriptive detail. For the most part, they interpreted the question in terms of patterns of ICT use. Hugh noted that:

People log in, people do their work on their computers, the way I do mine, probably. I really think people do most of their work digitally. I think some people use more projection style technology in the class than others, but I think everyone uses projection style technology in their class.

Fiona similarly referred to projectors as a common feature of teacher ICT use, noting that NES and Korean teachers both used the technology but in different ways, with NES instructors emphasizing student interaction to a greater extent. Jessie represented the ICT
culture of Namu’s NES English department as progressive, growing, and interested in learning and improvement. Several times in her interviews, she reported talking with other teachers about ICT and how it can be used. However, she also expressed some misgivings of the ‘mindset’ that NES instructors in higher education in Korea often hold towards ICT and training. She stated, “for the most part, our people desire to be left alone, and to just teach because as far as they know, they know how to teach. They don’t want anyone to show them how to teach”. This attitude, if it was as prevalent as Jessie held it to be, may account for the relatively small professional development component at Namu.

Of the five people asked (three participants and two administrators), none felt that technology was used differently at Namu than at other institutions of higher education. All felt that ICT use was the norm. As Maria estimated that “Everything that’s available is being used by the majority of, by about 70% of individuals here...” Alan believed there was some shared culture, but also thought:

it’s more on an individual basis. It’s individual until someone brings up the fact that, oh, I use this, oh really, and then groups of teachers will migrate towards using something that seems to work well, but it’s individualistic until someone sees something they like.

Neither administrator felt that the uses of ICT they had seen were particularly innovative or surprising. This sentiment was shared by Fiona, who also observed teachers as part of her duties.
5 Summary: The ICT context of Namu College

All of these statements taken together paint a picture of Namu as being neither particularly constrictive nor particularly supportive in innovative or nontraditional use of ICT. The small amount (and largely voluntary nature) of ICT training, combined with lack of guiding policy and relative disconnect of ICT use with evaluations made Namu potentially fertile ground for technology experimentation and interpretation. At the administrative level, the focus was on ICT as a tool for instructors to manage classroom data, inputting attendance and grades. Institutionally, there was an overall lack of determination as to what classroom ICT was, and what it was for.

If there was a culture of ICT use amongst Namu NES instructors, it was difficult to establish what sort of culture it was. While resource sharing (through the file sharing application) was common, there did not seem to be an established social or discursive space for instructors to share their ICT approaches. The greatest determiner of what ICT was used seemed to be material in nature, related to what technology was actually available in the classroom. Yet, even here, instructors were not restricted in how they used what was available. The teacher’s approach to the endeavor of ICT use at Namu was relatively unconstrained and undetermined, thereby making it fertile ground for ICT experimentation. With a picture of the context established, this work now turns to portraits of the participants themselves.
Ch 6 - Hugh

An American male in his 50s, Hugh had been teaching for 30 years. He had taught language arts in the US K-12 system for 17 years before coming to Korea to teach EFL. Hugh had been at Namu for 7 years (having taught elsewhere in Korea), and at the time of the study was enrolled in a Korea based PhD program in education. Though he had rudimentary familiarity with Korean language, he had not actively studied a second language since university. In interview, Hugh was generous in holding forth, providing ample commentary punctuated with colorful turns of phrase.

Overall, Hugh was an above average user of ICT and a great believer in the power of technology both in his personal and professional life. That said, he also maintained that current educational use of technology, in general and at Namu specifically, barely utilized its full potential. In contrast to his espoused pedagogical optimism with regard to ICT, he found himself greatly limited by the material realities of his classrooms. His use of ICT in the classroom often involved working around these challenges. Thus, while some of his ideas about the potential ICT verged on grandiose, the realities of his classroom context did not allow for these ideas to emerge in practice. He also maintained a dim view of the ways ICT were generally employed in language education.

1 Hugh and ICT

1.1 Personal approach to ICT

Hugh described the presence of ICT in his life as pervasive, and in doing so focused on his smartphone, saying, “There's rarely an hour during the day that I'm not consulting it for some reason or another”. He reported using his phone for email, reading,
a schedule, researching, and entertainment. Asked how he felt about the pervasiveness of ICT in his life, he replied, “I'm going to shade it positive because at the end of the day I still have the ability turn it off”. Though his home PC and his laptop also figured into his personal ICT use, his smart phone seemed to be the most prominent device in his daily life. Furthermore, when asked during the focus group what was the most important technology in modern life, Hugh identified smartphones without hesitation (to the agreement of the other two participants). He characterized them as ubiquitous, saying, “They are as big a cultural marker, a scientific marker, as anything we’ve seen in the last hundred years”.

Hugh characterized himself as relatively fluent in the use of ICT compared to other instructors at Namu, owing to a lifelong fascination with technology going back to his father’s 1979 TRS-80 personal computer. He expressed a proclivity for experimentation with ICT, stating, “I’m curious. I’m going to push buttons and ask questions”. As pervasive as ICT was in Hugh’s life, he did believe in limits, especially as a parent. While his attitude towards his children’s use of ICT was more permissive than that of Fiona (discussed in chapter 8), he did say that, “I would much rather my daughter and my son go outside, get in the dirt, and find a worm, than go onto the internet and go to bbc.com and download the interactive video about the worm”. ICT was not, for Hugh, a substitute for real experience.

Though Hugh recognized that ICT was often intertwined with commercial interests, he was not overly concerned with this, and in fact saw it as an advantage, stating that his smartphone “is interested in my being invested in it, and so they update regularly with the latest features that will improve performance, that will enhance my
experience on the machine so that I will use it more”.

1.2 ICT is...

One way to approach an individual’s conception of ICT is to consider the examples that an individual offers when discussing the topic. To that end, in analyzing interview data, note was made of each mention of what could be considered ICT, regardless of whether it was made in reference to teaching. This was an interpretive move, erring on the side of inclusion rather than exclusion so that the examples can speak for themselves. Examples were not taken from the card sorting, focus group, or video-cued interviews, where they might be less a reflection of the individual’s idea of ICT, prompted instead from elements of the situation (such as the card items, classroom use, or other’s statements).

Overall, there were 145 instances of ICT mentioned in Hugh’s interviews, falling into 30 distinct types. Table 6.1 presents the examples of ICT employed by Hugh in his semi-structured interviews, along with the number of occurrences. The bottom two fields are ICT that was mentioned three times and one time, respectively. Examples in italics indicate that Hugh was the only participant to reference this ICT.

<table>
<thead>
<tr>
<th>Internet</th>
<th>20</th>
<th>Multimedia</th>
<th>19</th>
<th>Computer</th>
<th>18</th>
<th>Courseware</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laptop</td>
<td>9</td>
<td>Email</td>
<td>8</td>
<td>Blog</td>
<td>7</td>
<td>Smartphone</td>
<td>7</td>
</tr>
<tr>
<td>Projector</td>
<td>5</td>
<td>Operating systems</td>
<td>5</td>
<td>Unspecified Applications</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Search engines; tablet computers; learning software; presentation software; Imaging software; artificial intelligence; course management software; cloud based storage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Bluetooth; CD; recording technology; Spreadsheet software; telecommunication applications; virtual reality; word processing; flat screen; touch screen; external hard drive; social media; satellite</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Table 6.1 – Hugh’s ICT examples
It is perhaps not surprising that the Internet, multimedia, and computers appeared with the highest frequency, these being some of the most ubiquitous forms of ICT available at Namu. However, given the prominence Hugh accorded to smartphones, one might expect to see more mention of them. In all three cases, multimedia refers to any mention of video or audio, whether streaming or otherwise.

Some of the ICT examples Hugh offered support his representation of himself as an above-average user of technology. For example, at one point he discussed computer operating systems (OS), comparing the relatively inflexible Windows OS to the somewhat obscure (outside of tech circles) open source Linux OS. This, along with his mentions of virtual classrooms, cloud storage, and Bluetooth suggest that Hugh’s understanding of ICT was up-to-date at least, if not slightly advanced in relation to the average person. In addition, Hugh mentioned 11 kinds of ICT that were not mentioned by the other participants. In part, this may be a reflection of his relative loquacity, but it also argues for a wider variety present in his reflections and understanding of ICT. In providing examples, Hugh referred to software and applications roughly twice as often as hardware (96 mentions of software versus 49 of hardware).

When asked to define what ICT is, Hugh presented a definition rooted in human evolution, calling it “the beginning of the human hive mind”. Hugh’s answer presented ICT as potentially (if not currently) integrated with, and inseparable from, the human organism, in the long run allowing for instant species wide communication amounting to a collective consciousness. This was, in short, a topic to which Hugh had previously devoted some thought. Elsewhere, he stated, “This is what ICT is. It is the faster propagation of denser nuggets of information, it is the growth of information”. Asked to
identify technology that wasn’t ICT, he offered up mechanical examples such as windmills and welding. This suggests that, for Hugh, a confluence of data and electricity made ICT what it was. Put another way, for Hugh ICT could be summed up as “push a button, turn it on technology”.

1.3 Card sorting – Hugh’s theorization of ICT

a. The first sort

The card sorting activity, described in chapter 4, was conducted in order to give the participants another avenue for expressing their ideas about ICT. The participants were asked to make sense of a deck of 19 cards, each with one form of ICT on them, by laying them out on a surface while describing their reasoning process. Table 6.2 represents the cards as Hugh laid them out, and table 6.3 represents the categorization that emerged from his talk-aloud data.

Hugh approached the card sorting activity enthusiastically, choosing to place the cards one by one and allowing a pattern to emerge. After he had placed the cards and explained his reasoning, the researcher stopped the recording. However, Hugh continued contemplating the pattern, and wished to offer more recorded commentary on the insight it had provided him.
Three categories emerged from Hugh’s layout, with some overlap in between. Hugh seemed to view course management software (CMS) not as a particular kind of program, but as a category through which to understand other technologies. Similarly, he treated social media as the same. These two categories dominated his layout. At the top, Hugh placed the internet, which seemed to hold to relate to and take precedence over every other ICT. A third category stood for an overlap of the other two categories his two categories, described by Hugh as a Venn diagram.
For Hugh, CMS seemed to stand for the technologies that allowed him to conduct and organize his classes. He referred to these as ‘technical’. Social media, on the other hand, seemed to be technologies that related more to his personal life. He referred to these as ‘portable’. Thus the categories that emerged were personal technology and professional technology, with some overlap in between. There was no discussion of using these technologies for actual teaching with one exception. Of the ICT available, language learning software was the one technology Hugh explicitly connected to learning. He made a point of noting his placement of this ICT, stating “what I'm actually saying here is I'm not real big on language learning applications. I just don't see how they're going to do more than a face to face human being interaction is going to do.”

b. The second sort
Hugh’s second sort (tables 6.4, 6.5) occurred as part of his follow up interview, conducted in early August, 2016. The revised items, along with the time that had transpired since his first sort, were likely responsible for the great difference that

Table 6.3 – Categorization derived from Hugh’s first layout description.

<table>
<thead>
<tr>
<th>Portable</th>
<th>Technical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong social media</td>
<td>Social media leaning</td>
</tr>
<tr>
<td>Internet</td>
<td></td>
</tr>
<tr>
<td>SMS, Blogs</td>
<td>Digital Camera, Tablet, Smart Phone, Laptop</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Portable</th>
<th>Technical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language learning software</td>
<td></td>
</tr>
</tbody>
</table>
appeared between his first and second sorts. However, like his first sort, the internet figured prominently in his second layout.

Table 6.4 – Hugh’s second card layout

In this sort, Hugh laid out four categories in three columns. As with his first sort (and unlike the other two participants), Hugh made two cards represent categories rather than examples of ICT. The right category was identified by Hugh as internet applications, and the left as presentation software (though he clarified that the category included hardware as well). The left category included items that could not be used in the absence of internet, whereas the right category could be used without it. In addition, the right category represented ICT that had the affordance of display, which will be discussed below as central to the participants’ considerations of ICT. In the central column, two categories were created. The first represented tools, devices through which the other
applications could be used. Below that, Hugh identified a category as applications that could be used with or without the Internet. By this, he seemed to mean applications that had greater functionality when used with an Internet connection, but still had value without one. This indicates an interesting view of course management systems, an example of ICT that, in general, requires an Internet connection to be of use.

<table>
<thead>
<tr>
<th>Internet reliant</th>
<th>With/without internet</th>
<th>Internet independent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internet applications</strong></td>
<td><strong>Tools</strong></td>
<td><strong>Presentation</strong></td>
</tr>
<tr>
<td>Google, streaming video, multiple choice applications, email, instant messaging, translation applications</td>
<td>Personal computer, tablets, smartphones</td>
<td>Document camera, projector, word processing application, smartboard, flashcard applications</td>
</tr>
<tr>
<td><strong>Applications</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course management systems, courseware, video games, language learning applications</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.5 - Categorization derived from Hugh’s first layout description

Two things stand out in this layout. The first is that the three columns seem to relate to Internet and functionality, with the left to right indicating greater to lesser Internet reliance. Second, the presentation category differs from the others in that it represents ICT with a particular function rather than reliance. It is worth noting that Hugh, who had not recently taught in the United States context, was not familiar with document cameras and assigned them to a category after they were described. This particular technology, which figured greatly in Fiona’s conception of effective classroom ICT, was not something Hugh was aware of.
2 – ICT and teaching

2.1 What it means to teach

In order to explore a link between an individual’s idea of a technology and the task to which it is being employed, it is necessary to have some idea of what that person holds the task to be. In this case, taken broadly, the task is language teaching. Therefore, it is important to consider how the participants talk about teaching and what it means to them to be an instructor.

Hugh held his task as a language instructor to be “helping someone else acquire the mastery of a language they were not born into”. He expressed this in terms of assisting learners in developing skills of communication and expression. Asked how language teaching might differ from other forms of teaching, he offered:

I don’t know that it’s necessarily that much different in terms of purpose than teaching someone how to be a pipefitter or teaching someone how to be a neurosurgeon. There are going to be things that you want people to accomplish, there are going to be ways that you’re going to want to measure them in it, there are going to be things you are going to want that student to be able to do on their own. And our job as instructors is to show them these things, to guide them, to help them, get them to where they become autonomous.

Expressing the task in these general terms, Hugh seemed to be positing a view of language learning based in skills, performance, and evaluation. An instructor’s main tasks seemed to be demonstration (or modeling), guidance, and support.
Yet, in some respects Hugh did feel that the endeavor of learning a language differed from learning other subjects:

learning a language isn’t the same as learning guitar (…) it’s a social activity.
And you still need somebody there to (…) help you through some of the, some of those little nuances that always manage to change with language. Language is never static, there’s always a change, there’s always a shift, there’s always a movement. And so there’s always going to be a need for human beings in that particular respect.

Language, for Hugh, was not an inert corpus of material to acquire, but rather a dynamic, living skill that requires human interpretation and guidance to be able to use (and master). Given this theory of the task, the human must be at the center. Hugh admitted that the skill of writing may be developed using only ICT, because “those rules are, I want to say, codified or frozen, or, they're easy, they're clear, even if they're confusing, it's still there on paper.” Speaking, on the other hand, required the navigation of social norms of discourse that ICT could not handle. In Hugh’s view, ICT was static, inflexible, and predetermined in a way that barred it from being able to teach spoken fluency. ICT was, in many aspects of language acquisition, meant to support rather than replace a human instructor. Hugh contrasted language instruction with what he termed “hard sciences”, expressing skepticism that ICT could play as prominent a role in the former as it could in the latter.
2.2 Teaching with technology

Central, naturally, to an instructor’s ideas of what classroom ICT is and can do is their interview data pertaining to these exact subjects. With each participant, a number of distinct themes emerged from their discussion of their use of ICT for both instructional and administrative purposes.

On the classroom technology use questionnaire, Hugh self identified as a high frequency user of computers w/projector, multimedia, and internet and a moderate user of email and presentation software. He reported making no use of social media, blogs, or course management systems. In contrast to his interview assertions of the prominence of smartphones in his life and modern life in general, he reported making no classroom use of mobile applications in the questionnaire.

As noted in Ch. 5, the only real required ICT use at Namu was administrative in nature. Hugh claimed to go beyond these requirements in the organizational aspects of his teaching:

I do virtually all of my classroom preparation on a computer now. Every document I generate, every lesson plan I write, every syllabus I create, every source I find, virtually all of it is digital now (…) I don't give homework assignments in paper anymore. I open a Google folder and just give them the URL, say here's your homework assignment, email it to me. No paper, actually I haven't used paper for assignments in years.

Three themes emerged from Hugh’s talk about classroom ICT: ICT in versus out of the classroom, ICT and power, and old wine in digital bottles.
Hugh recognized that technology existed in a different way in personal life and in the classroom. Much of this distinction was commercial in nature, relating to the relatively free choice of ICT use in daily life (what is used, how often, and what for) versus in the circumscribed realm of the classroom:

the technology that I use in daily life does exactly what I wish the technology in my classroom did. It is interested in my being invested in it, and so they update regularly with the latest features that will improve performance, that will enhance my experience on the machine so that I will use it more (...) In the classroom, because of these arcane relationships we have with publishers, we have to honor a publisher agreement to buy x number of books, even if those books haven't changed the material in the last seven years.

Hugh held that ICT in daily life was subject to market pressures that made it more effective, whereas the ICT made available in classrooms was there not because it was the most effective for pedagogical endeavors, but because of agreements with companies. This related, in particular, to courseware, which was bundled with the textbook Hugh was required to teach from that semester. Hugh made his feelings about this situation very clear, saying, “textbook companies are the biggest group of unhanged scoundrels walking the face of the planet”.
b. ICT and power

In his piece on themes in technology and language learning research, Warschauer (1998) noted that one line of research, the critical approach, dealt with technology as a site of conflict and power struggle in the classroom. These sorts of concerns were prominent in Hugh’s characterization of ICT’s place in teaching. Hugh saw two sides to ICT where classroom power dynamics were concerned. On one hand, he held that ICT could potentially empower students. He asserted that useful classroom ICT would “encourage them to go out and interact with the technology. They’re the boss of it, and they’re in charge of how it’s presented. And it makes them the owners of it, now they are invested in their own expression.” Not only did ICT have the potential to enable student ownership, but it could also be liberating, as it could:

free them from the tyranny of the book. Let’s get them out there, find their own ways to use this language (...) Let them investigate. Let them find their way to express themselves. That’s what I think this technology should be open for.

Beyond this, Hugh was reflective about the power that he maintained in the classroom, and held that ICT had great potential to balance power relations:

I can share now this information with everybody, the idea that once I put it on the screen and play the sound for them, they have the same access to it that I do. You know, it democratizes the information, everybody has it now. I'm not the guy, I'm not the ‘Great giver of knowledge’. Y'know, here's the knowledge and we're all going to use it together. I'm just showing you where it is.
Hugh represents this ‘democratizing’ in terms of access to information, though in this example, the information is shared via the projector and screen, which were under Hugh’s control.

Hugh also saw ICT as a potential preserver of the teacher-controlled classroom. When talking about the way he saw ICT actually being used, Hugh painted a far less empowering picture:

Most of the ICT is still teacher-centric. Students don’t have access to MY computer and MY projector and MY screen. We talk about being a student-centered classroom, but god help them if they come up to MY podium. You can’t touch MY stuff, you can’t learn MY password. And what do teachers complain about? Whenever students do learn the password, aw, this computer’s buggy, I can’t use it.

Here, Hugh emphasized instructor ownership and access to ICTs, making the point that ICT as it is generally used in his own classroom served more to reinforce the status quo than rebalance classroom power. He did not merely generalize to other instructors in his field, but admitted that these were his own practices as well. Though cognizant of, and seemingly in support of a more student-centered classroom, he seemed to hold that the ICT currently available to him at Namu didn’t support it. Rather, what he saw in much instructor ICT use was a theme of control, and of surveillance. In speaking of course management software, he asserted:

The only point of it is to maintain some sort of control over the class by saying, ‘I can monitor you 24 hours a day now.’ That’s really what’s being said here. I
know when you logged in. Your homework was due yesterday, it says here you logged in at 4 in the morning. What’s that really doing, it’s reinforcing the teacher-centric ‘pope of the classroom’ power struggle. And I just don’t find that to be moving things forward educationally. Literally all of the control of a program like blackboard is in the instructor’s hands, all of it. Students only interact where you let them interact. And their input is extremely limited. And you can cut them off. They don’t have the same power over me. I can cut a student off, I can kick them out of a blog, I can delete his comments (...) And think about that in terms of power in the classroom, and learning equity, and students’ involvement.

Hugh recognized the power implications inherent in the control afforded by course management software, and so rejected it. Elsewhere, asked whether ICT was necessary for a language instructor to teach well, he went even further:

Unless that technology is available to all the students, no. If the technology is available to all students, then great, that is how it should be incorporated. But if only the teacher has control of the ICT, you don’t need it, you can just go right back to the old white board classroom. Because all you’re doing is showing them something. They’re not interacting, they’re passive.

Hugh highlighted equality of access and interactivity as crucial for ICT use in the classroom. There is a sense in which the position he took was somewhat radical, in that he seemed to be saying the affordances offered by technologies such as projectors and e-
lecterns did not amount to much unless every student has access. In other words, Hugh’s assertion was that student access and control of ICT was the foremost concern, eclipsing and rendering irrelevant teacher-centric advantages ICT may confer in the classroom. As will be seen below, this position did not necessarily translate to Hugh’s actual classroom use. With one exception (an instance where Hugh called on his students to use their smartphones), Hugh’s use of ICT was teacher-centric. He also, over the course of his interviews, mentioned multiple teacher-centric uses for classroom ICT, as will be discussed below.

Hugh’s notion of ICT as empowering for students was also complicated somewhat by Hugh’s experiences with the students themselves. Though he championed interactivity, he also held that his students were by and large reluctant to interact. Asked what advice he would offer an instructor new to the Namu context, he said:

I would tell the novice teacher not to rely too much on the student interaction portion of any textbook program, because I don’t care how much you threaten them, students just won’t do it. They just not going to spend valuable online time logging in to watch the same video you can see in class (...) Use it for yourself, don’t make them do it, because they’re generally not going to.

Elsewhere, he reported introducing interactive ICT use “to crickets” in his classroom, meaning he had encountered a lack of interest and enthusiasm from his students. This idea of student reluctance (explored in more detail in section 2.5, below) is not a contradiction of Hugh’s critical stance regarding ICT, but does show that he recognized the application of the ideal was far from straightforward. This could, in part, account for

---

12 In fairness, Hugh noticed this during his video-cued interview, and was concerned about it.
the difference between his espoused ideas of how ICT ought to be used, and his actual classroom use.

c. Old wine in digital bottles

Related to issues of teacher-centered use of ICT, Hugh felt that it was often the case that ICT not only preserved the status quo in terms of instructor role, but also in terms of the nature of activities that students participated in. This did not relate to what he thought ICT was or what it could do, but how it was often used. Hugh stated that, “We wanna use this new technology in old ways. Like I said, we want to write a blog. Well, that’s the essay”. This idea can be expressed as old wine in digital bottles, the same pedagogical practices carried out through ICT. In some cases, Hugh related the use of ICT to older, non-ICT technologies:

Unfortunately, a lot of the interfaces that we use now are still, student checks in, and then fills in the blanks. ABCD. You know, students checks in, fills in a blank, types in a word. That's not much removed from the mimeograph to me. It's the same thing with prettier colors, but it's the same thing.

In contrast to the powerful learning affordances Hugh saw ICT offering, much of its use struck him as iterations of old activities:

Making a whole class blog is the same thing as making everyone write an essay. You know, it’s the same thing thirty years ago when you had people, I want to you write me a one page essay on what you did last week. Well, now it’s I want you to give me a blog, because apparently changing the term is changing the
product.

According to Hugh, this problem emerged not from the ICT itself, but from older assumptions underlying the very organization of the classroom:

the classroom itself is almost becoming an outdated model of thinking. It represents the old industrial line of thinking. We’re going to organize people, we’re going to put them in this boxy room, we’re going to line them up, we’re going to sit them down, they’re going to face me, I’m going to give them what they need to know, and they’re going to file out. And life isn’t working like that anymore… So why are we still holding to the old boundaries, the old ways of thinking?

So, while Hugh saw ICT as offering the potential for greater student freedom and learning, he also saw the problem as being a result of the fundamental forces of classroom organization and inertia. This suggests that he saw the solution to these problems as emerging not only from ICT, but from a fundamental reorganization of the classroom.

2.3 What ICT can do in the classroom

As the interview data was analyzed, note was made of the tasks participants mentioned being able to accomplish using ICT. Though many of the examples of ICTs the participants mentioned were similar, different themes of use emerged with each (a comparison of which is offered in chapter 10).
With Hugh, what emerged was an emphasis on student-centered uses of ICT where potential was concerned, and an emphasis on teacher-centered use where actual current practices were concerned. In the case of the former, Hugh emphasized ICT’s ability to grant access to information and authentic materials, granting students control and a chance to be creative. This was, however, more theoretical than experiential:

I do not believe we have plumbed the depths of what this technology is capable of in a classroom setting (...) I just think that there are intellectual capabilities or intellectual possibilities that we have not yet begun to explore with this type of technology.

In more experiential terms, as Hugh described ICT as he and other instructors at Namu used it, the affordances he identified tended to be more teacher-centered. Hugh put greater emphasis on ICT as used for teaching rather than as used for learning. One of the main technologies he concentrated on was what he referred to as the computer/internet/projector/speaker array, the elements of which he noted must all be present and operational to be of use:

I can have a computer hooked up to the internet that can also then display that information to the entire class, with audio, with the speakers hooked up. That entire array working together. Because if all I have is a computer with the internet, I have that information. But I don't have any way to share that with them right away. But if we have now a computer with the Internet, and audio-visual equipment tied to that equipment that can now display sight and sound to the entire class, we're all sharing the same information now.
Though all of this was still controlled by the instructor, Hugh’s point was that the information was available to all. The affordance of display, or classroom-wide information sharing, was commonly referenced by Hugh, and that of access to information and materials was referenced even more:

because I have a cell phone, I can access the internet anywhere. The first time that actually worked for me, I thought, ah, this is a whole new world. Because now it just gave me, again, access to all the resources of the internet. I was only limited by my imagination at that point. I could go get whatever I wanted, to show them.

While Hugh held interactivity to be part of ICT’s potential, he did not see that being the case with actual use. This ended up being an indictment, with Hugh saying that, “right now, our use of ICT in the language classroom is still very passive”. This passivity related to ICT’s affordance for display of information:

one of the arguments in favor of film (when it was first invented) was that you could use it in the classroom to teach (…) They saw an application for it as a teaching tool back then (…) the problem is, has it really changed much since then, because again, it’s still that presentation model. We’re gonna show it, they’re gonna watch it, and then they’re gonna react to it, respond to it, talk about it, whatever, but there’s still gonna be that moment where they’re doing this (slack jawed expression), and they’re staring at a screen. And as (Fiona was) saying, that’s not teaching.
This argument, echoing Cuban (1986), was yet another example of the ‘old wine in digital bottles’ theme that often appeared in Hugh’s interview data. Hugh seemed to see the potential of ICT being squandered in the classroom:

I don’t know that they learn more in classrooms with computers. Honestly, I think it’s a great way for teachers to fill time. I think it’s easier for teachers in classrooms with good working technology to fill minutes than it is where there is no technology, I think that’s where it’s comfortable.

Not all of the affordances Hugh identified were benign, in his view. As noted above, Hugh also held that classroom ICT often afforded instructor control in various forms, particularly over student interactions with ICT, and surveillance of student ICT use. In the end, Hugh held that ICT had positive affordances (student freedom and creativity), more neutral affordances (entertainment), and negative affordances (instructor surveillance and control). Which ways ICT ended up being used seemed, for Hugh, to depend on the instructor’s attitude, knowledge, and access.

2.4 Drawbacks of ICT

Any new innovation will undoubtedly have drawbacks to balance out the advantages it may confer. It is important to take stock of what instructors held to be the problems that arise from classroom application of ICT, as these are likely to reflect both their experience with ICT and their idea of what it is.

One concern Hugh had was what he perceived as an overreliance on technology common among instructors, coupled with shallow use and an unquestioning attitude:
I think at some point teachers have this almost dare I say shamanistic view of technology, like, well, it’s a computer. It’s supposed to enhance learning. And that’s as far as they go with it, and they don’t question whether or not this technology is actually doing anything intellectually with our kids, they’re just like, well, I push the button, it’s got all the bells and whistles there, I just click the thing, and there you go. And they don’t stop to think about whether anybody’s actually being stimulated, they just figure, you turn it on, they’re learning. Without questioning whether or not anything is happening, that’s what I think is the biggest problem with that type of technology. It’s not been appropriately used and nobody really knows how to question it because that’s not what it does.

This attitude did not arise from a technological skepticism (Hugh has established himself as a believer in ICT’s potential), but rather a skepticism about the ways ICT was commonly employed by instructors. This was a drawback Hugh did not necessarily locate in the technology itself, but in people’s relationship with it. In calling this relationship ‘shamanistic’, Hugh seemed to be referring to the ‘black boxing’ of technology, employment without understanding. This passage also highlights a major goal that Hugh felt ICT ought to accomplish: actual intellectual stimulation. If a part of this drawback is located in the technology itself, it is in the ease with which ICT can create a surface appearance of this intellectual stimulation while actually accomplishing little on a deeper level. Yet, elsewhere in interviews, Hugh held that the value of ICT was often found in its ability to grab and hold students’ attention, as he stated, “The classroom with the ICT, you’re still going to use the book, it’s just that the ICT’s going to add a bit of extra flair.”
It could be concluded Hugh’s point is that, though ICT holds a range of potential affordances, it is more likely to be used in surface ways (such as entertainment) than deeper, more significant ways (intellectual stimulation).

A common concern with technology, well represented by Postman (2011) and Carr (2011), is the idea that overreliance on technology deprives individuals of their ability to perform certain tasks without technology. This is the concern that, in solving our problems for us, technology causes our problem solving skills to atrophy, or never develop at all. Hugh exhibited this concern at one point, noting that “word processing programs killed grammar”. He went on to say that, in his use of word processing programs, auto-correct functions for spelling and grammar were solving a problem that he felt he ought to be solving. He summarized the situation, saying, “It’s cleaning up your mess before you make it, how are supposed to learn how to clean your own mess up if you don’t know that you made it”. He compared this to his experience writing on typewriters, where the consequences of making errors led to thoughtful and deliberate composition. Yet, this concern emerged out of his personal life. It is telling that Hugh did not mention any of his skills as an instructor being atrophied by his use of ICT. It would seem this drawback, in Hugh’s opinion, did not extend to the classroom.

One drawback that did emerge from the classroom came during the video cued interviews, as Hugh watched footage of his classes. Hugh found that his use of ICT, while not necessarily bypassing particular teaching skills, did negatively affect his classroom approach:

I didn’t like the way I felt tethered to the top of the classroom using the technology a lot of the time. It bothered me looking at it because I like to be in the
middle of them, I like to be with them, I like to be working with them. I’ve always referred to myself as a guerilla fighter, I like to be in on the ground. And when you’re up in the front, and even I noticed, you know, my focus was, I’m pushing a button, I’m dragging a mouse, I’m clicking a link. And my face was just down, it’s down here. To manipulate this technology. As opposed to engaging with my students, which is what I like to do. I like engaging with them, I like talking with them and seeing their faces and bringing that out, and at that point I think, using the technology, at least it takes me out of it a little bit, which I think takes the learner out of it a little bit as well, because if I’m not engaged, they’re not engaged.

Hugh found that his use of the courseware, through the e-lectern at the front of the classroom, caused him to become disengaged from the class in a way contrary to his preferred pedagogical approach. As Hugh put it, his face was directed at the screen below him, and he was not seeing his students’ faces. Interestingly, he speculated that a different technology, such as a tablet, might solve this issue. When, in the focus group, Hugh brought up this concern, Jessie mentioned that another instructor had been using a wireless keyboard and mouse to solve that issue. This stands as an example of how ICT can sometimes solve problems that arise because of different ICT.

2.5 Students and ICT

Another aspect of the participants’ interview data that can shed light on their approach to the task of teaching is their espoused ideas of their students. This requires
taking account of the participants’ espoused theories of who their students are and how they relate to technology. This relates both to the participants’ understanding of their context, as well as the task of instruction.

One statement that Hugh made about his students concerned their maturity. He stated, “These are young adults (…) They are not dummies, they are not children, we should not be treating them as such. And some of the materials we give them are treating them like they’re third graders”. According to Hugh, one advantage that ICT had over the assigned materials was that it allowed for a more mature and individualized approach to the learning endeavor. To an extent, then, Hugh had linked ICT to maturity in his students. This related to the freedom he held ICT to provide, as it allowed students to make use of the authentic materials to acquire English. Despite referring to his college age students as kids, Hugh spoke of his students with respect, and gave them credit for their ability to adapt to his classroom use of ICT, stating:

- kids are human beings, they’re smart, they’re gonna figure it out, they’re gonna figure you out, and they’re gonna get bored. Oh, now is when they’re gonna do the button pushing, ok, now they’re gonna get (smartphone messenger applications) out.” In this statement, Hugh assumes that students are likely to turn to their smartphones for diversion in class, an assumption likely deriving from experience.

Hugh’s statements concerning his students’ use of smartphones recognized not only the challenge posed by the devices (as noted above), but also their potential. Hugh held smartphone technology to be ubiquitous amongst his students, and central to their
lives, stating, “I think cell phones are the great untapped resource in our classrooms, because our kids are already doing everything on there”. Hugh recognized that, in some respects, smartphones were constant competition for student attention in the classroom, which he mostly referenced in terms of instant messenger applications, and the social, communication oriented affordances of ICT. Hugh mentioned occasionally asking his students to use their phones in class. This was somewhat supported by observation of his classes, though he asked students to make use of their phones only once (to look up the Korean translation of an English word). At one point he did mention making use of a smartphone based multiple-choice application (Socrative) with his students. Yet, despite the personal stock Hugh put in the affordances of smartphones, in his students’ hands he did seem to see their value as a bit more limited. At one point in interviews, Hugh listed technologies he would like to have access to as an instructor in an ideal situation:

Hugh: I’m seeing things like, not just word processing, but things like Paint, Adobe Photoshop, any sort of photo manipulation technology, anything where you can create a blog or a webinar, anything video technology, any sort of recorder technology that you can then turn into a file that will go to the internet, any streaming technology. Anything that allows you to interact.

I: Don’t you have a lot of that now, though? With the computers in the classroom, and the Internet?

Hugh: Well, where there are computers, plural, in the classroom, yes. But most language classrooms, if they have computers, there’s one, and it belongs to the teacher…

I: So that would be the difference, every student having their own device?

Hugh: Absolutely.
In this exchange, and others, many of the functions Hugh would have liked to have available to his students in the classroom were, in fact, available on smartphones. As a high-frequency smartphone user, Hugh was likely to be aware of what they could do. Yet, in this exchange, the ideal situation of every student having a device was presented as a hypothetical, not a reality. Hugh painted these affordances as out of reach in his daily classrooms. He wished for a computer lab for his students, but did not see his students as possessing the affordances of computers in their smartphones.

Some of Hugh’s ideas about his students were not confined to his classrooms, but were generational in nature. Echoing the findings of Chandler-Olcott and Lewis (2010), Hugh invoked the theory of Prensky (2001), stating, “We are digital immigrants, and our kids are digital natives.” To Hugh, this meant younger generations thought about technology in a different way:

My son has grown up in a world, my daughter has grown up in a world, where this technology is already here, and they already have explored it in ways that I would never have thought about. Cuz they just assume it… They just don’t see limits the same way that we do.

For Hugh, this idea applied to his children, but also to his students. As familiar and skilled as he was with technology, he took it as a given that his students would be naturally familiar and skilled.

The significance of this assumption became evident when Hugh considered times his students had not made use of ICT channels he had made available:
having had the opportunity to set [online discussion forums] up, for my usually first or second year students, I have usually set them up to crickets. And part of the reason I think it happens is because, you can try to make it look like a social media space, the kids aren’t going to fall for it. They’re not buying it. They’ve already got Facebook, they’ve got Naver, they’ve got Daum, they’ve got Kakao talk\(^{13}\), and hey, here’s a blackboard space. They’re not falling for it.

Hugh explains this complete lack of interest and use of the ICT from his students by presenting this educational use of social media ICT such as, in some sense, a trick, one that students are too clever to fall for. Hugh presents this use of ICT as a pseudo-social space. In Hugh’s opinion, his students do not make use of it because, though it resembles digital spaces they do inhabit, it is not actually one of those spaces. Elsewhere, he expands on this:

they know I can look. Which, at some point, you know, the observation, this is almost like quantum physics, you know, observing the subatomic particle changes its actions. Right? Changes its behavior. The kids know I can look. Well, that changes how they’re gonna behave. Because, if they know the teacher’s looking, well, they’re gonna act a certain way, just like they would in a classroom. And a lot of them just wouldn’t do it... just the fact that I’m looking, or could look, circumscribes their free speech.

Echoing his comments on surveillance and control, Hugh held that his presence within

\(^{13}\) Respectively, a Korean search engine and multimedia platform (similar to Google in many respects), another, similar Korean search engine, and a messaging application popular in Korea.
the digital space is what made it a pseudo-social rather than a social space, and thus what inhibited student use of the ICT. Whereas he saw his students as willing to invest time and energy into online social spaces, he didn’t see them as willing to do the same as long as they perceive something to be work:

So, I think those spaces don’t, even if you can manipulate them, even if you can set them up and try to make them as inclusive and student friendly and open as you want, sooner or later, the kids, they know educational software when they see it, and they’re not, they don’t play well with it. They look at that and go, oh, homework. No no, it’s not homework, this is a free space, I want you to express yourself. Homework. And the worst part is, and this is where it becomes homework, if you make it voluntary, nobody does it. So when you make it mandatory, it’s homework.

As interesting as Hugh’s explanation is, the possibilities he did not mention are telling. Returning to his assumption of youth as digital natives, he does not offer as an explanation that students may lack the necessary skills to interact with that particular ICT, especially if the space needed to be navigated in English. Nor does Hugh offer access as a possible explanation, assuming that students all have smartphones (in Korea, a warranted assumption) and unfettered Internet connections (a less solid assumption to make). Student’s schedules, often including part-time jobs on top of the workload from their other classes, are also not mentioned. Finally, Hugh’s explanation seems to assume that these digital spaces, absent his observing official presence, are inherently interesting to his students. In fairness, he elsewhere makes a point that suggests this is not the case,
holding that, “Setting up a blog is only interesting for people who want to blog. Making a whole class blog is the same thing as making everyone write an essay”.

Ultimately, Hugh explains his past unsuccessful forays into educational uses of social media in terms of lack of student interest. Asked what advice he would give novice instructors regarding ICT use, he responded that he would tell them “not to rely too much on the student interaction portion of any textbook program, because I don’t care how much you threaten them, students just won’t do it”.

In sum, Hugh theorized his students as digital natives, ready and able to make use of ICT should they be willing, and presented them as often unwilling. Hugh connected his students with smartphone technology, and presented their use of it as constant, and largely social in nature. While he did hold his students’ smartphones to have great potential in an unspecified sort of way, he didn’t make a direct connection between this potential and his own classroom situation.

2.6 How ICT is learned

Another important aspect of the meaning instructors give technology in their professional lives is the place of ICT training and the acquisition of new skills. This relates to an instructor’s personal approach to ICT skill acquisition, their idea of how professional development ought to proceed, and how they perceive this professional development in their current context.

As noted above, Hugh both identified as, and presented evidence of being, an above-average user of ICT. Several times, Hugh indicated that he preferred to explore a technology’s capabilities, going beyond its surface. He extended this approach to a more
general prescription for instructors:

I don’t know that we necessarily need to learn how to program, but we need to learn how programs operate, how to fully exploit every aspect of a program. That’s something a lot of people don’t know, a lot of people don’t point and click. But they don’t know you can do a little digging and there’s a lot more available in a program than the simple point and click. That you can change the settings in a program to make it more yours, to do more things you want it to do, and you’re not required to be a programmer at that point. All you’re doing is, that information’s there if you’re willing to dig for it.

While this statement does not necessarily call for going beyond the designed affordances of ICT, it does suggest an individual approach that foregrounds the accomplishment of one’s own goals above the commonly accepted uses of a technology. Elsewhere, referring to his students, Hugh indicated the importance of experimentation for learning with ICT:

This is the whole point of what we thought the Internet and technology’s supposed to be, to democratize information. Give these guys the stuff, and don’t tell them how to use it. They’re grown folks, let them figure it out. People learn the lines by crossing them sometimes. Let them figure out, oh, probably shouldn’t have gone there. Ok? You know, let them learn the consequences and benefits of surfing without nets.

While Hugh was referring to his students rather than instructors, concerns about ‘digital native’ assumptions aside it is not a large interpretive leap to assert that this attitude
describes Hugh’s own ICT learning preferences at the very least, if not his broad prescription for professionals in his field.

There is indication enough to assert that Hugh’s notions of ICT professional development revolve around every instructor developing a personal relationship with technology, exploring its potential, attaining some skill and familiarity with it, and adapting it to the classroom. However, Hugh did believe this attitude was common among English instructors at Namu at least, if not in general:

A lot of other people only want to be able to check their email, enter their scores and be done with it. That is not where a teacher should begin and end with ICT, we should be invasive, we should know the causes and effects, we should know how to change programs to suit our own classrooms, because my classroom is not the same as yours is not the same as anybody else’s.

Hugh went on to state:

A lot of places assume, well, here’s the computer, you know how to use it. And that’s really kind of a blanket assumption, it’s not actually true… there’s a lot of people that really, really don’t know. A lot of this stuff that some other people assume, “You don’t know that?” I think, honestly, that people should be made to take an ICT literacy examination (…) just because that projector is there doesn’t mean you know how to hook the HDMI cables up. Or even what they do. Most people don’t even know how computers work.

Though elsewhere Hugh asserts that ICT is not necessary to teach English well, here he
goes so far as to propose that ICT literacy be a requirement for all instructors. This literacy requirement goes further than practical application, covering knowledge of the mechanism and functional principles of technologies. If Hugh indeed held this knowledge to be an important part of computer literacy, it is likely he believed so because he held this to aid in making use of the ICT, a high technological agency position. On the other hand, the prospect of a literacy examination has troubling implications for interpretive flexibility and rhetorical closure of technology. When asked who would conduct such examinations, Hugh replied: “It’s gotta be somebody who actually knows what this technology is, who knows what it’s capable of”. He went on to offer Alan (one of the administrators previously interviewed) as an example of the sort of knowledgeable person that could be responsible for such an evaluation.

Asked about ICT training at Namu, Hugh replied, “I’ve not seen any training available to teachers yet”. Elsewhere, he commented that, “The training they give at [Namu] is more of the ‘Throw them in the water and see if they swim’ variety”, going on to describe the difficulties of using the grade tracking system. He added,

Most my quote training end quote has been of the trial and error variety on my own. In fact, I have actually been the one to put the message out to people, here's the best way to do this. And I know because I've tried the other 9,000 ways that didn't work.

The training Hugh refers to is concerned not with classroom instruction, but rather administrative concerns. This corresponds with the administrative interviews, where the technological emphasis seemed to be on instructor ICT use for administrative purposes (i.e. grade tracking and attendance). That Hugh did not mention the workshops held at
Namu suggests that he either wasn’t aware of them, or didn’t consider them to be training.

2.7 ICT and teaching in the future

Finally, one further way to explore an instructor’s ideas about technology is to look at their predictions about how it will develop in the future. This concerns ideas about what ICT might be able to do that it can’t currently do, how its role in the classroom might change, and how the instructor’s role in the language classroom might change along with it.

While Hugh had some grandiose ideas about how ICT fit into humanity’s evolutionary arc (see section 1.2 above), he did not believe the near future would bring massive changes in the classroom:

I don’t know that we will reach a point with A.I. (artificial intelligence) anytime soon, where you can have an A.I. program that can actually teach someone a language (…) what I do think however will happen is that our ability to communicate via ICT, the ability of a teacher to be a live interactor, a live speaker with a student (will increase).

Hugh saw the instructor as remaining central to the language learning experience, at least where speaking skills were concerned. He saw ICT as augmenting instructors’ capabilities rather than replacing instructors outright:

I think what will happen is, teachers will become more immersed in the technology. Teachers will have to move forward in ways to motivate students through the
technology. To offer new venues of acquisition. To offer new venues of expression. And that’s where I think it’s going to succeed.

This prediction is in line with his assertions about how ICT ought to be used, and how many of his contemporaries did not use it. It also highlights a view of ICT as a motivational tool.

Asked what sort of classroom technology he would like to see developed in the future, Hugh replied that he would like to see ICT that addresses “the problem of translation (...) an ICT to help people understand the abstract process of thought expression, and how that is socially based, and how it is different groups determine what different things mean”. This reply suggests, for one, that Hugh took a sociocultural view of language, and on the other that ICT, as currently available, did not treat language as a dynamic phenomenon. Hugh did not reflect on how such a technology would impact language classrooms or the endeavor of language acquisition, but it can be speculated that such a technology would render the endeavor of language acquisition, for many people, redundant. Referencing the science-fiction comedy “The Hitchhiker’s Guide to the Galaxy” (Adams, 1979), Hugh jokingly expressed a desire for a “Babel fish”, a universal translation organism that would bypass language acquisition altogether (and incidentally leave him seeking a different line of employment).

3 Hugh’s classroom

Three of Hugh’s classes (in terms of a planned lesson based on one section of the book) were observed over the course of the semester, with one observed twice with different
students for a total of four observations. All three classes followed the same syllabus and textbook. In one case, explored below, the same lesson (in terms of the syllabus) was observed with two separate classes. In each of the observed classes in which it was available, Hugh made use of the computer/projector array, courseware, and Microsoft word (word processor software).

One common thread in all of Hugh’s observations was his use of a personal laptop connected to the internet through a wireless pairing with his smartphone, itself connected to the internet through a 4G cellular network. Hugh’s first action before each class began was the setup of this array. As Hugh explained, he used this setup for classroom management activities such as the entering of attendance data on the Namu dedicated attendance website. Hugh explained that he used this method because he did not trust the classroom computers with sensitive information (such as his Namu login and password). As Hugh put it, “I’m not going to log in my personal information on a computer where somebody else is probably keystroking\textsuperscript{14} and taking everything I’m doing, that’s just a security risk I’m not willing to take”. This concern with classroom computer security was illustrated when, during one of Hugh’s classes, a number of pop-up ads disrupted his use of the computer/projector/screen array. In this situation, Hugh demonstrated above average technological competence (or at least familiarity with the problem) by going into some of the processes of the operating system to shut down the offending malware operations. Having done so, he proceeded with the lesson he had planned. However, this concern with security was offset somewhat when, in later lessons, Hugh used the classroom computer to access his email and download documents (all of this visible on the classroom screen).

\textsuperscript{14} recording keystrokes to steal passwords
Another common thread was his use of word processing software (Microsoft Word) to accomplish the institutionally required step of providing students with a list of daily class objectives. Hugh employed the software in this way in the three classes in which it was available. There was some differentiation in his use, however. In one of the classes, Hugh opened up a blank document and added items to it as he went along. In the other two classes (the two examples of the same lesson) Hugh downloaded completed documents and modified them slightly as he discussed them with his class. In the video cued interview, he explained this differentiation, saying, “I want to switch it up. I don’t want to do the same thing all the time. Because if you do the same thing all the time, people’s minds, they just go fuzzy on you.” He noted that, “Sometimes if you write it as you go along, you pick up their attention a bit better…”, elsewhere saying, “when I came in with a premade lesson like that, I had a very specific point I wanted to make in that class, and I wanted to make sure I stuck to it and got there”.

Owing to differences in the classrooms in which these classes occurred, Hugh found it necessary to employ ICT in different ways. For example, one of the observed classrooms, normally used for music instruction (such that musical staffs were permanently etched on the blackboard) was uncommon in that it had no ICT aside from a stereo system and speakers. It lacked the computer/projector/screen array that was standard in other classrooms. In this class, Hugh employed his personal ICT to accomplish some of the tasks he would have otherwise have conducted through the CPS. Twice in the lesson, he used his smartphone to illustrate points (digital versus analogue time, and time as presented on online schedules.) He also used his laptop (connected to the internet through his phone) to display an online streaming video to his students, who
needed to leave their seats and gather to observe the smaller screen. Each of these tasks would likely have been accomplished using the CPS in other classes. In the case of the streaming video, Hugh noted that he considered the activity successful, but that other classes who were able to view the large screen likely had a better (and more equal) experience. Only once in the observations did he call upon his students to make use of their own smartphones.

Classroom circumstances also led to an opportunity to compare Hugh’s classes with and without one key ICT. As mentioned above, observations were conducted with two groups of students that were on the same lesson in the shared syllabus. Hugh had intended to employ the textbook courseware\(^\text{15}\) in both of these lessons. With one class, he employed the courseware by displaying a page of the book on the screen, highlighting some key phrases, critiquing the authenticity of the listening passage, and playing the embedded audio dialogue several times.

However, he discovered in the middle of the other class that the courseware had been uninstalled (likely owing to a reformatting of the computer to remove malware). At this point, Hugh quipped, “Back to the stone age”. He then proceeded to open up a blank word document, write up some key phrases from the book, and work with the students to practice using the phrases in conversation. Clips of these classes were played for Hugh during his video-cued interview. When asked what he saw as the difference between these two lessons, Hugh responded:

Technically speaking, the only thing that went different was the use of technology, because in the first class where I didn’t have the classware, it actually, it freed me

\(^{15}\) A software included with the textbook, which displays the pages of the book and offers some added functionality, such as highlighting and embedded audio clips.
up, I got away from the podium, I was able to look, I was moving around. I know I
was, because I had no reason to stand at the podium. And so we actually (...) just
got into the lesson. With the other one, ok, I used the classware, to highlight the
issues and again point out the unrealistic nature of that conversation.

The video clips revealed that the students of each of these classes encountered the
material in completely different ways. One class encountered a recorded dialogue several
times, and so had a listening activity. The other class read the dialogue in the book,
learned some phrases from the projected document, and practiced speaking with each
other. Their experiences differed in multiple ways.

However, according to Hugh, the difference between the two classes was the
benefit and drawback of the courseware itself, rather than the activity. As Hugh reported,
the courseware gave him the opportunity to critique the material (something he did to a
lesser extent in the other lesson). However, as was discussed above, he noted a great
drawback to its use in that it required him to stand at the lectern to make use of the
courseware’s features. In observing the clips side by side, he found the lesson where he
could not use the courseware to be better in that he was less removed from the students,
and better able to interact with them. In that interview, when asked what it was like to see
himself using ICT in the classroom, he responded:

I don’t like it. I don’t like how much focus I was putting on the technology, even
if I did manage to get away from it in the classroom, I know there were times
when I did, but the idea that I’m the only one interacting with the tech is a
problem to me, because I need to be interacting with the people more than I am
interacting with the technology… I don’t like where my focus was. I was the only one interacting with the technology. And that’s troubling to me. I don’t want to be the only one interacting with it.

Hugh’s use of ICT differed between the three classrooms, but these differentiations in use can ultimately be seen as striving for equality of result. In other words, it seemed Hugh was trying to accomplish the same thing in each classroom with different technological affordances, necessitating creative use and adaptation. This is especially clear in the three examples discussed above. Hugh’s use of his personal ICT represented one way in which he adapted to his perceived classroom conditions (lack of security) in order to accomplish his goal (entry of student information). He also employed his personal ICT in his music classroom to accomplish the tasks afforded by the CPS in other classrooms. The streaming video, in particular, was one ICT that Hugh held to be particularly beneficial to his students, as it allowed for “Instant comprehension (…) I would have had an impossible time trying to explain otherwise, but for a minute and 47 seconds, a Youtube clip got my point across in a way that I probably could not have.”

Using his own technology, an array of laptop-smartphone-internet enabled by Bluetooth and 4G network technology, Hugh was able to ensure that his students derived (almost) equal benefit from this particular ICT.

**4 Hugh’s ideology of technology**

Given all that has been presented thus far about different aspects of Hugh’s talk of and use of ICT, it is possible to return to the concept of ideology of technology and apply it to
Hugh’s case.

In speaking of ICT, Hugh is not only a high frequency user of ICT, but is also clearly relatively advanced in terms of knowledge. He is familiar with a wide variety of ICT, speaks knowledgably about it, and has grand ideas about what ICT might be able to accomplish both in and out of the classroom. He presented himself as a high frequency user of ICT both in and out of the classroom.

Of the aspects of Hugh’s ideas about ICT discussed in this chapter, learning and ICT, likely relates most directly to the concepts of technological agency and ideologies of technology. Hugh exhorted an approach to ICT that emphasized discovery and personalization:

you can do a little digging and there’s a lot more available in a program than the simple point and click. That you can change the settings in a program to make it more yours, to do more things you want it to do, and you’re not required to be a programmer at that point. All you’re doing is, that information’s there if you’re willing to dig for it.

This attitude suggests high technological agency, and suggests that Hugh does not hold this standard to apply to himself alone, but to all in his profession. He connected this to ICT education:

The more freedom that you allow a person to interact with their operating system and change their reality, the better it’s going to be. But then people have to be informed to be able to do that, and that’s what’s not happening with ICT in language teaching. There’s no informing.
Hugh actively espoused resisting technological determination/rhetorical closure. To Hugh, the importance of classroom technology is not what it is, but how it is used. As he stated, “that’s where I think the real key to this technology is how to, this will get you the information, but how you view it and manipulate it is what’s really going to matter”.

As Hugh saw it, the role of classroom technology would only increase with time, and as that happened, “The best teachers I think are going to be the ones with the best imaginations. The ones that are going to find some quirky way to use it that nobody thought about that lights a classroom on fire”. In his own words, Hugh offered a summary of an ideology of technology marked by high technological agency: “can (instructors) actually change the technology that is being brought to them?” That said, when asked to provide an example of creative ICT use from his own teaching, Hugh merely mentioned the use of streaming video to supplement listening exercises. While this may be considered a creative use with regards to material, it was not necessarily an innovative way to use ICT. Hugh ultimately did not provide any examples of actual re-interpretation of ICT.

Hugh’s opinions regarding the actual use of ICT, which focused on instructors and ICT at large, did not reflect interpretive flexibility, but rather the opposite. He identified, in common ICT use, a lack of understanding that led to its squandered potential:

It’s not teaching that’s happening there, and that’s one of the problems I think that we’ve had with this type of technology is (...) we misunderstand how to use it to teach, and we’re actually expecting it to do something it’s not going to do.
Hugh identified a sort of disconnect between effective language teaching and ICT as it was commonly used. Used in this way, Hugh saw little difference between a classroom with ICT and a classroom without it.

In the four classes observed, Hugh’s ICT use seemed somewhat limited. He largely relied on the computer/projector/internet array, making use of PowerPoint and the courseware to conduct lessons. Creative uses of ICT in the accomplishment of his class goals were not in evidence. With the exception of his use of Microsoft Word (discussed below), he largely used technologies to accomplish things they were seemingly designed to do.

Where his technological skill and flexibility were in evidence were in situations where the classroom ICT went awry. In these situations, Hugh was able to adapt his available technology to meet his original objectives. In a classroom that lacked the standard ICT facilities, he was able to establish an Internet connection and carry out online administrative tasks. When the classroom computer was disrupted by malware, Hugh was able to go into the system to root out the problem, and adapt his lesson around what functionality he couldn’t recover. When expected software was no longer installed, he was able to work around it. In only one observation did Hugh not encounter ICT difficulties. It would seem that his high technological agency, not necessarily employed in the normal course of a class, became very useful for accomplishing pedagogical goals once the expected technology no longer functioned correctly.

Thus, while Hugh’s espoused ideas and opinions seem to reflect an approach to ICT high in technological agency, the classes that were observed did not necessarily bear this out. There could be a multitude of reasons for this discrepancy. These will be
discussed in chapter 9, alongside the cases of the other two participants. Before that can be done, those cases must be accorded the same detail. With that in mind, the case of Jessie is now considered.
Ch 7 Jessie

A middle-aged Canadian woman hailing originally from Jamaica, Jessie had been an Assistant Professor of EFL at Namu College for three and a half years, and before that had taught middle school Language Arts in the southern United States for five years. Jessie was an enthusiastic student of languages, having studied Korean, Spanish, and Italian. She was actively studying Korean at the time of the interviews, and had made use of a range of technologies in this endeavor. In addition to her teaching responsibilities, Jessie held an assistant administrative position.

ICT played a large part in both Jessie’s life and in her teaching. While she approached classroom technology with a playful and experimental attitude, she also had concerns about the effects she saw technology having on younger generations. For Jessie, human relations were a key part of the classroom, and she tried to use ICT in a way that supported, rather than replaced, human interaction. She also held classroom affect to be crucial to student learning, and made use of ICT to establish a positive atmosphere.

1 Jessie and ICT

1.1 Personal approach to ICT

Jessie reported being a high frequency ICT user in her personal life, saying “I pretty much live with my computer and my phone. I’m always downloading new apps, Kakao Talk, Facebook Messenger, all those things I use on a regular basis. So yeah, pretty well integrated into my life”. For Jessie, one of ICT’s most useful affordances was the ability to communicate with family and friends around the world at little or no cost. Aside from everyday uses such as communication and entertainment, Jessie had experience using
ICT for self-study language learning. She had made use of multiple language learning applications, such as Rosetta Stone, Mango Languages, and Korea101.com. The last of these was a premium site, requiring a monthly subscription. She reported her experience with these language technologies as positive. When asked if she related her experience with language ICT to her own classroom practices, she replied:

I think I translate my whole language experience, language learning experience into the classroom (...) everything that I have experienced in language learning, that I feel is beneficial, I try to replicate that somehow, or offer that somehow to my students.

Even outside of her work hours, Jessie devoted time to researching and experimenting different technologies and applications that could be useful for her teaching. She was willing to purchase teaching software with her own money, and had done so for several applications. For Jessie, the line between personal and professional use of ICT seemed to be somewhat permeable.

1.2 ICT is...

In her three semi-structured interviews, Jessie mentioned examples of ICT 111 times, referring to 24 distinct kinds of ICT. These are listed in table 7.1. As with other cases, items in italics were mentioned by Jessie exclusively.
<table>
<thead>
<tr>
<th>Software Type</th>
<th>Count</th>
<th>Devices/Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation software</td>
<td>19</td>
<td>Computer, 16 Language learning software</td>
</tr>
<tr>
<td>Mind mapping software</td>
<td>7</td>
<td>Smartphone, 7 CD, 6 Websites</td>
</tr>
<tr>
<td>Language learning software</td>
<td>9</td>
<td>Multimedia, 9 Multimedia</td>
</tr>
<tr>
<td>Courseware</td>
<td>4</td>
<td>Flashcard applications, 4 Internet; virtual reality; writing software</td>
</tr>
<tr>
<td>Bluetooth speakers; projector; SMS/messenger software; telecommunication software; unspecified applications</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Spreadsheet software; search engines; video games; web bots; word processor; Smart board</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Table 7.1 – Jessie’s ICT examples

The number of examples of presentation software mentioned by Jessie is not necessarily a reflection of the software being central to her talk of ICT, but rather of the variety of presentation software she mentioned. Whereas presentation software is often associated with Powerpoint, Jessie discussed alternatives such as Prezi and Emaze. This speaks to Jessie’s willingness to explore a variety of different ICTs. That said, Jessie had ultimately decided that that Prezi and Emaze were too complicated, and did not use them in class.

Other ICT unique to her also reflects variety, with mind mapping software, writing software, and flashcard applications standing out as ICTs that Jessie had experimented with in her classroom, to varying success (the writing software, Ginger, had failed to live up to her expectations). Her mentions of language learning software reflect both her personal use and that she had recommended for her students. Another example of this, flashcard applications, was a direct example of an ICT based study method from her personal experience that she recommended for her students. She went so far as to require them to install a flashcard application on their phones, and mentioned
assigning its use as homework.

Asked to provide a definition of ICT, Jessie responded “Something that you use to facilitate the transfer of ideas, thoughts, concepts, from one person or thing to another person or thing.” She then made the distinction between low-tech ICT, such as a white board, and high-tech ICT. This distinction, according to Jessie, can be made by:

the degree of complexity involved. So a whiteboard, psh, I can carry this anywhere, it’s not really, it doesn’t require any plugging in of anything. But a computer, different level, it’s got moving parts, it can break, it would have to be the service, the after service people, there’s a whole lot more complexity of computers, (smart)phones, than say a white board.

Besides complexity, Jessie references electric power (plugging in), moving parts, and the necessity of specialists for repair. Asked if a clock would fit this definition, she tentatively agreed, but then added that computers, most certainly ICT, were more far more complex. These, she said, had the functionality of a clock and much more. She concluded by saying of computers that “they facilitate full perceptive and expressive communication”.

Thus, for Jessie, ICT was more a matter of communication than information, and is defined by facilitation of the processes of communication between individuals. For her, ICT seemed to be divided between low-tech and high-tech. She associated high-tech ICT with electric and digital technology that offers a wider range of functions. In addition, much of what Jessie referred to in discussing ICT was software. Aside from computers and smartphones, most examples she offered were the applications employed on
smartphones and computers. In terms of frequency, roughly a third (34) of her examples were of hardware, and two thirds (77) were of software.

From Jessie’s interviews, there emerged a sense that her relationship with technology was broad but not necessarily deep, in that she was familiar with a wide variety of technologies for achieving specific goals, but did not delve into particular technologies to employ their full range of functionality, or discover new functions for them. When asked if she could provide an example of an innovative or unconventional use she had made of technology, she replied “I can’t think of anything I’ve done with ICT, no (…) I’m pretty, pretty straight and narrow with that”. As will be evident below, once her actual use of ICT is taken into account, the picture that emerges is not so simple.

1.3 Card sorting – Jessie’s theorization of technology

a. The first sort

Jessie went about the task of sorting by placing the cards one at a time, with five categories emerging, separated both horizontally and vertically. As with chapter 6, table 7.2 represents the cards as Jessie laid them out, and table 7.3 represents the categorization that emerged from her talk-aloud data.

The vertical order of the cards within categories was likely the order they were encountered (i.e. CDs are not necessarily being placed as more important than Mp3s). That said, there was one outlier category in terms of layout. The cards of the hardware stack, placed in the bottom right, were all stacked on top of one another rather than laid out. Jessie confirmed that she was positing these cards as ‘equal’ in some respect. As an alternative interpretation, this category had the most items, and so may have been stacked
to conserve space. However, when considered together with the frequency Jessie mentioned software in her interviews, it is likely she had given greater thought to the items that were not in the hardware pile, and thus had provided a more complicated theorization.

<table>
<thead>
<tr>
<th>Internet</th>
<th>Word processing software</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMS</td>
<td>Blogs</td>
</tr>
<tr>
<td>Email</td>
<td>Language learning apps</td>
</tr>
<tr>
<td>Social Media</td>
<td>Spreadsheet software</td>
</tr>
<tr>
<td>Streaming audio/video</td>
<td>Course management software</td>
</tr>
<tr>
<td>CDs</td>
<td>Hardware stack: Smart phone; computer; laptop; tablet; scanner; projector; digital camera</td>
</tr>
<tr>
<td>Mp3s</td>
<td></td>
</tr>
</tbody>
</table>

Table 7.2 – Jessie’s first card layout

The categories were laid out in three columns. Jessie explained the sole category of the left column as “Communication type things. You can communicate with those.” She identified the top category of the middle column as relating to communication (expressive) but as being primarily receptive in terms of information. The category below she identified as being completely receptive. On the right, she identified two categories as being used to accomplish things. Here she distinguished between hardware and software. Overall, the criteria Jessie seemed to employ to distinguish and categorize different kinds of ICT were the expression and/or reception of information, and the accomplishment of tasks.
<table>
<thead>
<tr>
<th>Communication</th>
<th>Receptive</th>
<th>Doing things</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Receptive/expressive</td>
<td>Software – Things to use with hardware</td>
</tr>
<tr>
<td></td>
<td>Internet; blogs</td>
<td>Word processing software; language learning applications; spreadsheet software; Course management systems</td>
</tr>
<tr>
<td>Email; Social media</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Receptive – taking information</td>
<td>Hardware (stack) – Things to use with software</td>
</tr>
<tr>
<td></td>
<td>Streaming audio/video; CDs; MP3s</td>
<td>Smart phone; computer; laptop; tablet; scanner; projector; digital camera</td>
</tr>
</tbody>
</table>

Table 7.3 – Categorization derived from Jessie’s first description

One possible alternative reading of Jessie’s layout could be found in seeing left to right in terms of personal/professional (teacher) use, with the left being the ICT Jessie used personally but not professionally, the left being the obverse (certain hardware items excluded), and the middle being used for both. In addition, top to bottom might be
interpreted and greater to lesser interactivity.

b. The second sort

Jessie’s second sort (tables 7.4, 7.5) was conducted as part of a follow-up/member checking interview in late July of 2016, a week after she had completed teaching intensive advanced summer classes. She had found, in the different conditions of these classes, that her prior approaches to ICT use were less effective than they had been the previous spring. Not surprisingly, given the new set of cards, Jessie’s second card sort differed from the first in a number of interesting ways.

<table>
<thead>
<tr>
<th>Language Learning Applications (Rosetta Stone)</th>
<th>Course Management Systems (Moodle)</th>
<th>Word Processing Applications (Word)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flashcard Applications (Memrise)</td>
<td>Translation Applications (Google Translate)</td>
<td>Courseware (iTools)</td>
</tr>
<tr>
<td>Video Games</td>
<td>(Stack) Personal computer; Tablet Computer; Smartphone</td>
<td>Smart board</td>
</tr>
<tr>
<td></td>
<td>Instant Messaging (Kakao Talk)</td>
<td>Multiple Choice Applications (Socrative)</td>
</tr>
<tr>
<td></td>
<td>Email</td>
<td>Projector</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Streaming Video (Youtube)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Presentation Software (PowerPoint)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Google (Images, Docs, Etc)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Document Camera (ELMO)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Internet Applications (Flash Applications)</td>
</tr>
</tbody>
</table>

Table 7.4 – Jessie’s second card layout
As with Jessie’s first sort, there were five apparent categories, with one category, communication, preserved from the previous sort. As with the previous sort, the vertical order of the cards and categories did not seem to indicate greater or lesser importance. Whereas in her first sort the three columns seemed to loosely correspond to personal, professional, and personal/professional, in her second sort this connection seemed far more apparent.

<table>
<thead>
<tr>
<th>Personal</th>
<th>Personal/Professional</th>
<th>Professional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self Study Applications</td>
<td>Self-study/Classroom display</td>
<td>Instructional Aids (Display, stimulate learning)</td>
</tr>
<tr>
<td>Language Learning Applications, Flashcard Applications, Video Games</td>
<td>Course Management Systems, Translation Applications</td>
<td>Word Processing Applications, Courseware, Smart board, Multiple Choice Applications, Projector, Streaming Video, Presentation Software, Google, Document Camera, Internet Applications</td>
</tr>
<tr>
<td>Multi-Purpose Devices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal computer; Tablet Computer; Smartphone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instant Messaging, Email</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7.5 – Categorization derived from Jessie’s second description

That said, the emphasis in Jessie’s second layout seemed not to be communication, but rather learning and teaching. She identified the far left grouping (all applications) as ICT that could be used for language self-study, and the top center
grouping as having this capability in addition to classroom applications. These groupings seemed to emerge from Jessie’s personal experience as a language learner, and it is interesting to note that, in interview, she mentioned requiring her students to install two of the ICTs from these categories (a flashcard application and a translation application), and made use of the translation application several times during observation.

As Jessie had made a stack of cards for her hardware category in the previous sort, she made a stack of three cards (smartphones, tablets, and personal computers) for what she termed “multi-purpose” devices. She described these devices together, saying, “you can use them to like, to do so much, you can present, you can teach, you can learn, you can communicate, it’s just like catch all anything possible”. Notably, she didn’t distinguish between these three sorts of ICT, at least in this sort. The communication category at the bottom middle, present in the previous sort, was now in the central personal/professional column rather than the seemingly personal position it occupied in the previous sort. Jessie noted that there were classroom applications for these sorts of ICT, though she didn’t offer details.

The largest category, at the far right, was what Jessie termed “instructional aids”. Jessie defined these as “different ways to get concepts across, stimulate thought, discussion, and learning”. This category was composed of both hardware and software. As she laid the cards out, she repeated the word presentation, and otherwise indicated that the affordance she was most concerned with in this category was display of information. Though Jessie did not use the word, this category seemed to represent professional ICTs, ones that Jessie would not use in her personal life. It is notable that Jessie did not distinguish between different types of ICT in this category, though at the same time she
did not stack them like she did the multi-purpose devices. This suggests that she did not see them as functionally similar (as seems to be the case with stacking), but also did not articulate the differences in that sort. One final point that can be made is that the ICT in the professional column seemed to be teacher-centered in nature, lending itself to instructor control in the classroom, whereas the other two columns presumed a greater or lesser measure of student interaction. Jessie did not comment on this, but it does seem to be present in the layout.

2 ICT and teaching

2.1 What it means to teach

Jessie summarized her task as a language instructor as:

basically functioning as a catalyst to launch, for many of them, for others deepen, their capacity for both receptive and expressive communication in this language that, for them, for many of them, has been just this kind of abominable snowman, like something really difficult to in any way get a handle on for most of their lives.

In presenting herself as a catalyst, Jessie emphasized her role as supporting her students in the daunting task of language acquisition, inciting and accelerating a change in both their ability and their attitude towards speaking English. What really set Jessie apart from the other two participants was the emphasis she placed on the atmosphere of the classroom. She held this to be foundational to her task, noting, “I think the number one thing is the atmosphere (…) Once I have that set up, I can do anything. I can do back
flips and they’ll learn because the atmosphere is right”. Jessie’s consideration of her students’ classroom experience was evident in observations of her classes, and accounted for much of her technology use.

Jessie also indicated that she was cognizant of cultural differences involved in teaching in the Korean context, noting that “the role of the teacher as some kind of authority figure, and as a purveyor of knowledge is a very big motif in the culture here”. Neither her interview data nor her observed teaching suggested that she adopted this role, but rather that she consciously took a different approach and so required her students to take different roles as well in their own learning. Her focus on cultivating a particular atmosphere in the class was likely a reflection of this endeavor.

As to what constituted the ‘right’ atmosphere, Jessie described this as “an environment where students are comfortable enough to express themselves in a language they find impossible”. Jessie’s interviews and observations suggested that this involved an element of entertainment and student interest, distinctly separate from the work of language acquisition associated with the textbook. Referring to the two hour classes she was teaching that semester, Jessie spoke of her first hour’s activities as “allowing” her to conduct book based activities in the second half of class, in effect earning her students’ engagement in this second half. Having been experimenting with this approach for the first time that semester, she reported the highest student engagement she had ever experienced. This last point speaks to one more aspect of Jessie’s teaching, as her willingness to experiment with the new did not stop with her use of ICT, but extended to her entire pedagogical approach.
2.2 Teaching with technology

As Jessie put it, “As a teacher, I have a pretty solid relationship with technology”. On the classroom ICT use survey, Jessie reported making frequent use of computers with projectors, presentation software, multimedia, and content specific applications, and the internet. She reported making moderate use of smartphones, and rare use of word processing software (as will be evident below, her actual classroom use told a different story about the latter). While Jessie discussed teaching with ICT in depth, very little of her discussion related to administrative uses of ICT such as recording attendance and planning lessons. While she doubtless employed ICT this way (administrative uses being required at Namu), she seemingly did not consider it worth mentioning. In Jessie’s discussion of classroom ICT, the following themes emerged: Rapport and relationships, ICT as necessary or optional, and smartphones and language learning.

a. Rapport and relationships

Jessie summarized her use of ICT as a means to a particular end:

I’m very simple with ICT. For me the main thing about my class is to build the kind of rapport with my students where they desire to be there, and where they actually participate while they’re there. So ICT only is functional to me, or effective in any way, if it contributes to that. So it’s not necessarily the centerpiece of anything I do.

In keeping with her reported emphasis on classroom atmosphere, Jessie defined ICT’s effectiveness in terms of student rapport. While she did define effectiveness in some places in terms of building communicative competence and delivering content,
atmosphere and rapport where her greatest focus. Student engagement was, for her, foundational to the teaching endeavor, with linguistic competence and progress following that. This was consistent with one of Jessie’s overall pedagogical goals of changing students’ attitudes towards English.

Moreover, student engagement was not something Jessie took for granted, but rather something she felt she needed to achieve. Her students, both that semester and the one before it, had begun the semester relatively disengaged from the endeavor of English acquisition. Thus student engagement was, for Jessie, one of the cruxes of the classroom endeavor, a challenge that ICT could potentially answer. Though in general Jessie considered ICT to be optional (as explored below), it was crucial to her classroom approach that semester. Asked to consider how her class would change if she didn’t have access to ICT, she replied:

that would take a whole hour out of every week gone. And that hour is critical because it’s something the students really enjoy. And it’s what sets them up for allowing me to spend an hour on the book. Like, if I don’t do that, it’s generally-
I haven’t done it in the past, this is my first semester ever doing this, and my students are the most engaged they’ve ever been. They work the hardest, they are the most involved because I’m doing things for at least one hour that they’re really really interested in. And then the next hour, they’re willing to, ok, let’s look at this book, because hey it’s class, they’re supposed to look at a book.

As discussed above, Jessie felt that using ICT for one hour in a manner that emphasized engagement over language acquisition (music videos with some gap fill activities) in
effect earned her a second hour in which acquisition served as the focus (following the
textbook). It was Jessie’s opinion that giving over this time led to greater net progress for
her students than if she had spent the entire time with the materials dictated by the
curriculum. While some might denigrate this as using ICT for entertainment, or to fill
class time, Jessie deliberately employed ICT this way with a clear pedagogical rationale,
and was able to achieve results that might not be apparent in a single observation, but
were clear (to her, at least) over the course of a semester.

As much as Jessie saw value in ICT for teaching, it remained only one element in
her overall pedagogical considerations. She stated that technology “has its good side, but
it’s not the be all and end all of the educational experience”. This notion reflects the
second theme to emerge from Jessie’s interviews.

b. ICT as necessary or optional

While none of the participants held ICT use to be mandatory in the classroom,
Jessie explicitly expressed her belief that ICT was not necessary to teach English:
Some of the most interesting classes I’ve had haven’t necessarily used
technology, and it’s been fine, because I believe teaching is first and foremost
about relationships. It’s about relationships and rapport building, and once you
have that, you can have a pencil and a piece of paper, and the class will be
amazing.

Relating back to her emphasis on rapport, Jessie noted that ICT was not a strict necessity
in the classroom. In other words, ICT use was not mandatory for either the broad
endeavor of language teaching or the more specific one of rapport building. That said, for Jessie, the value of ICT for language teaching was largely contextual. She noted that “it’s quite possible to teach well without ICT, because there are folks in third world countries and places where there’s no electricity and stuff. They teach wonderfully well without ICT”.

That said, she did seem to hold ICT to be more likely to be essential in the Korean context, saying “I think one of the reasons why ICT is so effective, and dare I say necessary, in my teaching context because my students are so used to it”. Here, Jessie hedged her declaration, but still presented ICT as necessary. This relates to her theory of her students (explored below), and her assumption of their high frequency use of ICT. This assumption was repeated elsewhere, with Jessie saying, “if you’re in a context where your students are used to ICT, it is to your advantage to employ it in the classroom, because they’ll be that much more engaged in what you’re doing, generally speaking”. Thus, in generalizing to the Korean context, Jessie did seem to hold ICT use to be beneficial in building student engagement, and in this way necessary. However, outside of these contextual considerations, she did not hold ICT to be requisite for teaching language well.

c. Smartphones and language learning

Though Jessie only reported moderate use of mobile applications on the tech use survey, both her interviews and observations indicate she used them quite often, both for herself and her students. Asked what was the most important piece of ICT in her classroom, Jessie replied “Probably my smartphone, because I use it to play the music that creates
the atmosphere in my class”. In keeping with her focus on atmosphere and rapport, Jessie singled out her smartphone as allowing her to accomplish those goals. Naturally, smartphones can be used for more than just establishing atmosphere, and Jessie certainly used hers in a number of ways. Yet it was her phone’s affordances for establishing atmosphere that Jessie deemed worthy of comment. It is notable that this particular ICT (and the Bluetooth speaker Jessie used to play music form it) was not official equipment, but belonged to Jessie. In some respects, this put her beyond the limitations of context involving ICT access, functionality, and security.

Of the three participants, Jessie reported making the greatest use of student smartphones. She required her students to download and install three applications on their phones (a dictionary, flashcard, and translation application), which she had them use to varying extents over the course of the semester. In one example she offered, she described her students using their phones to research a topic and find media to support a presentation. Yet, as will be discussed below, Jessie had serious concerns about what she saw as the younger generation’s reliance on ICT and its impact on both their social and cognitive skills.

2.3 What ICT can do in the classroom

Asked if ICT had special advantages for language teaching specifically, Jessie replied, “I wouldn’t say it’s more suited than other subjects”. Yet, the mobile applications she reported using in class, namely flashcard applications, mobile dictionaries, and translation software, were particularly suited to language learning. The textbook courseware Jessie utilized was also designed specifically for language acquisition. Jessie
did note that ICT allowed for standardized pronunciation through use of audio files. Perhaps relating to her personal use of ICT, she made more mentions of ICT use in connection with language learning specifically than the other two participants.

As has been noted repeatedly, Jessie found that various sorts of ICT afforded the development of an atmosphere conducive to learning in the classroom. While many of her references to ICT use made this case in broad terms, she was also more specific as well. She made multiple references to fun, and to student interests. Many of her ICT references concerned its ability to display material, and to present material in a multimodal way. This was in keeping with one of her main uses of ICT, the display of music videos.

Jessie’s mentions of ICT included both student-centered and teacher-centered examples. She said explicitly that, “as I go along, I find that I’m incorporating different types of ICT, and ones that are more student centered, and therefore more beneficial to them in their language learning progress”. Jessie made an explicit connection between student-centered ICT use and student benefit. Some of her student-centered examples came from her own language learning ICT experience, which may account for this connection. Outside of that, most of Jessie’s mentions of student-centered ICT involved smartphones. Yet, many of her ICT examples (presentation and mind-mapping software, multimedia) were teacher-centered in that they were controlled by Jessie.

When asked to consider what happens if a planned use of ICT is suddenly not possible, Jessie noted that “it makes a lesson generally less efficient, and efficiency generally effects, affects effectiveness”. This affordance of efficiency was connected to the display of information. Jessie noted in particular that the biggest difference between
projecting a document on the screen and having students follow along in books was that the former saved time in making certain that everyone was in the same place. It can be noted that class efficiency is generally a teacher concern rather than a student concern, and so can be considered teacher-centered.

Asked how she chose which ICT to use in the classroom, Jessie stated, “The basic principle is what’s going to be most effective for student’s acquisition and retention of knowledge, skills, information”. Thus, she did not only take class atmosphere into consideration, but also accounted for student learning (as defined in the above quote) as well. Jessie also considered the ease of teacher use:

User friendliness is the number one thing. I don’t have time to be learning 50,000 things (…) I was going to start Emaze this semester, and then I’m talking to other people, and they’re like, eh, it’s hard, I guess I’m not going to do that.

In this particular example, a presentation software that Jessie had previously been excited about was now considered by her to be prohibitively complicated, and so was abandoned.

Jessie summarized her process of evaluating classroom ICT, saying, “Whatever you pick, make sure that it is contributing significantly to student learning outcomes, that it’s easy for you to use, and that (…) it contributes to a memorable learning experience”. She added to this, saying, “is it going to be useful, and are they going to do it? Something that they would be attracted to using”. Thus, Jessie also held the students’ reception of the ICT to be key to its classroom efficacy.

Jessie’s reported use of ICT was guided by consideration of what aspects of the class could be accomplished by (note, not with or through) ICT, and which still needed to
be performed by her:

things that cannot be replicated by some ICT I do. But if ICT can do it without me,
I try to make ICT do the work and I don’t do that. So it lets you specialize in what
you’re needed for, and not do what you’re not needed for, if you work it right.

In this passage, the affordance Jessie highlights is that of automation of some classroom
tasks, allowing her to focus on others. In particular, Jessie highlighted recorded audio
played through the classware as one example of an automated process. It is possible this
view is connected with Jessie’s expectations for the future of ICT, explored below.

2.4 Drawbacks of ICT

As much benefit as Jessie found in using ICT in both her personal and working life, she
also held serious reservations as well. In the case of smartphones, she had qualms about
the downside of connectivity:

It’s a good thing and a bad thing because you can’t get away. Because people
know you have a smart phone, so why aren’t you responding, what’s going on.
And so it kind of tethers you more to your job and makes it a little more difficult
to have down time, truly truly, when you go home, because people know that you
can access everything 24 hours a day.

Jessie seemed to hold that the affordances of smartphones broke down the barriers
between work and life, making it possible to always be, at least in potential, at work. This
extended to her students as well:
we live these busy lives, and technology initially was supposed to make our lives less busy and easier so that we could relax more, and it’s been the exact opposite. It has increased the intensity of lives we live, and so moving faster and trying to do more than ever before because we have the capacity to do it. And people expect this, at school, home, the mounds of homework kids are given, they expect all this to get done, at work we have to do way more than we were before when we didn’t have ICT.

Jessie referred to a theme from the focus group discussion, and one long connected to discussion about technology: technology as a labor saving device. Jessie seemed to hold that technology was meant to reduce work and anxiety, and had in fact increased it. This drawback was not necessarily something Jessie connected to her own classroom, but rather a general ICT-related trend she had noticed.

Within the classroom, Jessie noted a number of drawbacks that might come with ICT use. One of these, which she associated with teachers in general, was a tendency to rely on ICT too much:

It’s definitely gotta be used judiciously, I think, with things sometimes we’re just too reliant on now that it’s so pervasive, we’re just like, technology technology technology, and kids miss out on a more diverse experience of knowledge gathering, knowledge manipulation, all that kind of stuff because it’s all just technology.

It is interesting to note that affordances often associated with ICT (knowledge gathering
and manipulation) are here presented by Jessie as being prevented by overreliance on ICT.

Jessie used the word ‘judicious’ in relation with technology several times in interviews. In one of these cases, she noted how ICT had the potential to interfere with class activities and learning:

I think judicious use of technology is important (...) like if you’re finished with the projector, if you’ve done something with the projector and now you’re gonna have students come up to the front and present, you want to turn off the projector if they’re just gonna do a role play, so it’s not glaring in their eyes, and they can’t, they’re to busy going like this to remember what they need to say and focus on their pronunciation and their body language and the actual communication, and so judiciously using technology, easing in and easing out of things in a way that contributes to the overall goal of what you’re trying to accomplish, is critical.

This one example, based on her previous experience with ICT difficulties, was echoed in class observations, discussed below.

Jessie also recognized a tendency within some ICT to over-determine the shape of the lesson. In particular, she found this with some presentation applications:

when you do a PowerPoint, it’s already there. With the mind mapping software, I could create more notes as I went depending on what we needed to create at that time. Rather than be locked in something I’ve created beforehand, which may or
may not be useful in the context in which I’ve applied it.

Thus, for Jessie some ICT lacked the necessary flexibility she needed in her classroom, while other forms of ICT allowed for it.

Finally, Jessie felt that the all too common use of ICT for student evaluation was an inappropriate application of technology. She noted that ICT based testing was “not fully dimensional, if that makes sense, because it only captures a certain plane of their language proficiency. There are other dimensions of it that don’t get touched because ICT doesn’t have the capability to take those in”. Jessie felt that ICT’s affordances, where language acquisition was concerned, did not include those necessary to properly evaluate a student’s skill or progress. This was one area where she saw the necessity of the human element.

2.5 Students and ICT

Jessie held a nuanced view of her students that she took into account when employing ICT in the classroom. As mentioned above, Jessie held the Korean context to be developed in terms of access to ICT and student familiarity. As she said, her students were used to ICT. In requiring her students to download and make use of mobile applications, Jessie assumed that her students all owned smartphones and were able to use them in the required manner. By all indications, these assumptions were born of experience and held true during the semester of the study.

While Jessie did seem to believe that ICT was a natural part of her students’ lives, she did not go so far as to assume students were naturally adept at using ICT. She
described her process, again seemingly born of experience, for introducing a new technology into the classroom:

if you pick one (ICT), and you work with it throughout the semester, by the end of the semester they’ve got it. And with our new system where we have you in the same department, then by the second semester you have those students, then you roll in and they’re like, on it. And anybody new comes in, they explain to them in Korean in two seconds how to do it. And so it’s, as long as you’re not doing too many (ICTs), I think that that learning curve thing won’t necessarily be that big of a problem, just to keep to one main thing and then just doing things that aren’t as learning heavy as you use it.

Here, Jessie acknowledges that students must become familiar with ICTs in order to use them effectively, and that introducing too many can overwhelm them. This attitude may relate to Jessie’s own approach to ICT that emphasized user-friendliness and simplicity over complexity.

Jessie did not consider the place of ICT in her students’ lives to be wholly positive. Part of her opinion of the place of ICT in the classroom emerged from consideration of ICT’s negative impact. She stated that, “it is essential to use (ICT) to grab their attention and to hold it because they’re so stimulated, and some might say overstimulated, by all of the forms of ICT that surround them in their daily lives”. Not only did she present students’ use of ICT as overstimulating, but also as limiting and addictive:

for them, I think because, especially at a very young age they’re so into it, they have, to a certain extent lost the capacity to think outside of the technology as to
other ways that one can live life, and we have a society that’s very tethered to the technology. Can’t have a smart phone, about to have a conniption fit, because where’s my smart phone, I’m gonna die, I’m like, where’s my smart phone? I have no watch, I have nothing without my smart phone. So I think to a certain extent, technology can be addictive, enabling, and keeping us from doing more active, creative things outside of the realm of technology. So while we’re operating amazingly within technology that we’re dwarfed in other areas because we’re so focused on technology these days.

In this passage, Jessie seemed to be forwarding a theory of her students as determined by their use of technology. She depicts them as having made a trade between the affordances of ICT and their own natural capacities and ability to live independent of ICT. She presents ICT as stifling creativity rather than enabling it. Jessie seems to hold this view of entire generations rather than admitting for differentiation. Her switch to first person pronouns in the middle of the passage suggests that she considers these to be her problems as well, at least partially if not completely. Elsewhere, she indicates that her students’ reliance on ICT had caused their social and communicative skills to atrophy as well. She related observing groups of students at coffee shops, each individually absorbed in their smartphones.

Yet, despite her view of these dependencies, Jessie still maintained that ICT was not strictly necessary for effective English teaching. Asked to offer advice to a novice instructor, she replied:

don’t be too married to the idea that you have to use technology because students
are not going to pay attention because they are a video game generation. They’ll pay attention if you’re engaging and enthusiastic, because people at their core are all about relationships, they want to interact.

Jessie also considered differences in Korean and Western culture to have bearing on ICT use in the classroom. In considering ICT’s potential to replace classroom learning with individual self-study, she expressed some skepticism, stating:

This culture is very communal, like very, yeah, communal. Western culture is generally the more independent, you know, me myself I, so that would fly more there. But here, this whole, like my students, they love being together and doing things together, so I think it would be difficult here for us to get to a model where, school is just you’re in this little cubicle looking at a screen.

In considering individually focused independent learning with ICT, Jessie seemed to refer to her own experiences using language learning applications, and to distinguish between what worked for her and what would work for her students. Citing cultural differences in learning preferences, Jessie felt that her own independent ICT use for would not work for her more ‘communal’ minded students. That said, she also recommended her students make use of self-study language applications that she had found useful in her own study.

2.6 How ICT is learned

Where learning was concerned, Jessie’s relationship to ICT was chiefly one of experimentation. Both in her personal and professional life, she had tried a great number
of different applications (she made little mention of such experimentation with hardware). Jessie connected this experimentation to her professional life:

I wouldn’t play as much, or experiment as much, rather, if I didn’t have the teaching aspect, I guess I would pretty much just use whatever people recommended and move on, but because of teaching I keep my eyes and ears open for different things that might be useful for my students.

Jessie switched between the words ‘play’ and ‘experiment’ in the course of her interviews, suggesting that her approach is best characterized by a playful, rather than systematic, sort of experimentation. This sort of experimentation led to a wide breadth of experience with ICT.

However, when asked how she chose which ICT to try in the classroom, she responded by saying:

User friendliness is the number one thing. I don’t have time to be learning 50,000 things (…) I was going to start Emaze (a presentation software) this semester, and then I’m talking to other people, and they’re like, eh, it’s hard, I guess I’m not going to do that.

It is important to note that, in the first interview, Jessie had spoken of getting ready to use Emaze, a premium presentation alternative to Powerpoint and Prezi (both of which were available to Jessie at no cost). However, by the second interview (from which the above excerpt was taken), she had abandoned this plan. Asked why, she replied, “I haven’t used it yet. I just don’t have time to sit down and play with it”. At another point, she expressed
similar concerns about Prezi, saying, “I love Prezi, I think it’s amazing, I just never, I just don’t have time for that. For me, like, there’s so much involved in the learning curve side of it that I’m just like, I just can’t”. By her own admission, Jessie tended to limit herself to technologies that were “plug and play”. She did not invest time and effort in ICT that required greater involvement and/or were relatively complex. This suggests that the ICT she did use was also used in a fairly straightforward way.

As to how Jessie thought about ICT training, she at one point referred back to her experience teaching middle school in the United States:

we didn’t have voluntary stuff, we generally had to go to things (…) And ICT’d be rolled in there as well. For things like the attendance system and I think there was maybe something about smartboards and things (…) we’d be together and the information technology coordinator for our school would show us the various things they had that they thought we would want to know about that we could use with our students and how they worked. And then if we wanted more information we could come by and be individually given further instruction.

In her previous context, Jessie had access to ample training, technology, and support. In that interview, she reflected positively on that situation. However, in the focus group, in response to Fiona’s call for more ICT training, Jessie returned to this context to illustrate skepticism:

In The States (…) we were trained up the yin yang, like, all sorts of technology. We had money to buy, we had everything. It didn’t really get used very often, because you went to these trainings, they told you about this thing, they showed
you how to use it, and then you went back to your classroom, like, I ain’t even
gonna worry about it. And no one used it.

In individual interviewing, Jessie presented the training she encountered in the USA as
suited to her style of learning. However, when the notion of training was presented as a
way of increasing ICT use, she presented her USA experience as a sort of ideal (well
funded, high access) that ultimately failed to increase use. She expanded upon this:

I think how training is done is just as important as doing training. Like if you do
an actual class, and say this is your period, here’s a whole lesson, and you show
how you go from one thing to the next, all the way through, and then give an
actual example of how it can be incorporated in the context of an entire class
period, I think then you may have a greater chance of getting people to try it. But
if I’m going to train, and you’re showing me like five or six different things, and
I’m like, oh, that’s nice, oh that’s nice too, but I have never seen how to put one
of these things, or two of them, into an actual class period, and integrated with
other ways of, other instructional enhancing techniques, then it’s unlikely I’m
going to pick that up because it’s cute and all, I’m going to have to sit here and
think about how I’m going to integrate that with whatever.

For Jessie, learning about classroom ICT required not just learning about its features, but
seeing how it was meant to be integrated into an actual classroom context. Unless
presented in this way, each ICT represented a new puzzle to fit into the classroom, one
that Jessie didn’t always consider to be worth the effort to solve.
Asking if her USA training would work in the Namu context, Jessie had doubts. In particular, she had reservations about her colleague’s mindset regarding professional development:

a lot of people who come to work at a university in Korea or a college in Korea have a perspective on how that’s supposed to work. I’m supposed to come, you tell me go, and I go. And no one bothers me, I do my thing, I submit my grades, and my documentation and we’re good.

She did not think the NES instructors at Namu would respond positively to the mandatory sort of ICT training she had encountered in the USA. She had attended multiple workshops at Namu, including one on Prezi and one on using video games in the classroom. She did not report using video games to teach, and in the case of the Prezi (as noted above) explicitly stated that it was too complicated.

Aside from her reservations about mandatory training, there were things she felt everyone should be supported in using:

I think [courseware] should have been across the board trained, because that’s something that we’re paying for, and that can be quite useful, so everybody should be trained in that, everybody who’s using that book, which is most of us. I think, for things that must be used, because they’re something that’s a part of how your organization does instruction, those things need to be instructed across the board… Other than that, I think other things should be offered on a voluntary, come if you desire to learn about this basis. Which is how most of our ICT training is done, as far as I recall.
Even though use of the courseware was not a requirement at Namu, Jessie held it to be a part of the way Namu did instruction, essentially elevating it to required status. For certain forms of ICT, then, she held training to be mandatory.

Notably, Jessie did not mention administrative ICT (such as the attendance tracking website) that was mandatory at Namu both in use and training. It is possible she did not mention this because this training was generally for new teachers, and she was so familiar with the system as to not deem it worth comment.

2.7 ICT and teaching in the future

When asked to consider how technology might change teaching in the future, Jessie differed from the other two participants in holding that technology could actually replace teachers in language classrooms. Perhaps connected to her conception of teacher as facilitator, she saw teachers taking a greater support and monitoring role as students mainly learned through ICT:

they’ll probably be doing that kind of stuff where they’re interacting in some kind of virtual reality setting, maybe spending less time in class and doing, like a computer based, with like a virtual teacher (…) having that kind of interaction. So that may be the future, and you just have somebody who monitors that they’re actually doing it. In the computer lab or wherever they are.

As central as Jessie held human relationships to be in the acquisition of language, she could still imagine a future where teachers were largely replaced by ICT. In other words,
she conceived of ICT as being potentially as capable, if not more capable, than teachers in the future.

Asked what currently undeveloped technology she would like to see in the classroom, Jessie replied that she would like to see immersive virtual environments, referencing the ‘holodeck’ from the science fiction series Star Trek. She emphasized that such a technology would allow her students to interact with English in low risk, entertaining situations. A virtual environment would give her students the opportunity to:

- actually get into something and be in the experience and walk around and even kind of feel, virtual reality, I think that would be really fun for that. And that would be something I would incorporate as probably the second half of my second day, where they do activities, like, hands on and task based.

While Jessie included herself as a teacher in such a virtual classroom scenario, her other comments suggest that such technology might actually make her role unnecessary.

3 Jessie’s classroom use

Unlike with Hugh’s case, Jessie’s teaching schedule did not allow for a variety of classes to be observed. Rather, four observations were carried out with the same conversational English class over the course of the semester. This class met in the same classroom each time, one equipped with an e-lectern, computer, and projector. In this class, Jessie had an established routine that held throughout the observations. She began each class by playing music. Following this, she would play a music video from the same artist or genre and conduct a listening activity using both worksheets and a word processor
document on the projector. This section of the class generally took most of the first hour, and represented the hour that Jessie claimed allowed her to work with the textbook in the second half of class, where class activities varied week by week. In every observed class, Jessie made use of the computer/projector array, her smartphone, her wireless speaker, music videos (multimedia), and Microsoft Word (word processing software). She used courseware in two of the observed classes. Though presentation software, such as PowerPoint, was given the most mentions in Jessie’s interviews, she made no use of it in her observed classes.

Just as Jessie had reported, music played a major part in her classes. Her first actions in every class, aside from greeting and conversing with the students, were to set up her wireless speaker and smartphone, and begin playing music. This music was played at a low volume while Jessie conducted warm up conversational exchanges with her students. In each class the music followed a specific artist or genre (such as country, big band, or soul). Over the course of the class, Jessie played music a number of times. She kept music playing during student work times, when they were completing exercises in their textbook, and even when they were doing paired speaking exercises. Jessie’s justification of this practice reflected several themes already discussed above:

I think learning should be a memorable and enjoyable experience. And so putting music there, I think helps to facilitate that. Plus, a lot of our students, I think they study with music, they do everything with music. And so having music there makes it also more comfortable for them. Because it’s a familiar way of doing things, music in the background, as you do whatever.
Related to this use of music was the use of music videos. Jessie played these on the classroom computer and projector from files on a USB drive (never using online streaming video, such as Youtube). The projector, which was mounted on the ceiling, was out of Jessie’s reach, and so was turned on by a taller student (usually at Jessie’s request). Jessie conducted these viewings as listening activities, repeating the videos four times and conducting a gap fill listening activity along with the second through fourth repetitions. Students were given worksheets with the song’s lyrics (with gaps), and Jessie would open a corresponding document in a word processing program. On the fourth repetition, she would play the video alongside the document, pausing frequently to fill in the gaps. The content of the videos and song lyrics had no connection to that day’s unit theme as dictated by the syllabus and textbook. Rather, they stood alone thematically. In justifying the use of the videos, Jessie highlighted their multimodality:

we can project it like big screen like a movie theater, and we have of course the good acoustics and the lovely sound, and so they’re able to connect with the story because a lot of English music videos, a lot of times the story of the song is in the videos, the video’s like a mini movie. And so it helps them to understand what’s happening, even if they don’t get the words, they can look at the video and be like, oh, this is what happened, because the music video many times is a mini movie. So it facilitates their understanding of the content of the lyrics.

Jessie also played music videos during the ten minute break that followed the first hour. These did not necessarily follow the day’s genre theme, but instead fulfilled student requests. Jessie also mentioned going out of her way to integrate music that students had
In the second half of her classes, Jessie followed the textbook and, in doing so, made repeated use of the associated classware. This software (iTools), produced by the textbook publisher (Oxford Publishing), allowed for the pages of the textbook to be displayed using a projector, and offered some additional functions. As Jessie described it:

They can see everything, I can write on it, they’re more engaged because we’re all looking at the same thing and discussing it together, on the screen. And so they know where I am, and can keep up with me instead of being wherever they might be if they’re looking at the book themselves. If they’re looking at the screen together, and I’m circling something or highlighting something, then they’re all focused on the same thing and we’re on the same page.

Jessie used this courseware to conduct the book activities, but did not always find the application to be completely effective:

it’s a little tricky writing with the mouse, and so sometimes I’ll, it’ll take me longer, and so that uses up a negligible amount of class time, with me there trying to get the letters right, writing like a two year old. And so usually if that happens, I end up having to scrap it, put the projector screen up, and then write on the board. Because it takes too long to do the writing with the mouse on the courseware software.

By combining the projected classware and the whiteboard, Jessie was able to go beyond the application’s functionality to accomplish her pedagogical goals. Though she didn’t
see it as such, this was one example where she went beyond the conventional boundaries of an application, finding affordances beyond what it was apparently designed to do.

Jessie also used the whiteboard in conjunction with the word processing program, projecting a document with blanks and filling it in along with students. In this case, both the word processing program and the projector were put to uses that might be considered slightly unconventional. Jessie, however, did not seem to think so, referring to it as a “staple strategy” that she had used over her entire teaching career.

In at least one instance, the projector and whiteboard clashed, in that the image projected on the board (the computer’s desktop) was unrelated to what Jessie was writing, and seemed to actually obscure her writing. Jessie noted that this was sometimes a problem, albeit a negligible one. The projector could not be turned off and on easily, and so needed to be kept on even when not needed. Jessie claimed this did not cause major problems for her students.

Finally, it should be noted that Jessie made use of her smartphone throughout her classes. Aside from serving as her music source, Jessie often used her phone to translate Korean vocabulary, holding out her phone to display the English word to the class. In this way, she was able to facilitate discussion with her students, cater to student interests, and capitalize on incidental learning opportunities. Many of her uses of her smartphone were unplanned in this fashion, though also clearly part of a larger pattern in her teaching. Though she reported having her students download applications, guided use of these was not observed. That said, students did make frequent use of translation applications during written and spoken exercises. It is unclear whether this was the result of Jessie’s preparation, or would have occurred anyway. One other
interesting use Jessie made of her smartphone was its alarm function, which she had set to go off at predetermined break times. This use of the alarm led to rather abrupt interruptions of class activities, as breaks were initiated as soon as it went off. This effectively took control of one aspect of the class out of Jessie’s hands.

The idea of ICT superseding Jessie’s authority as an instructor appeared in one other place during her classes. At one point Jessie made use of a classroom management application that she had installed on the classroom computer. This application randomly paired students together for group activities. Jessie noted that this application, which she had had since teaching middle school in the USA, was useful because:

…they like to see their name and they’re excited about it. So it’s just an interesting way of randomizing the conversation partners. And I do it for the groups as well, because sometimes they don’t want to do it with this person or that person, but if it’s random, well what are you gonna do… they actually like and kind of respect the fact that, hey, this random thing chose for us and so nobody’s fault, we’ll go over here and talk with this person.

Like the alarm, Jessie’s use of the randomizer application took some control out of her hands (pairing particular students) but also some responsibility (randomness and ICT rather than instructor authority). According to Jessie, this led to greater cooperation from her students in participating in group activities.

4 Jessie’s ideology of technology

In her personal and professional life, Jessie self identified as a high frequency user of
technology, but not necessarily a high level user in terms of technological knowledge and skill. Jessie invested effort in finding and trying many new applications, but backed away from applications such as Emaze and Prezi because of their complexity. When compared to her previous definition of ICT as involving greater complexity, this suggests that Jessie was interested in ICTs that had internal complexity but external simplicity. This in turn suggests that Jessie was far more interested in using applications as they were presented/designed, rather than reinterpreting them and finding within them new affordances. She described her use of ICT as “straight and narrow”. Taken together, this all suggests that Jessie approached ICT as a “black box”, opaque and not to be tinkered with.

At least as depicted in her interviews, interpretive flexibility was not a great part of how she approached ICT. It would seem Jessie’s relationship with ICT could be characterized as high use, low technological agency. This may be related to her focus on rapport and student relationships over use of ICT, in that the affordances of such “plug and play” ICT as she used allowed her to accomplish her pedagogical goals. She did not seem to see reinterpretation of technologies as necessary to build the atmosphere she strove to have in her classes.

That said, her observed classroom use of ICT did show some signs of interpretive flexibility. She made use of various hardware and applications in tandem to craft her classroom atmosphere, combining different elements to play music and videos alongside listening activity worksheets. In addition, her use of the projector in conjunction with the whiteboard, though it did not seem innovative to her, did seem to exceed the conventional boundaries of those objects, at least as used at Namu. To put this in perspective, in the
administrator interviews, Maria noted this exact sort of use as an example of an innovate practice she had only seen employed by a handful of instructors. Thus, though Jessie did not talk in a way that suggested high technological agency, her classroom actions did suggest that she could reinterpret ICT, finding affordances within it that allowed her to accomplish her classroom goals.
Ch 8 Fiona

A middle-aged woman from the United States, Fiona had been a language teacher for fifteen years. For ten years, she had taught elementary ESL students at a migrant school in the American south. Following that, she had taught EFL students in Korea, three years of which she had been at Namu College. In addition to teaching, Fiona had fulfilled administrative duties during much of her time at Namu, and in the semester of the study had assumed an administrative leadership position. Fiona had studied and used Spanish when teaching in the US context, but was not actively studying any second languages at the time of the study. She had recently completed distance postgraduate education courses, but was not enrolled during the time of the study.

Overall, Fiona seemed to have a mixed opinion of ICT. On one hand, she recognized that it had great value in the classroom, but on the other this value was contingent on numerous factors. Fiona’s based much of her judgment of both her context and ICT use in general on comparison with her decade of experience teaching in the United States. This is reflected in the examples of technology she offered, her approach to training, and her views of what counted as appropriate use of ICT.

1 Fiona and ICT

1.1 Personal approach to ICT

In contrast to the other two participants, Fiona reported a lower frequency of ICT use in her personal life, stating that, “it’s addicting and I don’t enjoy that”. She reported owning two smartphones, but aside from some exercise applications she claimed to mainly use them for work purposes, such as checking email and editing documents. She
compared having a smartphone in the USA (where she was only a teacher) to having a smartphone as an administrator in Korea, saying, “Here, I use it for everything.” Fiona linked much of her smartphone use with her administrative duties, noting that having it allowed her to work outside of her office. She added, “It stinks, but it’s purposeful”.

As the mother of a young child, it seemed Fiona viewed use of ICT in her personal life at least partially through the lens of being a parent. She expressed the view that young children should not interact with ICT (computers, tablets, smartphones) at home, which may connected with her own use habits as well. She made an exception in the case of cumbersome travel situations, allowing her son unlimited access to ICT on 30 hour flights between Korea and America. This suggests that she saw this prohibition as negotiable, given the right circumstances.

Fiona’s reluctance to use ICT in her personal life should not be interpreted as a lack of familiarity or skill with ICT. She indicated that she was quite aware of the skills and concerns necessary to navigate digital environs. Citing a concern for privacy, for example, she mentioned making use of an alternative search engine to Google in her personal searches (though admitting using Google in class owing to its greater functionality). This suggests that Fiona had at least an average, if not greater than average, familiarity with ICT.

Though not actively enrolled during the time of study, Fiona did report recently completing distance postgraduate courses in education. This personal use of ICT had not left Fiona with a good impression:

It’s a pain in the butt. It’s great in that the assignments I think are easier online, they just seem easier to me. But, being in person with an actual teacher is nine
hundred million times better, because I get the feel for that professor, you get the, you get to have a back and forth debate with them and the other students, you get to have a communicative type experience than just being in a cave with a computer.

It’s possible that this personal experience was related to her professional opinion of the place of ICT in the classroom, particularly in that she identifies the lack of direct human connection as the greatest disadvantage of distance learning.

1.2 ICT is...

Fiona’s interviews were the shortest of the three participants, and had the fewest examples of ICT. She mentioned examples of ICT 83 times, referencing 18 distinct kinds (Table 8.1). Unique mentions are in italics.

<table>
<thead>
<tr>
<th>Smart boards</th>
<th>14</th>
<th>Applications</th>
<th>11</th>
<th>Tablets</th>
<th>9</th>
<th>Document camera</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multimedia</td>
<td>7</td>
<td>Smartphone</td>
<td>6</td>
<td>Projector</td>
<td>5</td>
<td>Computer</td>
<td>4</td>
</tr>
<tr>
<td>Laptop</td>
<td>4</td>
<td>Internet; Multiple choice device; Presentation software</td>
<td>3</td>
<td>QR code</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bluetooth; email; learning software; recorder technology; word processing software</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8.1 – Fiona’s ICT examples

Many of Fiona’s examples of ICT referenced her time teaching in America. Most of her references to smart boards, document cameras, and multiple choice devices concerned either technology she had access to in that context, or technology she didn’t have access to at Namu. These were also technologies she seemed to hold to be especially effective in
the classroom. Aside from smartphones, each of these examples referred to either the classroom or working context. This supports the picture of Fiona as a low-frequency user of ICT in her personal life.

Fiona also differed from the other two participants in that she made more mentions of hardware (53) than software (30). This distinction, yet again, seems to highlight a difference between her American and Korean teaching experiences, in that much of the hardware she mentioned was simply not available at Namu.

Asked to define ICT, Fiona posited that, “technology as a rule is anything from a pencil to a supercomputer. So it depends on how you want to look at it. It depends on your perspective”. Asked what her perspective was, she replied “Anything that’s going to help a student, any technology”. Asked to further clarify, she said “I would say classroom technology. But, it depends on- it’s hard to pigeonhole it, because it’s very broad”. Fiona equivocated a bit on this point, but ultimately seemed to offer a definition of ICT that included things such as pencils and paper. Her definition of technology, based in classroom considerations, seemed to be rooted in what learning an artifact afforded her students. She held the point of classroom technology to be “To help the students do their best, or to learn more effectively”. The following exchange illustrates what may actually be a somewhat radical position:

Fiona:…..a TV for a blind student’s not going to do a whole lot. I wouldn’t consider that appropriate technology for that student. But then again, it depends on how blind they are.

Researcher: So are you saying that that wouldn’t even be technology at all?

Fiona: For that student, sure. How are they going to effectively use it? If a student has no
arms, a pencil’s not a technology for them. I mean, unless they can write with their- say they have no hands, no feet, they can’t even write with their feet. And for some reason they can’t write with their mouth. A pencil or a pen or a marker is not going to be an effective technology for them. They would not consider that technology in the true sense of the word, because they can’t use it.

Fiona seems to be presenting the view that a technology that is not effective (in this case, for aiding a student’s learning) is in fact not a technology at all. This would seem to be a definition of technology as pure affordance, measured in extension of abilities, and moreover one that is completely individually oriented. In other words, the definition of what is and isn’t a technology, as Fiona presents it, would not be a collective definition, but rather determined by individual capabilities.

1.3 Card sorting – Fiona’s theorization of technology

a. The first sort

Fiona did not approach the card sorting exercise with a great deal of enthusiasm. That said, her card placement still points to interest patterns in her reasoning. Fiona chose to look at all of the cards at once, and then place them into three categories (Table 8.2). These seemed to correspond with three theoretical categories (Table 8.3)
At first glance, Fiona’s layout seems somewhat difficult to interpret. Aside from the left group, which clearly relates to smartphones, the other two categories seem to contain a mix of ICT. There did not seem to be a top to bottom hierarchy. In speaking, she identified the middle category as “Hardware type things, software, phone type stuff, computer type stuff, and other (...) internet stuff” and the right category as “Computer, software, and hardware”. On one hand, she seemed to be saying that the far left category were things that can be used with a phone, the right things used with computers, and the middle things that are often used with both. She summarized her layout by saying, “you can use a lot of these in different ways, but just a very simple way to categorize them, (right side) more often thought of with a computer, (left side) more often thought of with a phone, and you can use all of these (in the middle) with either one”. Having the CD card in the center category confuses this somewhat, as there is currently no way to use CD technology with a smartphone.
Table 8.3 – Categorization derived from Fiona’s first description

<table>
<thead>
<tr>
<th>Used with phone</th>
<th>Used with phone or computer</th>
<th>Used with computer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart phone; MP3; SMS</td>
<td>Social media; CDs; streaming audio; projector; digital camera; language learning applications; blogs; internet</td>
<td>Spreadsheet; desktop computer; laptop; scanner; tablet; word processing software; email; course management software</td>
</tr>
</tbody>
</table>

This irregularity suggests an alternative interpretation, also suggested by Fiona’s talk-aloud, of the right category as main (or primary) teaching ICT, and the middle category as support (or secondary) ICT that must be used in conjunction with or through primary ICT. As one final interpretation not present in Fiona’s description but apparent in the layout, the central category seems to be the sort of ICT associated with learning content, the kind that is more likely to be used to teach in a language classroom. This category’s location, both in the center and slightly above the other two, could be seen as indicating more importance than the other two. Along with this interpretation, the right category could be seen as the kind of ICT most often used to prepare for classes and track student information. It is possible, in this interpretation, that the left category contained ICT that, in Fiona’s layout, had the most tangential relation to the classroom.

b. The second sort
Fiona completed the second card sorting exercise (Tables 8.4, 8.5) in late July, as part of her follow up/member checking interview. This second sort differed greatly from the first, and was far more illuminating in terms of engaging Fiona in theorizing about the various ICTs. She commented that, compared to the first sort, the items included in
the second sort were “more useful, in an everyday situation, in terms of teaching” and, “more applicable, and able to be used in a user friendly, student friendly kind of way”.

In this sort, she put the cards into roughly five categories (allowing for division within one). Unlike other sorts, there did not seem to be an apparent significance to the left-to-right position of the categories. Higher and lower cards did not seem to signify greater or lesser importance. The category names come from Fiona’s own descriptions.

<table>
<thead>
<tr>
<th>Projector</th>
<th>Internet Applications</th>
<th>Projector</th>
<th>Internet Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart Phone</td>
<td>Mobile Messaging</td>
<td>Multiple Choice Applications</td>
<td>Video Games</td>
</tr>
<tr>
<td>Smartboard</td>
<td>Course Management Systems</td>
<td>Translation Applications</td>
<td>Streaming Video</td>
</tr>
<tr>
<td>Tablets (iPad)</td>
<td>Google (Images, Docs, Etc)</td>
<td>Flashcard Applications</td>
<td>Courseware</td>
</tr>
<tr>
<td>Document Camera (ELMO)</td>
<td>Email</td>
<td>Language Learning Applications</td>
<td>Word Processing Applications</td>
</tr>
<tr>
<td>Personal Computer</td>
<td></td>
<td>Presentation Applications</td>
<td></td>
</tr>
</tbody>
</table>

Table 8.4 – Fiona’s second card layout

Fiona termed the far left category “hardware”, and thereafter did not give it much consideration. Indeed, this category contained everything that could be considered a device. The two middle categories, on the other hand, gave her cause to apply a distinction. She termed the center-right category “applications” (each of the cards actually containing the word application), and distinguished these as having comparatively specific uses, or singular purposes. Another way to express this idea would
be to say they have a limited range of affordances. After some thought, Fiona termed the center-left category “Programs”, holding these ICTs to have a larger scale, i.e. a wide range of affordances. She noted that many of the applications could be used within the programs.

Video games and streaming videos were set aside by Fiona, who described them as “entertainment”. She noted that both could be used in a variety of ways, both appropriate and inappropriate for learning, and offered some examples of each that were specifically designed for language acquisition. With some consideration, she placed these cards as separate, though didn’t explain what distinction she was making. One possible interpretation for this is that she saw more classroom applications for streaming video than video games, and did not consider these equal for the task of teaching and learning.

Fiona placed courseware, presentation, and word processing applications together, commenting that these were not completely hardware nor software, as they had a physical component to them and could be “Used separately”. In truth, this explanation is somewhat difficult to interpret. While courseware is often run from a physical compact disc, the other two examples do not fit this criterion. In the case of this category, it may make more sense to interpret it not in terms of Fiona’s explanation, but in terms of the apparent features of the category. Significantly, these three ICT were the applications most often used in Namu classrooms, according to observations and interviews. Thus, they may have been singled out not for their features, but for their status as classroom mainstays at Namu. As one possible alternative interpretation, these applications all needed to be installed on Namu classroom PCs, while many (though not all) of the other applications did not. This could be the physical status to which Fiona referred.
Overall, the distinctions Fiona employed in shaping her categories were hardware versus software (with some gray area), and broad versus specific use (which she distinguished with the normally interchangeable terms “program” and “application”). This later distinction was not applied to hardware at all, which was grouped together without further categorization. Though not appearing in her description, an apparent theme of the sort was classroom appropriateness, with classroom mainstays distinguished from more entertainment-based applications, and within that a distinction made between streaming video (used by two participants in observations, and mentioned by all three) and video games (a very tangential part of the participants’ classroom ICT use).

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Programs (Large scale, broad)</th>
<th>Applications (Singular purpose, specific)</th>
<th>Entertainment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projector, Smart Phone, Smartboard, Tablets, Document Camera, Personal Computer</td>
<td>Instant Messaging, Course Management Systems, Google, Email</td>
<td>Internet Applications, Multiple Choice Applications, Translation Applications, Flashcard Applications, Language Learning Applications</td>
<td>Video Games, Streaming Video, Used separately (classroom mainstays), Courseware, Word Processing Applications, Presentation Applications</td>
</tr>
</tbody>
</table>

Table 8.5 – Categorization derived from Fiona’s second description
2 ICT and teaching

2.1 What it means to teach

Fiona represented her job as a teacher as preparing her students to use what they learn in the real world:

I have to give them all the information that they need to have a good foundation, of whatever we’re learning, and so they can go out in the world, and do what they do, the best that they can. That’s my job.

Fiona held that “I’m their first line of defense of them learning English”, explaining that she taught with the assumption that their previous instruction was inadequate, and that their subsequent instruction would be inadequate. Thus, her approach to teaching seemed to focus in on the time she had with her students rather than treating that time as one part of a larger arc of learning. Fiona’s approach was characterized by high expectations for both herself and her students:

I’m not looking for perfection. But I need to do my best, and they need to do their best, whatever information we’re learning, for that time that we’re together.

Whether it’s a semester, a year, or whatever. And so I have to give 100%, and I expect them to give 100%. If they don’t, and I don’t, then they don’t succeed.

She did not believe language teaching to differ greatly from other forms of teaching, and so do not restrict herself or her students to materials developed specifically for language learning:

when you have ESL students, the same strategies that you would use with them
are the same strategies any teacher would use with any student. They are, they’re just that, they’re just strategies. So what I do is, I do not use ESL materials for my students. I use general education materials for my students, and I modify it for their needs, it works better.

ICT assisted her in this approach by allowing here access to a greater range of educational materials than Namu could provide.

Fiona’s approach to the classroom was characterized by contingency and variation. She did not offer a single approach, but rather suggested that she had cultivated a wide-ranging repertoire of pedagogical approaches and tactics that could be employed depending on what she deemed to be most appropriate for the students on a class-by-class basis. With teaching as well as ICT, she seemed to avoid speaking in terms of overarching principles, with one of her most common responses being “It depends”.

Fiona’s view of what it means to teach was directly related to how ICT was used. As will be shown below, she felt that overreliance on ICT in the classroom negated the teacher’s place in it. She goes so far as to say that improper use of ICT was not teaching at all.

2.2 Teaching with technology

Fiona was both positive and cautious about classroom ICT, saying “I think that it can be very useful, and very effective, but it’s important that it doesn’t take over the classroom, and teach for the teacher.” On the classroom ICT use survey, Fiona reported using more forms of ICT more frequently than the other two participants. She reported high use of computer/projector, word processor software, database software, multimedia, email, and
Internet. She reported moderate use of blogs, social media, and course management systems, each of which were reported by the other participants as “no use”. The only ICT on the questionnaire she reported never using was the scanner (an item no participant reported using). From the questionnaire Fiona would appear to be a very high frequency user of classroom ICT. This frequency was not necessarily reflected in her interviews or observations (though, to be fair, it wasn’t contradicted either). Given that the questionnaire was administered at the beginning of the semester in which observations occurred, Fiona’s responses likely reflected prior teaching situations.

Fiona emphasized deliberate and carefully considered use of ICT:
there’s a lot of planning that goes in with it, you just don’t pull it out of a hat and use it. If you do, you might get lucky and it might work well, but if you want to be as effective as possible, then you need to plan out that time, and as it goes, as time goes on it changes, so you tweak it as you need to.

Where classroom preparation was concerned, Fiona held ICT to be a labor saving device, saying “by having the use of some ICT, it lessens the time that I need to spend to create something, because I can usually go find what I need, and 90% of the time it’s free”. However, Fiona did not necessarily consider ICT to be a labor saving device in the classroom. Rather, she held that effective use of ICT required an investment of time, effort, and consideration. Three themes that emerged in Fiona’s talk about ICT in the classroom were contingency, contrast in context, and tool versus resource.
a. Contingency

In Fiona’s interviews, one word that came up repeatedly in connection with ICT use was “depends”:

It depends on the context. If you’re at a high school, if you’re at a middle school, if you’re at a university, if you’re at a college, if you’re at a technical school, it depends on the type of people that you’ll be teaching, and it depends on the type of technology that can be useful for them.

To Fiona, what made a technology appropriate or effective in the classroom was contingent on the conditions of every specific classroom, and to a certain extent (as indicated above), on each individual student. At various places in her interviews, Fiona noted that effective ICT use depended on the environment, the situation, the class, the students, their levels, the day’s content, the length of the class, or the semester. A technology’s efficacy could vary day by day:

You plan xyz, and then the students just have a different idea that day. Or, you plan xyz, and nothing works. In the classroom (…) And it just doesn’t work, or it’s not there, or whatnot. That happens, just, every now and again. Either you don’t read the students right, or you don’t, it just doesn’t pan out that day. The students have an off day, or you have an off day.

This contingency also applied to what she held to be the most effective particular ICTs:
Researcher: What’s the most important piece of technology in your classroom?

Fiona: It depends on the lesson, it depends on the day.

Researcher: Ok. What are some of the things that you use to make that decision, what are the things that might depend on?

Fiona: I would look at the level of students and what they need to learn for that lesson, and I would go do that accordingly.

In another interview, asked whether she saw any technologies as being superfluous in the classroom, she replied, “None of it would be superfluous if it’s used in the correct way. But all of it could be superfluous if it’s used in the incorrect way. So I think it depends on what you’re talking about”. This answer would suggest that all technologies, in Fiona’s view, could potentially be used in the classroom. However, she did not seem to hold all technology to be equal. Fiona had a negative view of the ICT that was made available at Namu:

it’s just very basic technology. We don’t have access to a lot of other things. I mean, a projector and a computer, that’s about it. If people have their own laptops, or tablets, then that would be their own stuff.

This suggests that Fiona made a distinction between basic and advanced classroom ICT. Indeed, there were certain ICTs that Fiona seemed to privilege in terms of pedagogical potential. These ICTs, particularly smartboards and document cameras, stood out as being a part of Fiona’s experience teaching in the United States, and as being unavailable at Namu.
b. Contrast in context

Repeatedly in her interviews, Fiona seemed to associate positive ICT situations with her experience teaching in the USA, and negative or limited ICT situations with the Namu context:

Researcher: Can you tell me about a time when ICT was especially effective in your classroom (in Korea)?

[…] 
Fiona: That hasn’t really happened. (laughs).

 […]
Researcher: Why do you think that is?
Fiona: Because we don’t have effective technology available to us.
Researcher: What do you mean by effective technology?
Fiona: More effective technology. I mean, realistically, all we really have, technically, are pencil and paper. And sometimes computers and projectors, and screens and things and whatever. But, I think in terms of teaching ESL students, they need way more than that to be, to have a higher level of comprehension.

Above, Fiona seemed to say that there are no good or bad technologies, only poor uses of technology. Yet, she also decried the lack of effective technology in her context, and held that this technology would afford a higher level of comprehension from her students. Fiona had the impression that classroom technology wasn’t valued in her context.
Drawing on her experience with Namu administration, Fiona said:

You could talk to them all day long about smart boards. ‘Oh, Ok.’ ‘Can I get some?’ ‘No.’ ‘Can I write a grant for it, it won’t cost you a thing.’ ‘No.’ Or, you know, ‘I have my own money, I’ll pay for it.’ ‘No.’ ‘Ok, why.’ ‘Oh, because then the rest of the students wouldn’t have one.’ (laughs) (...) I don’t really know if it’s cultural, or if it’s just, they’re not aware of how (ICT) could be more effectively used here. I just think that it’s very new.

Fiona’s experience dealing with administration at Namu seemed to have limited her ability to bring what she held to be effective ICT into the classroom, a problem she had not encountered in her previous context. In the previous excerpt, Fiona mentions a willingness to invest the considerable time and effort necessary to write grants, and even to spend her own money on classroom ICT. This suggests that she strongly believed in the pedagogical value of ICT that was not available at Namu. This likely arose from her experiences using this ICT in America.

c. Teaching with ICT versus letting ICT teach

While all the participants emphasized the place of the human element in classroom ICT use, Fiona went further, equating poor classroom use of ICT with instructors’ deliberate replacement of themselves with ICT. Fiona seemed to see classroom ICT use as an inverse relationship between the technology and the teacher, where either one or the other served as the greater classroom focus. She noted that, in an undesirable ICT use situation, “The teacher just kind of backs up the technology versus the other way around”. In other
words, Fiona saw the proper balance to be greater instructor presence rather than greater ICT presence. She in fact goes further, holding that teaching with ICT was, in fact, not teaching at all:

    do not mistake (use of ICT) for teaching. That application or that particular thing doesn’t teach the students anything. It just aids in what you’re teaching, or gives them experience in whatever topic or concepts you want them to work on.

She presented the ideal situation in terms of the instructor role, saying “we’re the teacher. We use the tools to enhance our teaching. We’re not using the technology to teach our classes”. In discussing this point, she repeatedly used the terms tool and resource to describe the two kinds of instructor/ICT relationship. This will be addressed in the following chapter.

    In positing the classroom focus as either the instructor or the technology, this is not meant to preclude the possibility of student-centered classrooms. Fiona included examples of both teacher-centered and student-centered use of ICT. Even where the seemingly teacher centered ICTs of smartboards and document cameras were concerned, Fiona offered examples of student involvement with these technologies. Yet, when it came to comparisons of ICT-led versus instructor-led teaching, most of her examples did skewed teacher-centered.

    As will be discussed below, Fiona saw a trend of ICT coming to be responsible for more and more student learning, particularly with distance and online self study, and that she considered this to be largely a bad thing.
2.3 What ICT can do in the classroom

In keeping with the themes previously touched upon, Fiona’s ideas of ICT’s classroom affordances were wide ranging and contingent. Overall, she felt that ICT “helps students retain information better”. In terms of language teaching specifically, Fiona held that ICT was useful for teaching vocabulary, for affording a multimodal experience, and for allowing students to access more information. Fiona reported that the Internet, in particular, and the multimedia it made available, were useful for language teaching:

Visuals work really well for them to connect the information to the information that they already have in their brains with their first language. So in my professional opinion, I think videos and images can be very useful in helping them acquire more background knowledge.

Fiona reported using the Internet for a variety of activities, saying, “We do blog stuff on there, we do searches, we do virtual field trips, really anything that you would do in a classroom. I really enjoy webquests, as well. They’re fantastic”.

As mentioned above, much of Fiona’s ICT use was guided by her broad approach to language teaching that eschewed materials specifically designed for language learners. The Internet resources mentioned above serve as examples of the kinds of broader educational materials Fiona was able to access and utilize because of ICT. In fact, it could be argued that, without ICT access, Fiona would have been restricted to whatever materials (textbooks and worksheets) could be provided by Namu. In short, Fiona’s teaching approach would not have been possible without ICT.
Asked to consider what difficulties ICT brought to the classroom, Fiona commented not on the technology itself, but on the teacher’s use, saying, “If the teacher is ineffective at using the equipment, then yes. Everything’s harder. Because they don’t know what they’re doing”. Asked to clarify what she meant by ineffective, Fiona illustrated with a technology she had elsewhere identified as being relatively more useful, pedagogically:

Ok, so if I put (a smartboard) in your classroom and said, go ahead, use it. Yeah, ok, and you write on it with the markers and stuff, and you’re like, yeah, ok, I used it. No you didn’t, you didn’t use it. Well, how did you use it? (…) if the teacher is not versed in using it, then it’s going to be ineffective. Just like using a lawn mower to cut your hair. Very ineffective.

Here, Fiona references the teacher’s relationship to the affordances of the smartboard (without going into specifics). Even an ICT she held to have great potential in the classroom required a teacher to draw on its affordances to realize that potential. In Fiona’s view, it was the teacher, not the technology, that made the technology effective. This does seem to contrast with her opinion that the technology provided at Namu was “not effective”.

In assessing which ICT to use in the classroom, Fiona again answered that it depended on many classroom factors. She did, however, identify a few overarching concerns. One of them was the ease of use:

How easy it is for me to use, how easy it is for the students to use, is there a lot of steps in order to utilize that, or is it fairly straightforward? (…) if it’s too
complicated, the kids won’t use it, the students won’t use it. Or they, you’ll, the instruction for me to tell them would take too long.

Asked whether ICT was absolutely necessary in order to teach well, Fiona replied:

In this day and age? It’s more helpful. I don’t really want to say yes they must, or yes they should always be used, because that’s silly, it shouldn’t always be used, but it’s profitable for the students if it is used as a resource, when necessary.

Clarifying what she meant by necessary, she expanded:

Well, there are different ways to learn vocabulary, right? There are more effective ways, and there are really crappy ways. For example, memorizing them doesn’t do crap. But if we, for example, use ICT to look up images of the particular words, examples, not examples, and all of that would kind of use projectors, or other technology to do that, then the students will better remember those experiences, and those examples and non-examples, not the definition, but other ways to learn those words, right? So they will, the images and the words will better be ingrained in their mind for a longer period of time, versus just memorizing.

In this example, Fiona demonstrated what she saw as an ICT enabled way of teaching a skill that was, in her opinion, superior to the non-ICT method. This is likely what she meant as a necessary ICT-use situation. The ICT was not necessary, but rather the teaching method that required ICT. Fiona also made an interesting point in noting that
using ICT in this way also modeled a way of using ICT for the students, giving them a (potentially) new approach to their own self-directed learning.

### 2.4 Drawbacks of ICT

As has already been explored, Fiona was leery about ICT in a number of ways. One surprising drawback of ICT she perceived came from her experience teaching in the USA. Asked how her teaching would be different if she had unlimited access to ICT, she said:

> I have had that, actually, and it’s wonderful, but it also makes you lazy. So I don’t enjoy having access. I enjoy having access to it sometimes, but I don’t enjoy having access to it all the time (…) If you only have access to a few, you’re really careful about how and when you use them. So if, I think having access to everything that you need or want is good and bad for those reasons. It makes you lazy.

Fiona found limitations to be valuable for using ICT, as they seemed to lead to more reflective use. Given that she was drawing on her USA experience, it can be assumed that she was talking about what she considered to be advanced ICT as opposed to the basic ICT available at Namu. She connected unlimited access to the theme addressed above, ICT as a teacher replacement:

> Well, you just kind of let the students use it, and you just kind of expect it to teach for you. Or, even if you only use it for 10% of the lesson, or 10% of the time period, right? You still expect it to do something, and you don’t always follow up
after, or before, you don’t always introduce it or follow up after while it’s being introduced. You just kind of expect that to do that for you, and it’s very easy to get into that, which I don’t like.

There almost seem to be parallels between this statement, and one she made elsewhere about technology being addictive. Given these statements, it can be inferred that Fiona held improper use of ICT to be marked by overreliance and unreflective use. She offered an example of poor use of ICT at Namu:

Let’s say somebody’s teaching a class, and they are doing a lecture, and the entire lecture is posted on the thing, on the screen, and they’re literally just reading A to Z. That is stupid. And terrible. And not teaching.

Furthermore, Fiona worried that ICT, used improperly, not only failed to support student progress, but could even lead to regress. She noted that ICT was “supposed to have helped us learn things easier, it’s supposed to help us remember things easier (…) depending on how it’s used, it can do the opposite”.

2.5 Students and ICT

Time and time again, in discussing the contingency of appropriate ICT use, Fiona referred to the students as the deciding criteria. This involved student’s level, their mood, their previous experience, and even, at the individual level, any physical limitations they may have. Fiona allowed for great variations in students, and so did not make many statements that applied to students in general.
She did, however, seem to hold, with the other two participants, that her students were familiar with ICT and had access to it. This was mostly apparent in her statements about using smartphones in the classroom:

They’re stuck in their phones all the time, so when they come to the classroom, it’s nice to kind of bridge that gap. Yes we’re talking with them, yes we’re working with them, but it’s also nice to use technology in a way that, it enhances their education, not takes away from it.

Fiona’s depiction of students “stuck in their phones” again resonates with her concern about becoming addicted to ICT. Yet, where the classroom was concerned, she advocated capitalizing on what she saw as the students’ dependency:

(Smartphones) aren’t used as much as they could be. Because the students already have them, they’re going to use them anyway, so if, tons of free applications for education purposes, and it just depends, and there are always more so it’s hard to know what’s best. But that’s where it comes to the teacher to find out what would work best for them and their students.

Again, here, the theme of contingency emerges. Fiona held that smartphones had great educational potential, but also that the instructor was responsible for bringing that potential out. She also held smartphones to be something that would be present in the classroom in any event, and that could either serve as a distraction or valuable classroom ICT. She noted, “The teachers think that cell phones are bad. And they’re not bad, they’re not good, they’re just a tool. So it depends on the students. They’re going to look at them
2.6 How ICT is learned

For Fiona, teacher learning of ICT took two major forms: personal learning, and training. Fiona held firsthand, personal learning with ICT to be key to a teacher’s successful use of ICT. She stressed that a teacher needs to be familiar with a particular ICT before using it in the classroom:

You have to really know that particular application or that particular piece of technology. All about it. Before you even think to use it in your classroom.

Otherwise, you won’t use it in an effective way. To help your students.

Fiona offered an example from her own experience:

I tried to use QR codes, and it just doesn’t work. But, that’s not the students’ fault. That’s my fault because I was not as familiar with them as I should be. I tried to use them too soon, before I was ready to use them. I was just really excited, and I wanted to use them, but I didn’t give clear instructions. So if you’re trying to use a piece of technology or an application, definitely is a good idea to know the A to Z nuts and bolts of that particular device or application before you use it.

In terms of affordance, “Knowing the A to Z nuts and bolts” of ICT might suggest that there are a finite set of ways a particular ICT might be used, and that an instructor can and should be familiar with them before using the ICT in a classroom. However, it more likely that Fiona meant an instructor should be familiar with the affordances they intend
to utilize, with a focus more on the method than the technology itself.

In order to become familiar with ICT, Fiona recommended using it, attending technology fairs (something she had been able to do in the USA, but not in Korea), and researching online. Each of these required an investment of an instructor’s time outside of the classroom, especially as Fiona emphasized that experimentation should not be done in the classroom. She echoed Jessie’s experimental/playful approach, saying:

The best thing to do is to play with it. These technologies for the classroom, educational technology it’s not hard. You just play with it. Then what’s hard is learning the best way to help your students using that technology, because every year it’s different. You have different students, so you have different ways that you can use it.

In keeping with her idea of technology as contingent and personal, Fiona presented ICT as being useful in different ways with different students. She also recognized that ICT in general was not static, but was constantly changing and developing, saying, “It’s very hard to keep track of everything. Um, it’s just being knowledgeable about what’s there, and how best to use it”. Staying current, for Fiona, was no easy task. She recommended using various Internet resources to explore new teaching ICT and uses for ICT. For example, she recommended using Pinterest (an online link and information sharing site) to explore different ways of using educational technology, and generally advocated turning to the Internet for research:

you can also look online and find different things, whatever the technology is, you can look online and, ELMOs (a document camera), ELMO lessons, 8 million
things pop up. Smartboard lessons, 8 million things pop up. And you just tweak it to what you need it to fit for.

She noted how applications that were intended for educational use tended to have information about practical applications:

If you’re going to go on your phone and download a certain application, it tells you a sentence about it, but if it’s an educational type application, usually it will tell you more, and how it can be used in the classroom, and how that can be used for students, whether in the classroom or not.

Training also played a large role in Fiona’s consideration of how ICT ought to be used. Asked what changes needed to happen with ICT use at Namu, her one word answer was “Training”. At one point, Fiona reflected on her experiences with ICT training in the United States:

They train you how to use (ICT), they train you how it works, how to turn it on, how to blah blah blah, how to do basic stuff, and then they give you some tools or lessons, and then from that, it’s not many, a handful, five, four, depends on the equipment, and they’ll give you, they’ll show you a few different ways that it can be used, it’s maybe an hour and a half training, two hours maybe, depends on the equipment. It’s not long. And then they take off, and they go, and they do their thing somewhere else. And the teachers, collaboratively, or not, they play with it.

Importantly, Fiona presented this training as a starting point for using ICT rather than a
complete (rhetorically closing) summary of how it is to be used. She also presents this training as preceding teachers’ experimentation with the ICT.

In the focus group, Fiona responded to Hugh’s concern about the lack of depth in instructors’ ICT use by recommending training:

it’s all depending on the training, appropriate training on the technology. So if it’s Socratic (a mobile based quiz application), let’s have a two hour training on how to properly use Socratic, it just gives you information. If you’re employing the use of televisions in your classroom, you have a two hour training on how you can use, different ways, examples that you can use television in you classroom, same with anything else, software, hardware, whatever.

It is likely that Fiona’s leadership position had some bearing on her opinions about training. Instructor training and professional development was among her responsibilities at Namu. This is not to say that her view of training at Namu was wholly positive; she noted that “In general, any software technology that’s provided, it’s just kind of given to the people, not explained in depth how to use it”. Given her position, she could also say what changes were being made to the program:

What we’re working on during the summer, or the start of the fall, is to have mini workshops, 20 minutes here, twenty minute bag lunch type thing, to just show teachers what our options are, and how to better and more effectively use (courseware) and other online resources…

---

16 It is, of course, also possible that Fiona’s opinions about training were part of a larger overall pedagogical approach that brought her into a leadership position in the first place.
The sort of training she reported being in development was voluntary, and seemed to be casual. At one point, Fiona speculated about what she would do given a large discretionary budget:

I personally think that smartboards would be a great addition to our ESL students, and part of that would, I would train them, me personally or somebody else, I would train them, they would be trained to use the device effectively. And monthly or each semester or whatever we would have little workshops to, you know, hey, what do you have going on, little things like that, that’s what I would do.

In this ideal situation, Fiona saw smartboards as the most valuable ICT to bring into the context, provided they were paired with ongoing training. She also positioned herself as the person qualified to conduct this training.

One point that Fiona made about the state of ICT training (or lack thereof) at Namu again reflected a view of ICT as defined by its use rather than what it “is”.

once you have that technology, you have to instruct people properly how to use it so they can effectively use it, which takes up time, resources, and money. Which is why a lot of the technology, I think, which is why a lot of the technologies here are not here. Because it takes up time, effort, and money to train the people how to use it.

In saying that a lot of the technologies “here are not here”, what Fiona seemed to be saying is that a technology that is not used appropriately (however that may be defined)
may as well not exist. She again drew an explicit connection between a technology’s use and its identity.

Asked what advice she would give a novice teacher about ICT use, Fiona spoke from her administrative leadership role:

It would depend on the context, really, where they are and what they have access to. […] I would say don’t be afraid of it. I would say find a couple that you feel comfortable with, especially with our EL students, find a few apps or a way, if you have a tablet of some kind, find a way to use that in your classroom. And if you can’t that’s fine, we can work on it together. But I would say find a few apps that you would feel comfortable with and use those with your students. Especially the ELL students.

This advice, which included a hypothetical offer of personal support, was in line with previous points Fiona had made regarding teaching with ICT: Don’t use too many, and know those few you use very well.

2.7 ICT and teaching in the future

Asked how she saw ICT in language teaching changing in the future, Fiona replied:

Fiona: I envision it all being online or in videos in the next 20 years.

Researcher: Uh huh. Good thing or bad thing?

Fiona: Bad thing.

Researcher: Ok. Tell me more. (pause) So I guess, why do you see that happening?

Fiona: Well, it’s already happening. You already have virtual education going on. And
that’s great if you’re learning math or something like that, but if you’re learning a
language it’s very helpful, it depends again on your age, are you five years old or are you
50 years old, because you learn differently at each of those ages, technically speaking
(…) I don’t think it’s a good idea.

Fiona saw the future of language learning being entirely digital, with a complete
replacement of teachers, in the short span of two decades, and she did not see this as
progress. This removal of the human element (reflecting what seemed to be the defining
element in what Fiona held to be inappropriate or poor use of ICT) seemed, at least here,
to be inevitable. Here, Fiona differentiated between different subjects, and seemed to
hold that there were some aspects of language acquisition that this approach would suit
(contingent, in this case, on age).

Fiona happened to have a background in music, and while she saw subjects such as
math lending themselves to being taught through ICT alone, she drew on her experience
taking lessons from music instructors to highlight how she felt ICT would fall short. The
personal touches, nuances and specializations she had found in various instructors were
things she felt were paralleled in language acquisition, and would be lost if all language
teaching were standardized through online programs or videos:

So you have this person is trying to learn a language, and they’re setting goals, and
they’re keeping up with the assignments. They’re not doing them that great, they’re
just kind of pludging through them. But if they had a real person to chat with, not
just online but a real person, then they would have the opportunity to see and talk
with that person to ask real time questions, and not just wait for a response or an
For Fiona, this value came from face to face interaction, not asynchronous or even necessarily telecommunication-enabled interaction. Her skepticism likely came, in part, from her own experiences with distance learning.

Fiona’s opinions of online learning were not completely negative, however. Asked if she saw any positive things emerging in the next several decades, she answered “The same thing being true, also being online. But it depends on what you’re learning. A happy medium would be having a little bit of both.” Thus, provided the human element was preserved, Fiona saw a blend of online learning and ICT being positive, overall.

3 Fiona’s classroom use

Owing to Fiona’s limited schedule, she was observed four times over the course of the semester with the same group of students. Three observations occurred in one classroom, and one occurred in a different classroom. Each of these classrooms had e-lecterns with computers and projectors. Unlike the classes of the other two participants, Fiona’s class focused on writing, and was composed of relatively high-level students in terms of English ability.

In contrast to Fiona’s reported technology use (on the questionnaire), in observation she showed the least variety of ICT use of all three participants. For three of her classes, she only made use of the computer/projector array along with a word
processor document and online timer. For one class, she made use of these plus projected worksheets and Google images\(^\text{17}\).

It is possible that this limited use was a result of the subject being taught. As a writing class, Fiona focused on student production. Her use of word processing documents centered on modeling and display. Fiona conducted part of here classes using the whiteboard, but then moved to a projected document to model writing. For this use, Fiona started with a blank document and composed a writing piece. She later justified this approach (as opposed to projecting a completed document), saying, “if they see the finished product, then they are not going to try.” She say other value in this approach as well:

> It allows me to highlight, it allows me to focus on certain things at a time, by underlining, by highlighting, by using a different color, by just drawing attention to different aspects of what I need the students to focus on at that time (...) It’s helpful in that it models what they should do on a big screen. So, it’s versus just going to each person individually.

While it would have been possible to compose a piece on the whiteboard, it would have been limited in terms of time and legibility. In addition, writing at the e-lectern allowed Fiona to face the students, as opposed to writing with her back to them.

Several times during observation, Fiona projected completed documents for reading activities. She justified this, saying:

\(^{17}\) Owing to an error, the footage for this class was not available for the video-cued interview. Instead, questions drawing from observation notes were posed, followed by a clip composed of footage from the other three classes.
I don’t like to waste paper (…) it’s very time consuming for them to sit there and read it at their table, and they won’t because they’ll get frustrated. So if I project it, it’s easier for them to talk with it with their partner, talk it over with them, talk it over with me, just they’re all on the same page. I know where they are. I know that they’re not looking over here, looking over there, I know that they’re generally more focused, looking at that.

In one of the cases where she projected a reading passage, the students were given printed handouts to follow along. In the other case, they were not. In they case where they had their own copies, some students chose to read from the screen at the front, and others from the paper in front of them.

Another ICT that Fiona used in three of the four classes was an online timer. In each of these cases, she set them for longer periods (15 minutes, 20 minutes) while the students worked on compositions. She noted that, “students and people in general work better if they have a timeline. It helps them to know when they will be finished so they can effectively use their time, usually.” She held part of the value of this ICT to be in the commonly visible display. She contrasted this with timers only visible to the instructor, saying “I don’t think stopwatches on their phones or an actual stopwatch are useful, because the students can’t see what it says”.

Unlike with the other two participants, smartphones played no part in Fiona’s classes. Not only did Fiona seem to make no use of her own phone, but she actively prevented students from using theirs as well. At one point, she noted one student’s use of a phone-based dictionary, and stopped class to explain that this use was not acceptable
for their class, and that she expected students not to make use of their phones, even for class-related purposes. This was likely not her policy in every class, but was related to the high level special writing class Fiona was teaching at the time. During a later class, she wordlessly confiscated a student’s phone, which suggests that this was a prohibition the students understood, were used to, and did not need explained.

Asked what it was like watching clips of her ICT use, Fiona answered “It’s kind of boring, because this is, I’m not using, I’m using a word document. So I’m not using smart technology, I’m not using iPad, it was just very basic. For these purposes”. This suggests that the classes available for observation were not necessarily reflective of her normal use patterns. Asked what technology she would have liked to have for this particular class, she (perhaps unsurprisingly) indicated that a document camera and smartboard would have been useful.

4 Fiona’s ideology of technology

Fiona’s view of technology seemed to be in line with interpretive flexibility, and against the idea of technological determinism. She gave all indications of understanding ICT in terms of human use, not only broadly but also on an individual basis. For example, she noted that display technologies would not be of use to a visually impaired student. Since the defining affordances of those artifacts would not offer anything for that particular student, she posited that, to the student, they would not even be technology. This mindset, it would seem, would be ripe for technological disobedience and the reinterpretation of artifacts to make greater use of them to realize pedagogical goals in a classroom setting, especially as adapted to the needs of individual students. In emphasizing the importance
of teachers using ICT to augment their teaching rather than relying on ICT to teach for them, Fiona seems to be advocating for teachers as interpreters of technology rather than simple users.

However, Fiona did also talk about ICT as what seemed to be inherently better or worse for teaching. For example, she held smartboards and document cameras in great regard, while indicating elsewhere that she held some forms of ICT, such as the “basic” ICT provided at Namu, to be ineffective.

Both in talk and practice, there was not great specific evidence of her applying interpretive flexibility to ICT. Asked if she ever used ICT in a way it wasn’t meant to be used, she offered “what I did last week, what you saw, I opened the word document on the projector, and that’s a modeling paragraph or something, and that technically isn’t how that could be used, it’s just a different way”. Fiona indicated that she had more creative use of ICT in the USA, where she had access to more kinds of technology, than she had at Namu.

In Fiona’s conceptions of how ICT should be learned, there were dangers of rhetorical closure, but there was also room for interpretive flexibility. Training was a recurring theme in Fiona’s interviews. At times, when describing training, she seemed to present ICT as deterministic artifacts that required adequate preparation for effective use. On the other hand, she also described a follow-up process of teachers playing with technology and figuring out how to use it in their own context.

Ultimately, there were suggestions of both high and low technological agency approaches in Fiona’s interview data. Sadly, the circumstances for observation proved inconclusive for speculating about Fiona’s theories-in-action. There were no surprises to
which she needed to adapt, and a very focused classroom situation that perhaps precluded
a wider variety of ICT, or more creative approach to what was available.
Section III - Discussion and conclusion

The following two chapters represent the culmination of the work, as broad patterns in each of the three cases are drawn together and connected to the literature and theory of chapters 2 and 3, and warranted assertions are offered to answer the main research question: How does the understanding and interpretation of technology of language teachers at a Korean university relate to their classroom use of information/communication technology? Chapter 9 presents a discussion of the preceding findings, in three sections: Espoused theories, theories-in-use, and ideologies of technology. The concluding chapter closes the work, considering implications of the study, limitations of the study, and potential directions for future research.
Chapter 9: Discussion

In this chapter, patterns and points of interest across the three participants are considered in light of theory and literature considered in chapters 2 and 3. The cases will then be examined in terms of the conceptual framework, illustrating, refining, and expanding the concepts of technological agency and ideologies of technology presented in chapter three.

First, in keeping with Kane, Sandretto, and Heath (2002), the participants’ relationships with ICT are examined through their interview-elicited ideas, beliefs, and opinions about classroom technology, and their actual observed classroom use. The first section focuses on patterns in the participants’ espoused ideas and beliefs about instructional ICT, considered here in relation to espoused-theories-of-action. Some discussion is given to the participants’ metaphors and what they reveal. The second section focuses on teacher theories-in-use, based on classroom observations. In both of these sections, specific examples of ICT as either referenced or used during observation will be discussed. Finally, the third section draws all of this together to present an illustration of ideologies of technology and its potential implications for professional development and teacher support.

1 Patterns and points of interest in participant talk

1.1 Interview themes

To begin with, themes, congruencies, and discrepancies from participant interview data are considered. Comparing these themes across the participant cases helps to illuminate prominent concerns in the participants’ espoused ideas about instructional technology,
those elements of classroom ICT use that stood out to the participants as being noteworthy.

a. People and ICT

Each of the participants saw classroom ICT as requiring a human element, at least where current language teaching was concerned. Fiona was quite clear about this, holding that overreliance on ICT overshadowed the essential presence of instructor in a classroom. She seemed to see ICT used appropriately not as changing the roles of instructors, but augmenting their capacities. She seemed to hold that ICT could not fill the role of instructor. To her, ICT could not teach, and an instructor that relied on it too much was not teaching. Related to overreliance, she expressed concern about ICT addiction, suggesting that she saw technology as both valuable and dangerous. Jessie echoed this sentiment, expressing concern that certain interactional competencies in the younger generations had atrophied due to their use of ICT. Where language learning was concerned, however, Jessie seemed to allow for ICT to take a greater role in independent learning. It’s possible that this was a result of her own experiences using ICT in self-directed language acquisition. Jessie presented classroom ICT as something that could safely take over some of her classroom roles:

Things that cannot be replicated by some ICT, I do. But if ICT can do it without me, I try to make ICT do the work and I don’t do that. So it lets you specialize in what you’re needed for, and not do what you’re not needed for, if you work it right.
She did, however, feel that ICT did not have acceptable capabilities as far as evaluation was concerned, saying “I think it’s not fully dimensional, if that makes sense, because it only captures a certain plane of their language proficiency. There are other dimensions of it that don’t get touched because ICT doesn’t have the capability to take those in”. For evaluation of student progress, Jessie, felt the human element was necessary.

Hugh, who might be considered the most optimistic participant where ICT is concerned, had doubts about ICT’s place in language learning that seemed to emerge not from his idea of the teacher’s role, but from his theory of language. He felt that, owing to the dynamic, ephemeral, culturally embedded nature of language, human instructors were needed for language acquisition. That said, he also expressed a hope that a technology would be developed that was capable of translating language in a dynamic and culturally embedded way. This would not only remove the need for the human element in language instruction, but would likely severely undercut the need for language acquisition.

b. ICT’s necessity

In considering the idea that ICT is necessary for effective teaching, each of the participants disagreed in general but offered specific cases where they did believe this to be the case. Jessie, for instance, held that great teaching occurred in contexts (such as developing countries) that lacked ICT, and claimed to have taught effective classes without it in Korea. Yet, she also held ICT to be necessary for teaching students who were high-frequency ICT users (such as she held her Korean students to be). For Hugh, the difference was a matter of access and control. If the only person using ICT was the instructor, Hugh felt that “you don’t need it, you can just go right back to the old white
board classroom.” If, on the other hand, all students had access and control, the fundamental dynamic of the class would change. This change, according to Hugh, was necessary. Thus, for Hugh the necessity of using ICT went beyond ICT’s specific affordances, and was instead was concerned with an entirely different classroom approach that ICT allowed.

Fiona was skeptical of the idea of mandatory ICT use, posing multiple questions in response to the idea:

in what way must I use it, and how often must I use it, I have a lot of questions about that (…) what do they mean by must use it, I would say well how often must it be used, and I would say why must it be used, and if I didn’t agree with it, then I would further ask them for the research to show me that.

Fiona’s opinion of ICT, couched as it was in contingency (e.g. it depends), would seem to be the furthest from necessity. Yet, she also seemed to hold that particular sorts of ICT (smartboards, document cameras) allowed for “a higher level of comprehension” on the students part. While she never did go so far as to declare this sort of ICT mandatory if available (and again, cautioned against overreliance on it), holding to be especially effective does suggest that Fiona felt it ought to be used in some respect.

c. ICT’s affordances

Similarities and differences emerged in the affordances instructors noted in classroom ICT. Each participant noted that ICT allowed access to more information and resources, authentic materials and multimedia. Each participant noted that ICT made certain
classroom actions easier, allowed for greater flexibility, and brought an element of fun into the classroom. Each participant mentioned ways that ICT aided in student comprehension. Of the affordances mentioned, one of the most prominent was the ability to display the same information to all students. Each participant frequently mentioned the value of display technology for ensuring equality of student experience of materials.

Even when the participants mentioned the same affordances, each focused on some more than others. Fiona emphasized ICT affordances concerning display, student learning, access to information, and language acquisition. Jessie emphasized affordances of display, student comprehension, language acquisition, and student learning. Hugh made the most mention of student access to materials, student access to information, student interest, and display.

Finally, while Fiona did not mention any unique affordances, both Hugh and Jessie noted affordances not mentioned by the others. Hugh, for example, mentioned ICT affordances that he saw as part of the problematic role of ICT in maintaining instructor control of the classroom. He noted that ICT allowed instructors to monitor student behavior, even outside of the classroom, and allowed teachers greater control over students. Also, while both he and Jessie connected ICT with student ability to create, Hugh went further to hold that ICT afforded greater creativity, and also a positive challenge for students.

Jessie, on the other hand, was unique in her focus on ICT’s affective classroom affordances. Much of the advantage she held ICT to confer came in the ability to shape the classroom atmosphere. She also noted that ICT allowed for a greater range of experimentation.
d. Student-centered versus teacher-centered

Of the affordances mentioned by the participants, some lent themselves to teacher-centered uses of ICT, some lent themselves to student-centered use, and some could go either way. As an affordance, display generally involved the computer/projector array. None of the instructors mentioned allowing students to make use of these. Hugh explicitly stated that the e-lectern/computer/projector were firmly under instructor control, and recommended teacher-centered use of it:

you’ve got your video, you’ve got this thing, you’ve go your book right there on the big screen, it is easier for you to demonstrate your point on the big screen where you can click in the answer, write in the answer, click a button, it’s more applicable to you as a teacher than it is to them as a student.

Student comprehension was often (though not in all cases) associated with display technology. In many cases, the material that the students were meant to comprehend was determined by the instructor, and so was instructor-centered. Where ease was mentioned, it generally referred to making things easier for instructors rather than students.

Multimedia was generally referenced as being under the instructor’s control, but was also related with student-centered affordances such as student interest and fun. All three instructors noted the student-centered potential offered by smartphones. Where ICT’s affordance for accessing information was concerned, both teacher-centered (often in relation to lesson preparation) and student-centered (generally drawing on smartphones) uses were identified.

Notably, Hugh connected student access to ICT with one of the chief ICT related
difficulties he had encountered in the Namu context, saying, “what do teachers complain about? Whenever students do learn the password, aw, this computer’s buggy, I can’t use it”. In this case, he actually attributed the unreliability of Namu ICT to student use of classroom computers, highlighting one potential difficulty of ICT’s student empowering potential, and possibly accounting for some of the teacher-centered use he saw as being so prevalent.

e. How ICT is learned
One theme central to the participants’ espoused approaches to technology, and a key point on which they differed, was the way in which ICT is learned. First, the point should be made that, where teacher learning is concerned, ICT differs for many teachers in one major respect from other aspects of the classroom. Lortie (1975) noted that student-teachers undergo an apprenticeship-of-observation in the completion of their own education, learning while in the role of the student different ways to be a teacher. In the case of ICT, however, many of the technologies available to teachers had not been part of their apprenticeship-of-observation, particularly in the case of veteran teachers. As students, they had not encountered these technologies in use, and so had to draw on contemporary sources for examples and inspiration. This was the case for instructors in this study, who each had their own unique approaches to learning about ICT.

Hugh’s initial apprenticeship-of-observation, for example, had included technologies such as record players and mimeographs. While Hugh did not mention how he discovered new classroom ICT, he did talk about his process of familiarizing himself with it. This included play a playful or experimental approach, going beyond the surface
of the program (for Hugh was referring to software rather than hardware) to see how it could be customized and made to fit his needs. He did not offer a specific example of his doing this, however. Training, at least at Namu, had little part in Hugh’s espoused ICT learning process.

Fiona did mention the use of computers in her schooling experience, but did not seem to connect this to her current ICT approach. For her, formal ICT training was a much larger part of her ICT learning process, buttressed by experimentation and independent research using Internet resources. Jessie, for her part, made little reference to her experience with technology as a student in a formal classroom. Rather, her experiences learning with ICT had been self-motivated, the influence of which is discussed elsewhere in this dissertation. On the other hand, where teachers are lifelong learners, they may undertake new apprenticeships-of-observation. Indeed, both Hugh and Fiona had recently encountered ICT as adult learners, and brought their experience to bear in interviews. For Hugh, this had involved

While the participants had different opinions where training was concerned, there was common thread throughout each of the participants’ interview data regarding the importance of experimentation, and indeed, play, when learning new ICT. At the very least, this suggests that each held it necessary to learn about ICT’s affordances firsthand through use and exploration. It is possible that this attitude of experimentation and play can also accommodate a view of ICT as open to interpretation through experimentation.

f. Card sorting
The card sorting exercise revealed a great deal of differences in the ways the participants grouped and categorized ICT. Whereas Fiona sorted items across three categories that seemed to be associated with mobile technology, classroom use, and classroom management/preparation, Jessie made four categories based on ICT as receptive, expressive, or instrumental, with hardware stacked separately. Hugh, on the other hand, seemed to create a spectrum between social media (which he seemed to equate with personal uses of ICT) and course management systems (which he seemed to equate with class management). Unlike the other two layouts, Hugh’s seemed to incorporate something of a normative element as well, with that he saw as least useful (language learning software) at the bottom. It might be inferred that the ICT he had put at the top, Internet, was the one he found most useful.

In the second card sort, the inclusion of items derived from the examples of ICT the participants referred to in interview made a significant difference in the participants’ layouts. Even so, there was still a great deal of differentiation between the three. Only Fiona made a categorical distinction between hardware and software, with the other two participants putting a greater focus on the specific affordances of the items. Hugh and Jessie created the same grouping of PCs, smartphones, and tablets, calling these tools and multi-purpose devices, respectively. Many of the items Jessie put into her instructional aids category were included in Hugh’s presentation category, though others were present as well. This reflects Jessie’s idea of display and presentation as figuring largely in her instructional aids category. Hugh’s sort stood out for the emphasis it put on presentation and the Internet, while Jessie’s clearly reflected the influence of her personal ICT experience on her classroom use. Fiona’s sort focused on wide versus narrow ranges of
affordances in applications, and a division of hardware and software.

In these six sorts, what is brought into relief is the difference of these instructors’ representation of different ICTs, not only between each other, but also between their own representations over time and given a slightly different set of items. Roughly five months passed between the first and the second sorts. For each participant, the resemblance of the first sort to the second was limited. Those features of ICT that they highlighted, and those features by which they grouped the ICT, largely did not persist over the two sorts. While the inclusion of a slightly different set of items (see appendix H for the difference between the two sets) may account for some of this difference, it is likely that the passage of time, and the instructors’ classroom experiences also had some influence. At the very least, this suggests that the participants’ ideas about technology had continued to shift over time.

1.2 Specific technologies

The participants mentioned a number of examples of ICT during their individual and group interviews. While examples unique to each participant (which have been discussed in their respective chapters) shed light on their individual experiences and understandings of ICT, examples offered in common can provide a picture of the ICT ecology at Namu while also highlighting differences in the participants’ approaches to the same technology. Of the ICT mentioned in the three semi-structured interviews, the following examples of ICT were mentioned by each of the participants: Bluetooth (wireless connection), computers, internet, multimedia, presentation software, projector,

---

18 As mentioned above, these examples do not come from the video-cued or focus group interviews, as ICT examples in these could be elicited from specific video clips or other participants.
smartphones, and word processing applications (essentially, Microsoft word). All of these examples were available in the context of Namu classrooms, including smartphones (possessed by instructors and, presumably, most if not all of their students) and Bluetooth technology (a standard feature of smartphones). The following discussion highlights several of these technologies as they appeared in participant interviews.

a. Computer/projector

The participants presented computers as a basic, definitive form of ICT, and as the ICT that made other ICT use possible. Moreover, they mostly spoke about classroom use of computers in conjunction with projectors, meaning the display affordances of the computer/projector array were a part of most reported uses. In addition to this, the Internet was also a key part of most classroom uses of the computer.

The participants either presented computers as teacher-centered outright, or spoke of them being used in teacher-centered ways. Hugh made this point outright, saying:

Most of the ICT is still teacher centric. Students don’t have access to MY computer and MY projector and MY screen. We talk about being a student-centered classroom, but god help them if they come up to MY podium.

The other two participants were not so explicit about teacher-centered computer use, but still only provided examples of computer use controlled by instructors, again generally involving display.
b. Smartphones

Along with computers, the participants presented smartphones as basic, definitive ICT. In the focus group, each participant agreed that smartphones were the most important ICT in modern life, that they were ubiquitous and had many uses. Much of the ICT mentioned (especially applications mentioned by Jessie) could be used through smartphones. However, if computers (with projectors) tended towards teacher-centered affordances, smartphones seemed to be considered as having more potential for student-centered learning. Each participant offered examples of students using their smartphones to find authentic learning materials to incorporate into language classes. There was no question of students having access to smartphones or knowing how to use them. Hugh represented smartphones as having vast untapped potential, and Fiona held that they “aren’t used as much as they could be”.

At the same time, the participants also saw smartphones as the default culprit in terms of student distraction and disengagement. Hugh noted, to the other participants’ agreement, that students were likely to turn to their phones any time their interest flagged or class became predictable. This tendency of students to turn to their phones presented issues of classroom management for each of the instructors. Fiona expressed conflict about how much they should “police the technology”, a question shared by the other two participants. Hugh refused to play the role of a smartphone “prison warden”, saying “I’m not gonna be your parent and take it from you, or make you put it in your pocket”. Hugh and Jessie were content with docking points from students who weren’t paying attention, and letting their test scores reflect their attention, or lack thereof.

Interestingly, each participant presented classroom use of smartphones as an
alternative to student distraction with smartphones. Each participant expressed a sort of “if you can’t beat them, join them” mentality, expressing themselves as being in competition with student phones, and so well served by asking students to use them for class. To take one representative quote from Fiona, “They’re going to look at them anyway, so make them useful”.

Whereas the participants reported relying on their phones a great deal in their personal lives, they made far fewer mentions of using smartphones for their own teaching purposes. Jessie held it to be one of the most important ICTs in her classroom, allowing her to shape the atmosphere through use of music. Hugh mentioned using his phone to access internet, and in conjunction with teacher-centered quiz applications. Fiona only mentioned smartphones in connection with her students, rather than an ICT she used as an instructor.

c. Courseware

One final ICT that deserves mention is courseware. This was not actually mentioned in by Fiona in her semi-structured interviews, possibly owing to the fact that the classes she was teaching that semester did not make use of it. Hugh and Jessie did make use of it, however, and mentioned it in their interviews.

What is referred to here as courseware\(^{19}\) is a standard sort of application often produced and distributed alongside physical textbooks. This application includes a digital version of the textbook, with added interactive features such as highlighting and embedded audio. These may also include interactive quizzes and games based on the

---

\(^{19}\) Courseware is not necessarily a standard or widely recognized term. The participants referred to it in various ways (such as “The software that comes with the book” and classware, and Fiona did not recognize the term when it was used in interview.
target material. The courseware used in the semester in question (called iTools, distributed by Oxford publishing) was a standard example of this sort of application.

Jessie described the courseware provided with the book useful, handy, and important. In fact, Jessie felt that training for the courseware should be mandatory at Namu, a distinction she made for no other ICT. As she mentioned, “that’s something that (the school is) paying for, and that can be quite useful, so everybody should be trained in that, everybody who’s using that book, which is most of us”. Fiona actually mentioned potential plans to institute just such a program, though on a voluntary basis. Asked about courseware, she too held it to be useful.

Hugh, on the other hand, seemed to hold courseware in lesser regard. This may have more to do with the content than the technology itself. Hugh was skeptical, for example, of the value of the pre-recorded audio dialogues embedded in the applications, which he felt to be unnatural. He also held courseware to be inherently teacher-centered, something that was confirmed during his video-cued interviews.

1.3 Metaphors

As Lakoff and Johnson (2008) held, metaphors go beyond mere creative language use, providing windows into the thought and meaning-making processes of those who employ them. As such, they deserve special attention in a study focusing on ICT and teacher cognition. The participants used a number of metaphors in interview. Hugh described classroom technology as a “teetering pyramid, it's all built on one little thing”, highlighting the precarious nature of ICT (a realistic concern, given the multiple difficulties he encountered in observed classes) and the necessity of multiple technologies.
working in tandem. Jessie said of ICT that it “functions like flippers”, likening its use to the difference between swimming with or without them. This is technology as the extension of human ability, granting efficiency and ease. Fiona likened the improper use of classroom ICT to “using a lawn mower to cut your hair. Very ineffective”. This is a metaphor based on affordance, and the appropriateness of particular affordances for different tasks.

While metaphor use was limited with Jessie and Hugh, Fiona employed an interesting pattern that deserves attention. This was ICT referred to as either a tool or a resource. Stevenson (2007) found four metaphors commonly used to describe classroom technology: tutor, environment, resource, and tool. At first glance, the latter two metaphors were prominent in Fiona’s characterizations of ICT. Using these terms, she compared and contrasted two ways that she had seen technology used in classrooms. Yet, what she actually seemed to mean in using these terms differed from the meanings offered by Stevenson. The distinction she made between technology used as a tool and technology used as a resource framed what seemed to be her greatest criterion for effective ICT use: is the teacher using the ICT to augment her teaching (tool), or is the teacher relying on the ICT to teach for her (resource). She stated “I’ve seen too many teachers use it in place of some of the lessons that would be better taught by them, and using the technology as a resource versus the teaching tool”. She gave an example of ICT as a tool that focused on the amount of time ICT was used, stating, “using, perhaps, a smart board, or an ELMO (document camera), even a QR code to relate some of that information, you just use it for a limited amount of time. Maybe five or ten minutes out of a forty minute lesson.” She contrasted this with ICT used as a resource:
However, if you’re using a PowerPoint, say, for your lesson, and you have five minute videos, within a forty minute lesson you have five or six videos, two or three minutes at a time, you’re using the technology to teach your lesson. The teacher just kind of backs up the technology versus the other way around.

Stevenson’s ICT as resource metaphor represented technology as a way to realize and enhance curricular goals, and ICT as a tool represented technology used achieve ends through physical or digital mediating artifacts. In contrast, Fiona’s ICT as tool was positive, ICT used by a teacher in a limited way to enhance their teaching, and her ICT as a resource was negative, used by a teacher excessively to replace themselves in the classroom. In a sense, her use of the word resource seems tenuous as a metaphor, somewhat disconnected from the traditional meaning of the word. By ICT as a resource, Fiona seems to have been referring to teachers using ICT to remove themselves from the process of teaching. The difference seems to be between a teacher-centered use of technology (the examples offered were not student-centered) and an ICT-centered classroom. Fiona returned to this theme in a later interview, reiterating:

Well, if you use technology the entire time in your classroom- technology’s an enhancing tool, not a teaching tool. So it’s important to bridge the gap between those two things and be careful about we don’t (...) we’re the teacher. We use the tools to enhance our teaching. We’re not using the technology to teach our classes.

This distinction keeps the teacher at the forefront of class considerations, with ICT in the
background. As a tool, the teacher is in control. As a resource, at least as Fiona presents it, the ICT is in control.

Finally, Fiona’s characterization of ICT as a tool suggested that it should be regarded as one option among many, as she said “It’s a tool. Not a learning, not a way to, it’s a way to enhance your anything, but it’s not the way. The official way”. What this suggests is that she saw ICT best employed as one tool amongst a varied pedagogical repertoire, as opposed to the sole, or highest priority, approach to teaching. This attitude reflected the assessment criteria\textsuperscript{20} used at Namu, which evaluated teachers based on the use of a variety of methods, of which ICT was but one.

In another metaphorical passage, Fiona connected ICT use as a resource to ICT overuse:

I think that a lot of educators are not being properly educated with those particular tools, and, again, it depends where you are, but a lot of them tend to use it most often than as a resource, seldomly used, or- it’s just like, if you are always eating dessert. Dessert’s delicious, but if you eat it all the time, you’re like, well, kind of boring. It’s not as effective anymore. If you get it as a treat, you know, a couple times a week, you’re more apt to remember those times, and remember what you ate. Versus the opposite, having it all the time. For example, if you use those quiz things (multiple choice quiz devices) all the time, every day. Not the entire time every day, but you use them at least once every day. And the students will expect that all the time. They not going to learn what it is you’re trying to get because they’re just used to using them, right? Now, you want them to be used to using

\textsuperscript{20} In her administrative role, Fiona was responsible for evaluations and observations, but had not authored the evaluation criteria.
them, but there’s that line. You want them to enjoy using them, you want them to get information from using them, and retain that information. So there’s that fine line, and it depends again on your students.

In comparing ICT use to dessert, Fiona connected it with novelty, emphasizing its potential to secure student interest provided it remained novel and fun through limited exposure. This measured use was not recommended for other classroom equipment, such as whiteboards and textbooks that are generally used constantly without comment.

The other two participants used the terms resource and tool to a far lesser extent. In fact, the only other references to ICT as a tool were made by Hugh in the focus group and his card sort. One, concerning smartphones, was made with reference to a comment from Fiona:

As you were saying, yes, this is a tool, but people still believe that it is necessary. It’s advantageous, but is it absolutely necessary? Because, just like you were saying, sooner or later, could I get to a computer terminal and do the same thing. So I don’t really need to carry this around. It’s convenient. But we have been convinced that convenience is necessary.

In this comment, Hugh agreed with Fiona’s depiction of ICT as a tool, and contrasted this with a view of ICT (in this case, outside of the classroom) as necessary. He also referred to film at the time of its invention, saying “They saw an application for it as a teaching tool back then”. In the second card sort, Hugh also categorized smartphones, personal computers, and tablets as tools, without going into greater detail. Outside of these
references, Hugh was more likely to refer to ICT as a resource, particularly where the Internet was concerned. He also referred to smartphones as “the great untapped resource in our classrooms.” Jessie, on the other hand, made only one use of the term resource, saying, “classware is quite interesting as well. Book companies are now upping their game, and giving us more resources than just a book”. Overall, the metaphors of tool and resource were most interesting as Fiona used them.

1.4 Espoused theories-of-action
The overall patterns that emerged from instructor interviews suggested highly individualized presentations of ICT based on each instructor’s pedagogical focus, history, and conception of ICT. With Hugh, ICT served as a (problematic) source of power and control for instructors, and a source of untapped potential for students. His concern with issues of power in the classroom led him to see ICT in that light. Jessie, on the other hand, approached pedagogy with a focus on classroom affect, and reported utilizing ICT in ways that allowed her to do that. She also brought her personal experience self-learning language with ICT to bear in her classroom, sharing resources that she herself had used (such as the smartphone based translation application). For Fiona, ICT meant very little without a specific context in which to apply it. Its usefulness was only gauged in terms of a number of different variables, foremost the students themselves. More than the other two participants, Fiona represented ICT as means to pedagogical ends that should only be used deliberately, sparingly, and with reflection. Yet, certain specific ICTs (such as smartboards) seemed, to her, to be far superior to others in terms of what they could accomplish in the classroom.
Where interpretation (i.e. innovative or creative application) of the technology was concerned, the participants differed as well. Jessie claimed to be a “straight and narrow” user of technology, not deviating from the established and apparent uses of ICT. Hugh, on the other hand, espoused an approach to technology that allowed for the reinterpretation of the artifacts, with the best teachers in the future being “the ones with the best imaginations. The ones that are going to find some quirky way to use it that nobody thought about that lights a classroom on fire”. Yet, when asked to provide an example of this from his own teaching, Hugh could not necessarily point to an ICT that he had used in a way that that could be considered innovative or technologically resistant. Fiona, for her part, identified her use of Microsoft Word in her classes as creative, and not what the program was designed to do. This is a fair interpretation, one that will be explored below. Furthermore, in observations, each instructor had made use of Microsoft Word in this way. In other words, even though each instructor had employed this ICT in a somewhat innovative way, only one identified it as such. These differences will be explored in the following section.

Similarities in the ways the three participants presented classroom ICT were more evident in what they did not espouse. None of the instructors held that ICT was necessary for quality instruction, though each offered conditions under which they thought it would be. None of the instructors held that ICT could replace humans, at least where language acquisition was concerned. None of them felt that ICT was being used in Namu classrooms in a way that differed greatly from other contexts.
2 ICT in use

Drawing on observation notes, video recordings, and participant commentary from the video-cued interviews, section 2 of this chapter focuses on observed teacher technology use, patterns emerging from classroom observations, and seeming theories-in-use displayed in these patterns. This section first focuses on specific ICTs and how they were observed being used. Patterns and dynamics that were observed are then discussed, with some theories offered as to their significance.

2.1 Technologies employed

While a great variety of ICTs were mentioned in interviews, the number actually employed during classroom interviews was fairly limited. As previously mentioned, most classrooms at Namu came equipped with an e-lectern containing a PC (running Korean language windows), a flat-screen embedded monitor, and a stereo receiver, as well as a projector and a screen, and a speaker system. In addition to these, Hugh and Jessie made use of their own ICT as well. Below, prominent examples of hardware and software are considered in light of the ways they were apparently designed to be used and the ways they were actually used.

a. E-lectern

E-lecterns (sometimes referred to as smart-podiums or digital podiums) were standard equipment in most Namu classrooms, though they varied in model and design. In all but one observed class (where there was no lectern or computer), instructors made use of this equipment to some extent. Invariably stationed near the front of the classroom, these
lecterns were generally on wheels and could be rotated or moved a short distance (though not, for example, to the side or back of the classroom). The lecterns contained controls for various elements of the classrooms, such as audio volume, projector, and screen. In many cases, these controls were non-functional, and the various ICTs were controlled individually through remote controls or wall mounted switches. In the absence of this function, the lecterns were largely mechanical rather than digital. Yet, they contained a functional array of ICT that made them a major classroom technological presence. The lecterns contained microphone capabilities, and often included functional microphones. During observations, a lectern microphone was only used once. In this instance, Hugh used it for classroom management, getting the students’ attention in order to finish a speaking activity, and briefly beat-boxing for the students’ amusement.

The lectern also included a mouse and a keyboard (on a sliding tray) for controlling the computer. The monitor was embedded in the top surface of the lectern, and could usually be raised at an incline. The computer itself was contained in a lockable cabinet below, with a window cut out to allow for access. These cabinets were only occasionally actually locked. In addition, many of the lecterns featured a sliding portion on top that served as additional space for traditional lectern purposes (holding notes, etc), and could be locked in place over the monitor. It was extremely rare for this to be locked.

Though not limited to educational purposes, e-lecterns naturally fit into a classroom context, and furthermore represented an apparent theorization of the sort of teaching that was meant to be conducted in the classrooms. In line with the notion of ‘built pedagogy’ (Monahan, 2002), a classroom’s layout can be seen as suggesting a particular student-teacher dynamic. This was particularly the case with e-lecterns, which
suggested the sort of classroom where one individual maintained control of audio and display technology. In other words, the affordances of the e-lecterns seemed to presume a teacher-centered classroom. Their position at the head of the classroom as well as their orientation, both of which could only be adjusted slightly, meant that they could only be used while facing the class. This positioning was far from inconsequential. While each observed instructor moved to different parts of the classroom during their lessons (particularly during student centered activities), they were forced to engage with the ICT associated with the lectern (computer, internet, projector, and/or audio) from the front of the classroom. Absent additional equipment (such as a wireless mouse and keyboard, mentioned by Jessie at one point), it was not possible for material to be presented on the screen without the instructor (or some individual) at the front of the class, in view of the students. In discussing the advantages of displaying material, both Jessie and Fiona mentioned the importance of being able to observe all students as they observed material on the screen. Neither expressed any reservations about the location of the lecterns.

Hugh, however, commenting on video clips from his observations, did have a concern:

part of the problem that I’ve seen with regard to this classware and stuff is the fact that I’m standing in one place manipulating this thing (…) I don’t like to see me standing like that. One place is not good. I need to be moving around more, I need to be in the middle of them more.

The influence of the lecterns was not limited to instructors. While the placement of the lecterns did not preclude in class use of the ICT by students, it did not encourage it either. Aside from the fact that students could not make use of the lectern without the
instructor’s sanction, to do so meant getting up from one’s seat, moving to the front of the classroom, and standing in front of the entire class in a location (behind the lectern) that was in many ways associated with the role of instructor. It is perhaps not a surprise that, during observation, students were not once observed using the lectern (aside from turning it on prior to the instructor’s arrival). They were not invited to do so by instructors, and no situation arose in the use of ICT that seemed designed for them to do so.

In short, the lecterns seemed designed in such a way that theorized central control and did not explicitly theorize student use. They seemed, in design, to be a teacher-centered device. None of the participants reported or demonstrated a use of the lectern that went against this. However, during the focus group, Jessie mentioned talking with another instructor who brought his own wireless keyboard and mouse into the classroom to allow students to interact with the computer, in essence using personal ICT to bypass the lectern. Hugh responded positively to this idea:

get me better technology that will get me away from the podium, something in the way of a PDA [personal digital assistant] or a hand type of thing where I can, you know, get away from it and walk around with a wand or something, they have that stuff. Where you can manipulate [the computer] while not standing there. That would be very handy because that would get me out away from it, and then I’d be moving around more. And that’s probably the cure, I just need to, and now we’re back to more technology again, yay. Now I’m gonna do, I’m gonna add, now I’m gonna add a remote controlled mouse to everything.

This last sardonic note points to one concern Hugh had with technology: By solving a
technological problem with more technology, one adds complexity and more potential
points of failure.

The lecterns also functioned to secure the equipment, essentially theorizing a
context in which the equipment was not safe. However, the security measures went
further than that. While the locked cabinet prevented the theft of the equipment, it did not
impede use of the ICT. The sliding top, however, if locked in place, prevented access to
the screen and so, effectively, the computer. This suggests that the lecterns were
designed not only to keep equipment in place, but also to keep it from being used by
those who did not have official sanction. At Namu, the security features of the lecterns
evidently presented enough of an inconvenience that they were disregarded, particularly
where the locking rolling top was concerned. Two scenarios are possible: These features
were either never engaged from the beginning, or they were abandoned over time as
being either unnecessary or too unwieldy for day-to-day classroom use. In either case, in
several observations students turned on the computer before class began, something they
would not have been able to do had the lecterns been locked (particularly if the control
panel was functioning).

b. Computer

In every observed case where the lectern was used in an ICT capacity (with the
brief exception of Hugh and the microphone), it was used to control the computer. As
such, many of the concerns related to the lectern (location, access) apply to the computers
as well, along with all of the following ICT (with the exception of smartphones) that was

---

21 In one sense this is redundant, as a computer can also be secured with a password. However, in matters
of security, redundancy is often considered a positive feature. Furthermore, a password can be shared, but a
physical key cannot.
used in conjunction with the classroom computer. For example, in observation each use of the lectern, and thus the computer, and thus the projector (and courseware, and word processing software, etc) was by instructors, not students. That is not to say this never happens, simply that it did not happen during observation. These points will not be repeated for each ICT, but it should be borne in mind that they all apply.

In every observed class where it was available, instructors made some use of the computers. While interaction ranged from minimal (as in Fiona’s writing classes, where use of the online timer was the greatest ICT use) to frequent (most of Jessie and Hugh’s observations), the computer was almost always on. If the computer was not on when class began, turning it on was one of the first things an instructor did.

Though this was not the case for every classroom computer at Namu, the computers in the observed classes were not password protected, and could be used by anyone. As was noted in chapter 5, this led to concerns about the security of the computers. Hugh was the most vocal about this risk, and indeed was the only instructor to have to contend with malware during one of his observations. In the instance where he discovered the courseware he had expected to use had been uninstalled, this too was likely a consequence of malware.\(^\text{22}\)

In order to talk terms of innovative use of an ICT, it is necessary to be able, as with e-lecterns, to point to uses the artifact seems to have been designed for, and ways of use that seem to be theorized in the design. It is difficult to do this with computers, as there is a galaxy of uses to which computers can be put. While Hugh showed some aptitude in using the operating system to circumvent malware, this can’t really be

\(^{22}\) These incidents involved the same classroom. To remove the malware that disrupted Hugh’s second observed class, the computer had likely been wiped clean, or possibly replaced prior to the third observed class.
considered an innovative use. Thus, none of the participants can be said to have employed interpretive flexibility to the computers.

c. Projector

Along with the computer, one of the most commonly used ICTs in the classrooms was the projector. Along with the computers, these were often turned on prior to the instructor’s arrival, and were soon activated if not. Even if it was just an image of the desktop, there was something projected on the screen almost all of the observed class time. In other words, the computer/projector/screen array was an almost continuous presence in the classroom, even when it was not being used. As an exception to this, there were several times when Jessie activated the projector about 10 or 15 minutes into her class, having spent the preceding time talking with her students and playing music. Once she had activated the projector, like other instructors, she did not turn it off for the duration of the observations.

That said, there was not always a remote control available for the ceiling-mounted classroom projectors. Several times, Jessie needed to ask a student to stand on a chair to manually turn on the projector. This is significant, as in these sorts of situations, the projector could not be turned off easily. During observations, this led a minor issue of an image being projected on the board while Jessie was writing. In her video-cued interview, she did admit that this was sometimes a problem, and said that she turned it off if students complained.

As mentioned above, one of the most common affordances instructors noted was that of display. In observations, the most commonly used ICT was the computer/projector
array, to the point where ICT use that did not involve this array was exceptional and (with the exception of smartphones) unique to one instructor. This included Hugh’s use of his laptop, and Jessie’s use of her phone with speakers. All of Fiona’s ICT use involved the computer/projector array. With the exception of pre-class preparation, the computer was not once used without the projector.

It would appear that the projector was designed with the singular task of projecting an image, either static or moving, onto a surface (generally a screen). This is the only way Hugh and Fiona used it during observations. Jessie, on the other hand, provided a demonstration of an innovative affordance in projecting a worksheet directly onto the whiteboard, and the answers onto the projected blanks. This physical completion of an incomplete projected image represents an affordance not commonly seen in projectors (at least at Namu). Interestingly, Jessie did not consider this to be an innovative use of the ICT, saying she had been using it this way for most of her teaching career.

d. Courseware
Two of the three instructors were teaching classes that allowed for use of courseware. Jessie made use of it twice in the classes observed. Hugh made of in two classes, and was not able to use it the other two (for reasons already detailed). In being installed on the lectern computers, the courseware was, at least within the limitations of the Namu context, a teacher-centered ICT. The students were able to follow-along with their textbooks, but (at least in the classes observed) were not able to interact with the software except through the instructor. This is not to say the courseware could not be used in a
more student-centered fashion, but circumstances at Namu made this unlikely.

The application itself had a number of functions that allowed instructors to interact with it. Hugh tended to use the highlighting tool to identify particular words and phrases, while Jessie tended to use the writing tool to circle and write (though both she and Hugh noted that this later function didn’t work very well). Both used the application’s zoom tool, and both used it to play embedded audio clips. Though there were more tools available, this encompasses the uses that were observed.

The courseware was designed for the specific and very explicit purpose of accompanying the instructional material. While it could reasonably be employed in lieu of a textbook, it was neither marketed nor provided as a textbook, but as a tool to aid in the instruction of English (and was, in fact, called ‘iTools’). The application’s functionality and the textbook content were inextricably bound so that the former could be employed in relation to the latter. As an application, this particular courseware (if not courseware as a rule) seemed to have been designed to thwart interpretive flexibility. It was, in a sense, a walled garden of an application, into which new material could not be brought. For the most part, instructors interacted with it as such, using the courseware to teach the material in the textbooks. Hugh even made a point of how little he thought of the listening exercises embedded in the courseware, taking time in class to explain to his students that the scripted audio presented neither authentic speech nor an authentic speech situations. Though Hugh made use of the courseware, he did not hold in high regard. Comparing the two lessons he taught, one of which had courseware and one of which did not, he seemed to highlight the drawbacks of the application rather than the benefits:
in the first class where I didn’t have the (courseware), it actually, it freed me up, I
got away from the podium, I was able to look, I was moving around. I know I
was, because I had no reason to stand at the podium. And so we actually got, I
made sure everybody had their books anyway, and just got into the lesson. With
the other one, ok, I used the (courseware), to highlight the issues and (...) point
out the unrealistic nature of that conversation.

In contrast, Jessie’s found several ways to go beyond the limitations of the
courseware. As mentioned above, the writing affordances of the application (as Jessie
understood them) did not allow for clear or legible writing. Jessie overcame this problem
by projecting the courseware directly on the whiteboard, and filling in answers by hand
as she guided her class through the activity. In terms of content, Jessie’s use of the
courseware went beyond the walled garden of its design by the use of additional ICT. In
the fourth observation, Jessie preceded the use of the courseware with a series of Google
image searches, focused on illustrating and expanding upon target vocabulary in the
textbook. While using the courseware, she also made use of her smartphone to translate
and display additional vocabulary. What this demonstrated was that the medium of the
computer, through which the courseware was used, allowed for easy transitions between
different applications that made it easy to overcome the limitations of any particular
application. In addition, her use of her smartphone shows how the limitations of a
particular application can be transcended even outside of the hardware medium through
which it is used by the use of several ICTs in conjunction. While considered in isolation,
Jessie’s use of the courseware might not be considered interpretive, her simultaneous use
of other devices and applications suggests an interpretation of the overall learning activities that brought them beyond the activities theorized in the courseware.

e. Word processing software

Each participant made use of the Microsoft Word word processing application, which was a standard application on Namu computers. Word was used in most of the observed classes in which it was available. Not only did each participant use Word, they each used it as a static application to display premade documents, and as a dynamic application to create or modify as a part of class. As a word processing application, Word was chiefly designed for composition, though it functioned well as a document display program. Each of the instructors displayed pre-fashioned documents for the students to interact with (Fiona displayed reading passages, Hugh displayed completed daily agendas, Jessie displayed pre-made worksheets). In each of these cases, aside from some zooming, it was not necessary to alter the documents for them to serve their purpose. Even Jessie’s worksheets, incomplete when projected, could be completed on the whiteboard rather than in the program itself. Projecting documents had a number of advantages. Each of the instructors compared the displayed text positively to their own handwriting, and both Hugh and Fiona mentioned display as a preferable alternative to printing documents on paper.

Word did not seem to have been designed to be used as a dynamic display application. In this sense, participant use of it as a dynamic tool represented an adaptation of the application rather than a straightforward use. The participants each altered documents, or created new ones, while in class. In the former case, Jessie filled in blanks
within a prepared worksheet, and Hugh altered and highlighted a prepared class agenda. In the latter case, Hugh created an agenda from a blank document, and Fiona composed writing passages along with students. Using Word in a dynamic way required careful formatting (manipulation of font and size) to make the text visible.

In both Jessie and Hugh’s case, Word was used in static and dynamic ways for the same tasks on different days. Jessie didn’t comment on the difference between altering the document within the application and on the whiteboard. Hugh, on the other hand, commented that he liked to use various approaches in his classroom to keep students from becoming too accustomed to particular ICT uses. Fiona offered a similar rationale for her in-class composition, stating “It’s not something that I can already have up there when the students enter. If they see what I, if they see the finished product, then they are not going to try”. In Fiona’s case, composing along with her students allowed her to model functions and skills that they themselves would be expected to use.

While this static use of Word does not represent a radical act of technological resistance, it may qualify as a minor one. In these examples, each of the instructors arguably went beyond mere use of the application to achieve their pedagogical goals. While each of the three used the application in this way, only Fiona identified this as an unconventional use. For the other two instructors, this use of Word had become normalized and unremarkable.

f. Smartphones

Thus far, the technologies that have been discussed were standard issue, Namu-owned classroom equipment. However, one ICT that was not Namu equipment had an
undeniable classroom presence whether or not it was employed in classroom activities. As mentioned in chapter 5, smartphones were ubiquitous in the classroom context, and collectively represented the most reliable form of ICT in Namu classrooms. While a problem with the internet, projector, or computer could cause serious difficulties for most ICT dependent activities, an instructor that relied on student possession of smartphones was not likely to run into technical problems. Each of the instructors had a smartphone, and while this was not confirmed, it was very likely that most, if not all of their students had smartphones as well. A 100% smartphone saturation was normal for Namu classrooms.

Yet, actual instructor smartphone use was markedly uneven. Fiona made no use of her smartphone in observed classes, and actively discouraged her students from doing so. Hugh allowed his students to use their phones occasionally, but did not base activities on their use. His own smartphone use was largely confined to one class observation, discussed below. Jessie both encouraged her students to use their smartphones (going so far as to require them to download particular applications) and made use of her phone in class. During observations, this generally took the form of translating a Korean word to English (or vice-versa) and displaying the result to students.

As was mentioned in chapter 6, one of Hugh’s observed classes occurred in a classroom that had no e-lectern, computer, or projector. In this class, his ICT was limited to his smartphone and his laptop (connected to the internet through his smartphone). He used these on four different occasions to access authentic materials online and display or make them available to the class (in the case of his smartphone, holding it up for the students to see, or describing information he had found). In both of these cases, his uses
of the ICT approximated the affordances of ICT he had access to in other classrooms, i.e. computer, internet, and projector.

Student smartphones, for all the potential affordances instructors held them to offer, were rarely put to use in observed lessons. Aside from the translation application, those applications that Jessie had her students install were not brought to bear during observations. Yet, the phones had an unmistakable presence in the classrooms, and in instructor considerations of classroom management. Students would consult their phones for word translation, or divide their attention (sometimes rather unevenly) between class activities and non-class related smartphone applications. As mentioned above, it was only Fiona who intervened in these situations, and there was indication that her intervention reflected special considerations unique to that particular class (as they were being prepared for a standardized test, for which they would not be able to use their phones), and were not a normal part of her approach.

g. Internet
One final ICT that figured into observed instructor practices was the Internet. Like the computer, the Internet is less significant for what it is as an ICT than for what it allows, i.e. the application use that it enables. For two of the instructors (Hugh and Fiona), the Internet was an important part of their lesson, meaning if they had found it to be suddenly unavailable, their lesson would have been impacted. For Jessie, this was not the case, seemingly by design.

Hugh seemed to have the greatest in-class Internet reliance. As already mentioned, even in a classroom that had no ICT, he utilized his smartphone along with
his laptop to make sure he had an Internet connection. He used this to access a streaming video, one that he held to be crucial to the class activity. In other observed classes, he used his email to retrieve documents that he planned to use in class. In either of these cases, a failure of Internet would have caused significant problems for his plan, presuming he didn’t have the files on a USB drive. While most of Fiona’s use of the Internet involved the use of online timers, the absence of which would not be terribly disruptive, she also used the Internet to retrieve documents for display in class. In one of these instances, she also provided the students with printed copies.

Jessie’s use of the Internet was secondary to her classroom ICT use, almost incidental. Though she made extensive use of audio and video resources, she made a point of getting these from the Internet at an earlier date, and bringing them to class on an external drive or on her phone. The same was true for any documents she used. The only instance of her actually using the Internet was the use of Google Images to illustrate some target vocabulary. In this case, had the Internet been unavailable, the lesson would not have been greatly affected. It appeared that Jessie took pains to avoid relying on the Internet whenever possible.

What emerged was a picture of internet use as a risk/reward scenario, with wide functionality available (streaming video, file transfer, applications, resources) but no guarantee of function. Hugh, supported by his smartphone’s network Internet connection, seemed to show the greatest reliance on and confidence in an Internet connection, whereas Jessie had taken steps to avoid this reliance. Fiona, who demonstrated the least overall use of ICT, seemed to split the difference, with redundancy built in to her activities should the Internet portion fail.
2.2 Dynamics of use

In the following section, consideration is given to patterns and themes that emerged in classroom usage. These themes, interpreted from observed instructor interaction with ICT, represent evident dynamics and considerations that may not have emerged in interviews.

a. ICT and classroom location

As noted above, one of the greatest impacts of the e-lecterns came as a result of their location and relative immobility. This also applied to the projector and screens, which were fixed in one location. This predetermined placement of major classroom ICT essentially crystallized a particular layout for the classroom, one that lent itself to a teacher-centered pedagogy by locating the teacher, and student attention, at the front of the classroom. An instructor that wished to make use of a layout not oriented towards the front of the classroom would essentially have to forego the use of all standard classroom ICT (with the exception of the audio equipment).

Alternatively, the personal ICT used by instructors (smartphones, Jessie’s speaker) afforded a mobility that would theoretically allow for great flexibility in classroom layout and conduct. While in practice Jessie and Hugh used their smartphones while standing at the front of the classroom, they would have been able to use them anywhere. In addition, student smartphones could be considered to be located anywhere the student could be, allowing for great flexibility of layout and pedagogical approach.

Thus, a distinction can be made between fixed and mobile ICT, in that the former lends itself to particular pedagogies, and the latter has great flexibility in this regard. Yet,
at least in observed classes, it seemed that the forward facing model of teaching was used with mobile ICT as well, meaning the mobile affordances of the ICT for alternative class layouts were not utilized. That mobile ICT was, in these cases, also personal instructor ICT was a reflection of the Namu context. In other contexts, mobile ICT such as laptops and tablet computers might be standard classroom equipment.

b. ICT in combination

Though the participants did not discuss this in interviews, it became clear in observations that one way of instructors made creative use of ICT was through combination of multiple technologies in a single activity. As mentioned above, Jessie used courseware in conjunction with Google images and her smartphone to add more dimensions to the activity and move beyond the limited content of the courseware. She also combined the computer/projector array with the non-ICT whiteboard, drawing on an emergent affordance not possible with either alone. She also projected music videos and attendant Word document worksheets simultaneously, working with both. Hugh employed his smartphone in tandem with his laptop to display streaming video to students in a classroom where it would not otherwise have been available.

One potential hazard of combining ICT is that it can clash, causing confusion or distraction. This occurred in Jessie’s class when the projector obscured the whiteboard. In another instance, the background music she was playing (as a consideration of class atmosphere) continued while she played a listening activity audio file from the courseware. While this was deliberate on Jessie’s part, it is questionable what benefit could be obtained from two competing audio sources. Thus, while combination of
different technologies might lead to the synergistic emergence of new affordances, it
might also lead to conflict impairing the original affordances of the ICT.

c. The presence of ICT

Several times in the above discussion, reference was made to the classroom presence of
ICT. What this means is that part of an ICT’s classroom impact can be understood not
only by what can be done with it, but by its existence in the classroom and consequently
in the instructor’s considerations. To take one example, though Hugh did not hold the
courseware in high regard, he justified its use in terms of its presence:

when you’ve got that software, and you feel like, well I guess I feel like I gotta
use it, it’s there, and so I’m gonna use it then, I got a highlighter, I’m gonna
highlight something. I got a zoomer, I’m gonna zoom in. Got some audio? Well,
we’re gonna play it.

Hugh seemed to speak of the application, and its affordances, as a presence in his
considerations of class conduct, affordances that by their very existence impelled their
use. The same could be said of the e-lectern/computer/projector array, which by its very
presence in classrooms would at least suggest its use. Indeed, in every observed class
where it was available, this array was utilized.

Not all ICT had an equally evident presence. Overall, the presence of hardware
was generally greater than that of software. While an application hardly existed until it
was initiated (by the instructor), hardware had a presence regardless of whether it was in
use. Even then, the presence of different devices differed. While Hugh’s laptop, kept on
the e-lectern and visible only to him, did not have a major presence in the classroom, the
projector’s presence was large and continuous, requiring specific lighting conditions,
taking up valuable whiteboard space, and shining in the face and eyes of the instructor.
Even when not being actively used, the projector (possibly projecting the desktop of the
computer) was undeniably present in the classroom.

Instructors sometimes utilized ICT as a passive background presence to
supplement particular tasks. For example, Jessie kept music playing at a low volume at
most times in her classroom, usually (though not always) further reducing the volume for
listening and speaking tasks. Fiona utilized an online timer projected onto the screen for
long intervals, such as 15 and 20 minutes, while her students wrote. In both of these
cases, the ICT were not meant to serve as the focus of the activities, but were present in a
deliberate supplemental way.

Smartphones, too, were present both in instructor considerations and in the actual
classroom. While instructor consideration of student smartphones has already been
discussed, the actual presence of smartphones in classrooms can also be taken into
account. Instructor movement was sometimes impeded by smartphones plugged into wall
sockets to recharge. Occasionally, the chirp of a received text message would ring out, to
a student’s embarrassment, or the audible buzz of a phone in silent mode would sound.
Students who elected to use their smartphones for off-task purposes surreptitiously held
their devices under their desks and looked down, a behavior not lost on the instructors.

d. The potential of failure

One aspect of ICT that evidently figured into instructors’ use was the possibility of
failure. This possibility, alluded to by all three instructors in interviews, found expression in Jessie and Hugh’s use of ICT in observations. This is partially reflected in the personal ICT that they brought to the classroom. Jessie, for her part, used her own ICT for as much as possible, though she did rely on the functioning of the computer, projector, and audio system, as well as the courseware.

Hugh’s use of his smartphone and laptop allowed him a level of certainty in having access to some affordances of ICT, even in a classroom with no ICT. Yet, even with this security, he twice encountered issues with the classroom ICT that disrupted his plans for the day. In both of these cases (malware disruption, and the uninstalled courseware), Hugh had relied on Namu’s ICT, and had been forced to adapt to the situation and produce an ad hoc solution. In the first case, he used his knowledge of the Windows operating system to temporarily work around the malware issue. In the second, he simply shifted to using the textbook and whiteboard, a lesson he was positive about after the fact.

2.3 Espoused ideas versus use

Before moving onto the discussion of ideologies of technology, it is worth considering the contrasts and coherence of participant talk and use of ICT. As noted in chapter 5, this is not meant to catch the participants in contradiction, but to consider their relationship to technology with greater nuance and depth.

As Fiona’s articulation of the classroom value of ICT largely hinged on contingencies of specific classrooms and students, it is unfortunate that it was only possible to observe her teaching with a single group of students. Yet, in these
observations, what became clear is that Fiona’s use of ICT was measured and deliberate, just as she recommended it be in interviews. Invoking Fiona’s metaphors of ICT as an augmenting tool or ICT as a teacher-surrogate resource, it was clear that Fiona used ICT in the former capacity, maintaining control of the classroom at all times and never using ICT in a way that removed her from the lesson. One place where Fiona’s use of ICT differed from her espoused ideas and opinions was in the place of smartphones in the classroom. Though she held student smartphones to be valuable learning tools if appropriately applied, she made no use of them in her classrooms during observation. This does not represent a contradiction, however, as she repeatedly emphasized that appropriate classroom use of ICT depended on a number of factors. The impression given was that Fiona’s ban on smartphone use was a deliberate choice she had made for that particular class.

Jessie, in interview, emphasized the importance of classroom atmosphere and human relations over ICT itself, claiming to use ICT only to the extent that it supported these things. In practice, this translated into extensive use of music and music videos in the classroom. Her routine involved the tandem use of multiple ICTs to both create class atmosphere (smartphone/speaker, computer/projector/video player) and teach course material (courseware/computer/projector/smartphone). Though in interview she did not consider her ICT approach to be particularly innovative, she demonstrated several uses that went beyond the apparent designed intent of the technologies, combining them to capitalize on emergent affordances. She did not evidently consider this usage to be remarkable.

Perhaps related to her espoused interest in experimenting with a wide variety of
ICT, Jessie made use of more devices and applications than the other two participants. Though in interview she held ICT to be not strictly necessary to language teaching, it was involved in almost all of the classroom activities observed. This ranged from the passive use of background music to focused use of courseware and music videos. Jessie did indicate that she found ICT to be necessary in certain contexts, particularly those in which students are accustomed to it. Thus, though she did not hold ICT to be universally essential to the endeavor of language learning, both her espoused ideas and opinions and her observed use indicated that she held it to be integral for the learning of her Korean students.

In his interviews, Hugh expressed a number of opinions about ICT, some concerning its benefits and potential, some concerning its drawbacks and dangers. Some of these concerns about ICT’s unreliability were borne out in observation. Though he expressed reservations about the courseware, and particularly the listening activities, these ICTs represented a large part of his ICT use in observation. While he mentioned the greatest variety of ICT in interview, in observed practice he employed what appeared to be fairly standard classroom technology (computer, projector, courseware, PowerPoint, Word), plus his own personal laptop and smartphone. This is not to say his general use of ICT was limited, only that his observed usage in the mere four observations (one of which featured drastically reduced ICT access) did not reflect his reported use in terms of variety.

Another prominent theme in Hugh’s talk about ICT was power, with ICT represented as having both potential to empower students and to preserve instructor dominance of the classroom. In other words, ICT could be student-centered or teacher-
centered, and the latter was, in his opinion, more common than the former. In observed practice, Hugh’s use of classroom ICT was in fact fairly teacher-centered, with the PowerPoint, Word document, and courseware all under his sole control. The one exception to this occurred in the few instances where he asked his students to use their phones to translate a particular vocabulary word from Korean to English, offering extra credit points to the first student to successfully find the word. Part of the reason for this might be found in the parts of the interviews where Hugh indicated that he had previously encountered little student enthusiasm when attempting to employ more student-centered uses of ICT. Indeed, in the classes observed, Hugh’s students did seem somewhat reluctant to speak and interact. This suggests that Hugh’s consideration of power dynamics when employing technology concerned not just student-centered use but also student enthusiasm and willingness to take part in activities.

Hugh considered many of the ways ICT was commonly employed in language instruction to be similar in purpose and function to teaching without it. This was especially the case, in his view, where teacher-centered ICT use was concerned. As long as the teacher had sole access to and control of technology, he held, a classroom with it not essentially different than one with it. Observing clips from the classes where he taught the same lesson with and without courseware, his comments reflected this idea. Asked what difference there was in the lessons, he replied, “Technically speaking, the only thing that went different was the use of technology.” Though he went on to find advantages in not using the courseware, this initial statement suggests that use of the courseware brought no benefit to distinguish it from a class conducted without it.

Yet, in one of his observed classes, where no technology was available in the
classroom, he took pains to make sure it was available through the use of his own ICT, which he employed in a teacher-centered manner. It would seem that, in practice, he did see advantages to ICT even when not accessible to all students. Ultimately, having observed the class clips, Hugh was more convinced than ever of the need to use ICT in a student-centered way. This suggests that viewing the clips actually brought to his attention an inconsistency between his teaching practices and his stated beliefs.

3. Ideologies of technology

Having discussed the participants’ espoused ideas and opinions regarding ICT, their observed practices, and relations between them, it is now possible to return to the conceptual framework proposed to chapter three, and consider the value of the notions of technological agency and ideologies of technology for understanding instructors’ conceptual and practical relationships with classroom ICT. Before doing so, it is valuable to consider participant uses of ICT in light of established works mentioned in previous chapters. These are the CALL approaches of Bax (2003) and Kozinets’ consumer technology ideology (2008) and social shaping of technology (Pinch and Bijker, 1984). Finally, discussion turns to the concepts of technological agency and ideologies of technology. Here, data from the study is used to refine and expand upon these ideas.

3.1 – Approaches to technology

Recall that Bax (2003) proposed three broad historical approaches to technology use in language learning. These were restricted (or deterministic), open (or communicative), and integrated approaches. In restricted approaches, technology is used in a limited way,
students are isolated in its use (not interacting with each other), and the entire process of interaction is largely predetermined. Open approaches allowed for free interaction, with technology supporting students in constructing language. It would seem that the former of these approaches lends itself to teacher-centered ICT use while the latter could account for student-centered ICT use. Assuming this, much of the ICT use observed in the participants’ classrooms seemed to fall under a closed approach. Courseware, at least as it was used, involved a limited range of language (tied to the textbook) and a limited range of functionality (controlled by the instructor). Use of word-processing documents, while open as far as instructors were concerned, was closed to the students.

There are two places where Bax’s thoughts on classroom ICT did not seem to cohere with instructor experiences at Namu, that of ICT integration and instructor attitudes. One of Bax’s main points was that ICT would be most effective for learning when it would become ‘normalized’, i.e. invisible, not something special in the learning process. He associated this way of thinking about technology with integrated approaches. There is a sense in which ICT was normalized at Namu, in that some ICT, such as the computers and projectors, seemed to have employed simply as a matter of course. With regard to most forms of ICT (though not all), instructors seemed to regard them in an instrumental light, focusing on what use the technologies could have for accomplishing their pedagogical goals (i.e. Jessie’s use of ICT to shape class atmosphere). However, it would be too far to say that the classroom ICT was an invisible, if normalized, part of the classroom. As discussed above, the presence of ICT was in fact very real, and had influence on classroom dynamics, even when not in use. Some ICT, such as Hugh’s laptop, served a classroom function without projecting a large presence. Other ICT, such
as the projector, had a great (occasionally disruptive) presence. While much of the ICT instructors used did seem to be normalized, to differing extents, smartphones seemed to present an exception. These were alternatively presented by instructors as having great, but undefined, untapped potential for learning, and an almost default potential for the disruption of learning. In general, instructors gave the impression that they understood the ICT they used during observations (projectors, Word). Even in the case of courseware, where instructors admitted there was more functionality than they utilized, they did not treat it at as mysterious or unknown. Smartphones, on the other hand, were given an almost elevated status. Though the participants held them to be ubiquitous, they were far from invisible.

Another way in which Bax’s characterization of instructor use of ICT did not necessarily reflect the findings of this study is in the description of instructors as having an attitude of “exaggerated fear and/or awe” (p. 21) towards classroom ICT. At no point did the instructors express anything approaching fear or awe of ICT as it existed in classrooms. While the instructors were somewhat wary of ICT’s potential to fail in the classroom, this was not based on irrational or outsized concerns stemming from unfamiliarity (as Bax seems to suggest), but rather on experience and practical consideration of the technologies. Instructor attitudes towards classroom ICT could be broadly characterized as both hopeful and cautious. When considering broader trends in ICT in the world, the participants did express some concern about overdependence and a potential impact on people’s interactional skills and critical thinking abilities. These broad concerns did not find expression in their discussion of their classrooms, however.

Ultimately, Bax seemed to be striving to connect normalization of ICT, teacher
attitudes, and open/flexible/student-centered applications of technology, saying that these three things were indicative of a single approach (integrative). Yet, the findings of this study do not support such a connection. While much of the instructor use of ICT was restricted and teacher-centered, this use was not marked by either fear or awe. Many of the ICTs that were used in this way were arguably fairly normalized in the classroom. As an example, the e-lecterns were not mentioned in interviews at all (until observation clips brought their impact to Hugh’s attention). In addition, not all ICT use seemed to fall within the same approach with each instructor. Some ICT (such as courseware) lent itself to closed sorts of uses. Others were used in open and closed ways at different times by the same instructors.

To Bax’s credit, he held (in 2003) that classroom technology normalization was a state that had not yet been reached. Allowing for some latitude of conceptual interpretation, the notion of normalization does have value within the context of this study, in combination with the idea of rhetorical closure. Many of the ICTs used by the participants during observations were technologies with which they were quite familiar. It is quite possible that this familiarity lead to a sort of interpretive closure where those ICTs were concerned. It is possible that they ICTs instructors made the most use of came to be associated with known and familiar ways of doing things. Conversely, those ICTs that instructors held to have the greatest potential (here there is perhaps a trace of Bax’s awe) were precisely those that were unavailable at Namu. For Fiona, these were document cameras and smartboards. For Hugh, these were tablet computers. This does suggest that instructors had come to see what ICT was available as normal, and not especially effective for teaching (though the case may be, as Fiona presented it, that the
ICT at Namu was objectively limited). For her part, Jessie looked outward for new applications, which is in one sense finding new affordances in existing ICT. However, this can also be seen as looking for new solutions in new ICT. So, in a sense, there were many technologies that had become normalized for the participants, though this did not lead to more creative or open use, as Bax seems to have suggested.

3.2 Consumer ideologies of technology
As mentioned in chapter 3, Kozinets (2008) articulated four ideological positions that individuals could take in their consumption of technology (to avoid confusion with terminology proposed in chapter three, this is referred to below as technology ideologies, or positions). These were techtopian (technology as progress, science, community, empowerment, and moral improvement), work machine (technology for efficiency, production, success, and wealth), techspressive (technology use as pleasure, fun, and self expression), and green luddite (technology opposed to the natural, traditional, and authentic). While these ideologies are not the classroom focused ideologies of technology introduced in chapter 3 and addressed below, they are of value for considering the approaches the participants took to technology in various aspects of their lives. In this way, these positions help to articulate differences in individual approaches to ICT in different roles and contexts (table 9.1). Yet, at the same time the participant’s positions regarding ICT speak back to the theory, suggesting implications for the positions as applied to the classroom context.
Of Kozinets’ four positions, that of the green luddite (GL) is the only one that is chiefly negative towards technology. In speaking of her personal life, Fiona spoke from what at first glance seemed to be the GL position, indicating limited personal use and presenting ICT as addictive. She took pains to shield her young child from ICT use, a position the other two participants agreed with to some extent (though Hugh certainly did not take the same approach with his children). In the focus group interview, Jessie expressed a GL concern that the younger generation’s reliance on ICT had caused their social skills to atrophy, and Fiona held the same was true of their critical thinking skills. Amongst the group, there was a consensus that the promise of ICT represented a “bill of goods”, i.e. had been presented in a misleading or false way, and that a great price had been paid:

Hugh: We’ve been sold the idea that this technology, and I’m holding my smartphone, is going to make our lives better, and we’re going to have a more enhanced and enriched life, and more connectivity, and as we were saying, no, people are more disconnected.

Fiona: They’re addicted.

Hugh: They’re addicted. It’s doing stuff to us that was not intended, but they’re selling it to us as though we’re doing something else.
Fiona: The misrepresentation of an actual factual –

Hugh: And that’s how we’ve actually gotten here. As you were saying, yes, this is a tool, but people still believe that it is necessary. It’s advantageous, but is it absolutely necessary?

While it is never clarified as to who sold the ‘bill of goods’, this would appear to refer to both commercial interests and technology celebrants (McChesney, 2013) in the culture at large. What stands out about this position, as expressed by the participants, is that, while it is skeptical about technology, this skepticism is not necessarily rooted in “green” concerns alone. In interviews, there were only a few mentions of the ecological impact of ICT, and each of these was positive (such as the affordances of display technology for conserving paper). Rather, the participants’ skepticism centered on commercial concerns (such as with Hugh and textbooks) and over-reliance on technology either resulting in inappropriate use (instructors letting ICT teach for them) or atrophy of skills such as communication and critical thought.

Altogether, each participant made statements concerning broad ICT use that resonated with the GL position. For Fiona, this position more or less accounted for her statements about personal ICT. The other two participants, however, indicated more complex personal ICT approaches. In one-on-one interviews, Jessie spoke of ICT integration in her life as a positive thing, referring to various things it allowed her to accomplish, including language acquisition. This resonated more with the work machine (WM) position, emphasizing the things that ICT allowed her to accomplish that would otherwise be more difficult or impossible. This applied both to her personal life, and to
her classroom ICT use, where she noted the affordances of efficiency and automation the ICT offered. Fiona’s discussion of her use of ICT for her non-teaching work responsibilities also suggested a WM position, particularly where her smartphone was concerned. In fact, for Fiona, who did not seem to use her smartphone much in a personal or teaching capacity, the device seemed to be a work machine, associated with conducting her administrative and preparation duties in a more efficient and flexible manner. Though Fiona’s classroom ICT approach is somewhat hard to pin down, she also seemed to take a WM position, with a focus on what tasks could be accomplished with appropriate ICT use.

Hugh’s espoused views of classroom ICT presented two positions based on whether he was speaking of technology’s actual use as he saw it, or its potential. In terms of the former, Hugh saw many instructors applying ICT from a WM position, with an overreliance leading to GL skepticism on his part. Hugh’s actual classroom use of ICT seemed to take a WM position as well. When discussing ICT’s potential, however, Hugh took a techtopian (TT) view, seeing technology as a great, untapped resource for progress and amplification of both student learning and student empowerment. Hugh’s general view of ICT, as he saw it unfold in society at large, was markedly TT; he saw the development of ICT as ultimately resulting in a “human hive mind”, and did not speak of this as a negative. This view was, of course, tempered by his GL concerns as discussed above.

However, in his personal ICT use Hugh seemed to take the techspressive (TX) more than any other, making use of ICT for the sheer pleasure of it. Hugh seemed to enjoy technology for its own sake, and made a point of mentioning his relatively
advanced laptop and smartphone. For the most part, with a few exceptions (his use of a microphone to entertain/manage class, for example), Hugh’s classroom ICT use seemed more WM oriented. Jessie, on the other hand, with her focus on classroom atmosphere, could be seen as using ICT in the classroom from the TX position. Much of her use of ICT was focused on student interest and pleasure, meaning the position was applied with the students as the focus rather than the instructor.

What becomes apparent when looking at these positions in the classroom is that they have an interesting bearing on the uses to which ICT is put. The GL position, in its extreme, would dictate an absolute embargo on classroom technology, though in these cases the definition of what does and does not count as technology becomes critical (and here Bax’s normalization becomes germane). By design, the participants with this attitude did not take part in this study. However, each participant did express skepticism of misuse of classroom ICT rooted in this position, to varying degrees. A strong TT position was not necessarily in evidence in the actual application of ICT observed in this study, though it may be possible to find in contexts that offered different conditions that could be found at Namu. This position is one that has potential to be explored in future study. On a final note, a TT position would suggest optimism about the future of technology. This optimism was present in Hugh’s interviews, and Jessie’s, to a lesser extent, but was absent in Fiona’s view.

The two positions that were in evidence in the participants’ actual classroom practices were WM and TX. These can account for two umbrella tasks to which ICT can be applied. The WM position accounts for ICT employed to accomplish traditional pedagogical tasks in a more efficient or effective manner. When classroom ICT is spoken
of in terms of increasing or amplifying teacher’s abilities in the classroom, it is this ideology that is being employed. While this position is associated with work and business, in the classroom it can be considered a task-oriented position. Kozinets’ associates this position with reason, and so it can also be associated with measurement, evaluation, and ideas of appropriate or inappropriate use (for example, ICT used to advance a pedagogical task).

However, this does not necessarily account for all of the uses to which ICT was put in this study. The TX position, which Kozinets’ associates with emotion, can account for more ephemeral and subjective uses to which ICT can be put in the classroom. Jessie’s concern with atmosphere provides a good example of this. While to outside observers, her use of music and music videos might appear to be unfocused and off-task, she held that it allowed her to establish an atmosphere that greatly increased her efficacy as an instructor. Kozinets (2008) contrasted the TX and WM positions as having a “contrariety of indulgence” (p. 868), meaning the former might be considered unprofessional. A TX use of ICT in the classroom would be harder to justify than a WM one, being more difficult to measure. Yet, this study suggests that such uses of ICT should not be dismissed so easily.

3.3 Social construction of technology

Pinch and Bijker (1984) introduced the theory of the social construction of technology to account for relations between the ways particular social groups made of technologies and the various forms technologies took over time. While this dynamic was held to occur on a greater time scale than this study covered, and with larger populations than the Namu
context contained, there are still small scale implications of the theory that are relevant to the study at hand. This theory characterizes technology in terms of solutions to problems, with those problems defined by social groups. This lens can be applied to the Namu context as well.

The posing of problems as a social and fundamentally human phenomenon, and the flexible application of technology as a solution, can be seen on a small scale with these three instructors. Each defined the problems of teaching and the classroom in similar and different ways, and their use of ICT reflected this. Each participant shared the classroom management problem of holding students’ attention, transmitting standard course materials, and checking and ensuring comprehension. Each of the instructors used display type technology (computer, Word, projector, courseware) to address these problems, and used them for the most part in similar ways. These technologies were provided by Namu, suggesting that these ideas of the problems of teaching were widespread in the context, and that the ICT was seen to be a standard solution. The one arguably innovative ICT use shared by all three instructors, use of Microsoft Word as a dynamic display tool, reflected conception of the classroom problem of display, and of Word’s affordances for addressing this problem. While it is only possible to speculate given the limits of this study, it is possible that this particular innovative use of a specific application for a specific problem was a socially shared feature of English teachers in the Namu context.

That said, each instructor differed somewhat in his or her presentation of the problems of teaching. Fiona avoided generalizations where ICT was concerned, and seemed to see every pedagogical situation as a unique problem requiring a unique (or at
least tailored) solution. On the other hand, she also held that one of the problems of the Namu context was insufficient access to particular forms of ICT, suggesting that she held some forms of ICT to be more pedagogically effective in a broad way.

Jessie explicitly defined the largest problem of her classroom to be the establishment of an atmosphere conducive to learning. To that end, much of her use of ICT differed from that of the other two participants insofar as it addressed class atmosphere. Jessie’s firsthand understanding of the problem of language acquisition, and the potential of ICT as a solution (particularly evident in her second card sort), also seemed to influence her deployment of ICT, particularly concerning the applications she had her students download. Jessie also used ICT to solve the problem of classroom ICT’s unreliability, relying on her own devices for as much of her lesson as possible.

This particular problem was shared by Hugh, who used his own ICT to reach an approximation of the standard ICT available in other classrooms. Aside from this, for Hugh, one of the largest problems of language teaching was the power wielded by instructors rather than students. Though in his interviews he held ICT to be a potential solution to classroom power imbalances, it seemed that in practice he had not actually found a way to apply ICT to address this problem. In fact, the layout of the classroom itself, including the location of ICT, resisted the solution of this problem by presupposing a teacher-centered pedagogy. Hugh asserted that ICT would only be truly valuable for classrooms if it could be ‘democratized’, made available to all. He also held that smartphones had great untapped potential for learning. However, though each of his students had smartphones, he seemed to stop short of making this connection, both in his interviews and classroom use. Finally, it became clear to Hugh as he observed video clips
of his classes that the e-lectern and its associated ICT (computer, projector, classware) had removed him from his classes in terms of attention and location, and thus came to represent a new problem for his pedagogy as he defined it.

3.4 Returning to technological agency

Recall that technological agency, as it is being articulated in this work, is a person’s self-determined ability to interpret or reinterpret a technology, i.e. how a person situates themselves in their relation with technology, in terms of a wider or more narrow range of interpretive flexibility. Given this definition, there is clearly both a cognitive element of self-attribution of ability, and a practical element of actual exercise of technological interpretation. In other words, it is one thing to speak of technology as malleable and open to reconfiguration/reinterpretation, and quite another to engage with it thus. This division is compatible with the division between espoused theories-of-action and theories in use that has thus far structured much of this work.

a. Technological agency in instructor talk

The least technologically agentic position, wherein technology was not at all to be interpreted, would be in line with the concept of technological determinism (or Grint and Woolgar’s “technicism”, the idea that technology has an essential purpose, function, or essence that gives it its identity). It is worth noting that this concept was largely absent from instructor talk. Hugh openly advocated for playing with ICT and finding out what it could do. Fiona in particular emphasized that ICT’s value and appropriate use could only be determined in relation to students, classroom conditions, and a host of other contingent
factors. Her articulation of technology as defined by the use and value it has for each individual (a student unable to hold a pencil, for example) would directly contradict technicism. Yet, at the same time, she did seem to hold that some technologies (such as document cameras and smartboards) were superior to the technology available at Namu, provided instructors were trained in their use.

Training, and learning about ICT, turned out to be very relevant to technological agency. From a position of low technological agency, and from a position of technicism, learning a technology means learning how to use it in the officially approved manner for which it was designed to accomplish the tasks to which it was meant to be applied. This sort of learning often comes from company representative led workshops, or can involve following the manuals associated with the technology. From a high technological agency position, learning a technology means experimentation and play, finding out what a technology is capable of doing. Each participant invoked the latter values when discussing learning with ICT, to varying degrees and in varying ways. Hugh’s approach to learning seemed to be mixed, in that he advocated personal experimentation with ICT, but also believed in a standardized (and evaluated) technological literacy requirement. This latter idea could operate as a force for technological agency, giving instructors knowledge and experience to aid them in interpreting technology, but it could also serve as a force for rhetorical closure, and the curtailment of technological agency, through the imposition of accepted and acceptable ways of using ICT.

The ICT training experience Fiona reported undergoing in the US context did not seem, at least for her, to serve as a force for rhetorical closure. She talked about this training as a starting point, with the responsibility of instructors being to take the ICT and
make sense of it in their own personal context. Jessie expressed a problematic side to this same situation, noting that instructors who were not given concrete examples of ICTs employed in context more likely to dismiss both the technology and the training. She suggested having complete or partial lesson plans given along with the ICT training. Taken together, these two viewpoints suggest that ICT training alone is at best only part of the process of successful ICT integration. In other words, this suggests the rhetorical closure of said training (provided it is based on a technicist approach to the ICT) has a limited influence on actual classroom use. For integration to happen, an instructor must take the second step of contextualizing the ICT for their particular pedagogical needs. It is here where interpretation, and technological agency, is relevant. If an instructor cannot or will not undertake this interpretive process of contextualization, they are likely to either disregard the technology, or employ it in a minimal fashion. It is in this step that an attitude toward technology involving higher technological agency could be more likely to lead to effective integration of the ICT into the classroom.

Interpretation of ICT need not only occur at the level of the individual. It is worth noting that, while the Internet contains a wealth of resources of how ICT could be used in various ways in classrooms, including materials, links to multimedia, and lesson plans, Fiona was the only instructor who explicitly mentioned seeking these out. Jessie obliquely mentioned ICT research without going into details, and Hugh made no mention of these resources at all. These resources are important to consider because they allow instructors to take advantage of others’ creative reinterpretations of ICT. That said, just like interpretation, research of this kind requires investment of time and effort, as well as inclination. A culture of technology use at an institution can also lead to the sharing of
ideas and practices regarding ICT. Each of the instructors seemed to feel there was such a
culture at Namu, though they didn’t go into specifics. Jessie in particular mentioned
conversing with various teachers about classroom ICT, considering or ruling out ICT
based on others’ experiences.

Aside from training, one more ICT learning consideration to turn to is the
potential influence of an instructors’ use of ICT in their personal lives. Interpretation of
ICT need not only occur in the classroom, and an instructor may find in their personal life
new uses for an ICT that can transfer into the classroom. For her part, Fiona seemed to
maintain a separation between her personal and professional lives in this regard. For the
other two instructors, this division seemed more permeable. Jessie, on the other hand, had
brought her language learning experiences with multimedia to bear in her own
classrooms. An obvious candidate ICT for this phenomenon is the smartphone, which
figured so prominently in instructors’ lives. Jessie’s use of her smartphone for language
learning translated directly into the classroom. Hugh’s use of his smartphone to
demonstrate times and schedules to his students also likely arose from his use of it in
daily life. It is likely that Hugh’s familiarity with the working of the Windows operating
system, which he used to contend with malware, also arose from his personal life
experience. These affordances, discovered by instructors in their personal lives, either
incidentally or through active agentic interpretation of the ICT, found their way into the
classroom.

b. Technological agency in action

Whereas the interpretation of technology was present in interviews in various ways, in
example and principle, the observation of such was considerably more difficult, and more limited. Observing technological interpretation in action means seeing an instructor employ a technology in a way that goes beyond the boundaries of the technologies apparent intended identity, i.e. what it seems to be meant to do and how it seems to be meant to be used. These two aspects of a technology’s apparent identity require an interpretive move on the researcher’s part. A decision must be made whether a technology’s use is innovative or merely commonplace.

There were not many occasions during observations when technology use seemed to go beyond the obvious identity of the technological artifacts. The use of Word, common among each instructor, seemed to be a minor innovative application. Jessie’s combination of the whiteboard and projector, mundane in her estimation, seemed innovative. Hugh’s use of his personal ICT in an ill-equipped classroom seemed a creative adaptation to lacking conditions.

Much of this could simply be a result of the conditions of that particular semester. Hugh’s acts of interpretation, for example, were clearest in reaction to unfortunate circumstances that required him to adapt. These sorts of circumstances didn’t emerge with the other two participants. On different days, under different conditions, it is possible that more agentic use of ICT might have been observed.

3.5 The user and the tinkerer: Returning to ideologies of technology

Having considered many different facets of the participants’ classroom technology espoused ideas and opinions and observed use, it is now possible to consider how the concept of ideologies of technology (as distinct from Kozinets’ technology ideologies).
Recall that an ideology of technology was introduced in chapter 3 as a connected set of systematically related beliefs and ideas about what are felt to be the essential features (or affordances) of various technologies as they relate to a particular task and/or context. This amounts to a commonality or pattern in an individual’s approach to technology, as distinguished by technological agency.

Based on the interviews and observations of this study, two axes emerged as being relevant to considerations of ideologies of technology. These were high/low frequency classroom technology use, and high/low technological agency (table 9.2). As described above, high technological agency is characterized by interpretation of a technology’s place and use in the classroom, active reworking of technology to address a problem as specified by the individual, and resistance to rhetorical closure of the artifact. A low technological agency position can be characterized by use of technology along the lines of written or training-based direction, and the application of technology to problems for which it was apparently designed and recommended. These can be both expressed in instructor talk, and observed in classroom use (in the study at hand, it was more evident in the former). To this can be added high and low frequency use of ICT. While these categories may seem self-explanatory, they can reflect different things. For example, a high-frequency use of classroom technology seems to suggest a high enthusiasm and belief in technology’s pedagogical value, coupled with access in context. A low-frequency use position, on the other hand, could reflect a number of things: lack of access, fear or intimidation regarding technology (recalling Bax, 2003), unwillingness to learn, or skepticism of technology’s pedagogical efficacy.
Table 9.2 – Teacher ideologies of technology

From these two axes, four positions emerge: The tinkerer teacher, high frequency user teacher, low frequency user teacher, and restricted or intentional low-tech teacher. Each of these are now considered in turn, with reference to the participants.

a. Tinkerer teacher

At the intersection of high technological agency and high-frequency use is the tinkerer ideology. A tinkerer teacher is an individual that exercises their knowledge and skill with technology to reinterpret it to fit their own needs. An approach to technology often found in “Do-It-Yourself” or “Maker” cultures (Tannenbaum et al, 2013), this involves what Desanctis and Poole (1994) referred to as “unfaithful” uses of technology, going against or even completely disregarding the intentions of the designers and producers of the artifact. It is in line with Oroza’s (2012) technological disobedience, where it is the designers, and the forces of rhetorical closure, that are being disobeyed.

Within a teaching context, what this position entails is teachers’ reinterpretation,
modification, and innovative application of various technologies in the service of their pedagogical goals, the needs of their students, and their professional role as they define it. Use of technology is wide, in that it can involve a broad variety of artifacts, but also deep, in that an individual has both the inclination and the ability to work with a technology to find new affordances. A tinkerer teacher is not likely to be put off by complexity or a steep learning curve in a technology, but is willing to invest time to become familiar with it. Two aspects of the educational context become relevant in discussion of the tinkerer approach. The first is access. A teacher may or may not have access to a wide variety of technology within their context. If they are tinkerer’s, teachers are more likely to be able to take full advantage of what is available. Furthermore, as Fiona noted, access to a wide variety of ICT in an educational context can actually lead to overreliance and “lazy” teaching. A tinkerer teacher would likely keep their pedagogical goals at the fore of their ICT use. That said, it could be the case that their pedagogical goals happen to be automation of pedagogical tasks or the reduction of their personal role in the classroom. There is nothing about a tinkerer ideology that necessarily precludes such a focus, and a tinkerer teacher would likely be adept at realizing these goals using technology. This might be considered a danger of this ideology.

Related to access is the concern of technology ownership. Interpretation and modification of technology is not always possible if the equipment is the property of the institution. A tinkerer teacher may be more at liberty to apply their agency to their own equipment, with the possibility of breakage, but they would be limited in what they could do with their school’s technology. This is one way in which a teacher’s technological agency may be curtailed.
Turning to the Namu context, the tinkerer position was not in great evidence in actual observed instructor practices, but did seem to appear in instructor interviews. This was evident in Hugh’s discussion of the potential of ICT, particularly in statements such as:

Teachers will have to move forward in ways to motivate students through the technology. To offer new venues of acquisition. To offer new venues of expression. And that’s where I think it’s going to succeed. The best teachers I think are going to be the ones with the best imaginations. The ones that are going to find some quirky way to use it that nobody thought about that lights a classroom on fire.

Hugh espoused an approach to learning ICT that involved deep exploration and experimentation to find affordances rather than simply using the technology in obvious ways:

we need to learn how programs operate, how to fully exploit every aspect of a program. That’s something a lot of people don’t know, a lot of people don’t point and click. But they don’t know you can do a little digging and there’s a lot more available in a program than the simple point and click. That you can change the settings in a program to make it more yours, to do more things you want it to do.

While this sort of approach did not emerge in his observed classes, it is still significant in that it is Hugh’s representation of the ideal relationship an instructor ought to have with ICT.
Fiona, in her interviews, employed a constant contingency that emphasized pedagogical goals and student needs as an instructor’s primary consideration. She presented ICT, and technology in general, as defined by its affordances. Though her espoused ideas and opinions about ICT were not obviously those of a tinkerer teacher, in that she didn’t provide concrete examples of reinterpretation of technology, her presentation of ICT suggests high technological agency and high-frequency use, provided, again, that student needs was the chief criterion. Her mentions of use of Internet resources, and the repurposing of content for EL students seem in line with a tinkerer approach. Her stance on the role of ICT training importantly didn’t present it as a complete solution, but rather the first step towards successful integration. Beyond this, her recommendation to “know the A to Z nuts and bolts” of a technology before using it in a classroom suggests a deep exploration of its affordances.

Ultimately, related to technological agency, this position appeared in instructor talk, but not in practice. It is possible to speculate that such an appearance would take the form of an ICT used in a strikingly innovative way, perhaps involving an instructor’s personal technology. The reasons why this was not observed could be myriad. One possibility is the time and effort investment necessary to actually enact technological reinterpretation. The gap between holding technology to be open to interpretation and actually doing the work of interpretation may have been too large given the other demands instructors faced. In addition, as mentioned above, it could have simply been the class conditions that semester (with Fiona this is almost certainly a factor).

Returning to Kozinets’ (2008) consumer ideologies, the tinkerer position resonates most with the TX position, owing to the play and experimentation it entails.
This is not to say the two are synonymous; none of the ideological positions presented here align with those of Kozinets completely. There is, however, overlap. The TT position is also present to some extent, in the application of ICT to the task of learning. WM is likewise present, inasmuch as ICT use is based on efficiency and automation. It would seem the GL position would be opposed to a tinkerer approach.

b. High frequency user teacher

In contrast to the tinkerer teacher, a position of low technological agency could be referred to as a user position. An individual taking this approach to technology would use it in a straightforward manner, in the way it was evidently meant to be used. Much of the ICT expressly designed for pedagogical purposes, such as courseware, would be tend to be employed in a user manner in the classroom for this reason.

Teachers taking a user position can be distinguished as high and low frequency ICT users. A high frequency user shares the tinkerer’s enthusiasm, belief in ICT’s pedagogical efficacy, and access. They use ICT often, and possibly use a wide variety of it. However, unlike tinkerer’s, their use tends to be surface level, capitalizing on the most obvious and prescribed affordances of the technology.

In both her espoused ideas and opinions and observed practices, Jessie appeared to be a high frequency user teacher. She mentioned going out of her way to explore a wide variety of ICTs, employing only the most “user-friendly” technologies, those that were “plug and play”. She described her ICT use as “straight and narrow”, rather than the ‘unfaithful’ use characterized by the tinkerer position. Her practices reflected this for the most part as well, with her employment of ICT largely following the purposes for which
it was designed. What innovative uses she did employ (such as using the projector and whiteboard in tandem) were not, in her estimation, innovative. As an ICT user, Jessie expected training that did not simply show how to use a technology, but also how to incorporate it into lessons, with plans and concrete examples provided. What she seemed to mean by play and experimentation did not signify deep exploration of ICT, but rather broad exploration of a wide variety of ICTs.

In contrast to Hugh’s interviews, his observed uses of ICT seemed to fit with a high frequency user position. Hugh made use of multiple ICTs to conduct his classes, and went out of his way to have technology available in a classroom that had none. He clearly saw ICT as valuable for teaching purposes, even making use of ICT he denigrated in interview (i.e. courseware, particularly its listening activities). However, aside from his adaptation to the ill-equipped classroom, Hugh did not demonstrate any particularly innovative uses of classroom ICT. His use of classroom technology largely seemed to follow convention. As noted above, Hugh was not satisfied with this upon observation, and had begun to think about how he might alter his classroom use of ICT.

It is important to note that the term ‘user’ is not intended to be a denigration of individuals who take a low technological agency approach to ICT. It is unrealistic to expect that each individual take the same approach to classroom ICT. In fact, it is not unfair to speculate that a majority of teachers might fall into this category, given the investment of time and effort necessary for a tinkerer approach.

Again, returning to the concepts discussed above, this position is consistent with the WM position in that ICT is employed instrumentally to accomplish particular goals. While it does not overlap as much as the tinkerer position with the pleasure of the TX
position, there is some resonance here. TT is also relevant, inasmuch as ICT is applied as a progressive solution to classroom problems. The GL position is not compatible with this position.

c. Low frequency user teacher
An instructor that made little to no use of ICT could do so for a myriad of reasons, including Bax’s (2003) fear of technology or a deep rooted skepticism. An instructor intentionally making little use of ICT (i.e. has access, but does not use it) is not likely to be familiar with ICT enough to have a high technological agency relationship with it. Thus most instructors who employ little ICT in their classrooms are likely to have a user approach to ICT when they do use it. Such uses are unlikely to be creative or innovative, or to find new affordances.

By sampling design, none of the participants fit into this category. It is included as an implication of the other categories, and also fits the participants’ descriptions of some instructors at Namu. The perspective of these individuals is not part of this study, and so is not discussed here. This position obviously corresponds to the GL position, though not perfectly. An instructor’s reasons for avoiding the use of technology may have no environmental or naturalistic rationale at all. This position would make an interesting target for future study, particular for the insight it could contribute to ICT training.

d. Restricted or intentional low-tech teacher
Finally, one counterintuitive emergent category deserves consideration. This is the position of high technological agency, low frequency technology use. While it might be
expected that a teacher that approached ICT as something to be interpreted and modified would be a frequent classroom ICT user, this may not always be the case. A teacher may be limited in what ICT was available, or may deem the particular classroom task to be inconsistent with the use of ICT.

In this study, Fiona arguably provided an example of this position. Within her interviews, she tempered her espoused belief in the value and flexibility of technology by emphasizing that technology should be used deliberately, and not too often. In observation, of all the participants Fiona used the least ICT with the least frequency. This is likely due to the conditions of the particular class that was observed, a writing class where student written production was emphasized over other aspects of a language class that might more easily lend themselves to ICT use. It would seem that Fiona’s approach to the tasks of that particular class did not call for frequent ICT use, and so she didn’t bring it to bear. This could also be an issue of access, though. Fiona mentioned that she would have conducted her writing class differently if she had been able to use a smartboard or document camera. Of all the positions, this one has the least in common with Kozinets’ consumer ideologies of technology. It is, perhaps, the most balanced and pragmatic of the positions.

While the concepts of technological agency and ideologies of technology were first conceived as representing broad mindsets that individuals might hold with regards to ICT as a whole, the results of this study suggest that actual approaches to ICT are far more complex than that. While there is still value in considering an individual’s technological agency and ideology of technology (as a user or a tinkerer), the findings suggest that there is great variation between the participants’ approaches to different
technologies. It appeared that each particular technology was in fact a space for
instructors to theorize, both in terms of pedagogy (the technology’s place in the
classroom and curriculum) and in terms affordances (what a technology could do, or
could be made to do). Instructors seem to have come to associate different technologies
with different things, leading them to use them in particular ways. Examples of this
abound within this work. For example, Jessie had come to associate projectors and videos
with classroom atmosphere (her pedagogical focus) and so had made them a central part
of her class. She had come to see the Internet at Namu as unreliable, and so relied on her
own devices as much as possible. She had come to associate the projector and whiteboard
for their tandem affordances, so as to find this uncommon use (at least at Namu)
unremarkable. Fiona had come to associate certain ICTs (such as smartboards and
document cameras) with a greater pedagogical efficacy than the technology widely
available at Namu. Hugh had come to associate Internet access and multimedia with basic
classroom conditions at Namu, so much so that he took pains to replicate these conditions
with his own technology when they were not available in the classroom.

In addition, particular technologies seemed to be associated with high or low
agency use. Courseware, for example, was mostly employed by Jessie and Hugh in a
rather straightforward manner. Microsoft Word, on the other hand, was used by each
instructor in a relatively innovative (if not necessarily unconventional) manner. Again,
recalling Hutchby’s (2001) caution that different technologies are not equally malleable
or open to reinterpretation/reconfiguration, it may be more difficult to use some ICT in
innovative ways. Some applications are expressly designed as to disallow modification.
The courseware, as one example, was a closed program, admitting no new material and
little personalization. One way that instructors got around this limitation was by using these closed ICTs in tandem with other things. Jessie, for example, supplemented the courseware with Google Images, and used it in tandem with the whiteboard to add further functionality. Thus, interpretation of a particular ICT is not limited to how it is used in isolation, but can also be accomplished through the creation of an array, different technologies (not all of which need be ICT) used in conjunction. Thus, though Jessie seemed to take the user position in discussion above, a finer grained analysis shows that her actual use (if not her talk) had a bit of the tinkerer approach to it. It would seem, then, that instructor approaches to ICT needed to be considered both in terms of larger patterns and in cases of specific technology.

4 Follow-up: Member checking and catalytic validity

In the summer following the semester of the main data collection, a follow-up interview was conducted with each of the participants. These interviews served three purposes. The first, already discussed in chapters six through eight, was to give the participants the opportunity to do the card sort activity again with ICT items derived from their interviews. The second was to conduct member checking, which involved discussion of the phenomenon of interest and some preliminary findings. Finally, instructors were invited to reflect on any impact participation in the study might have had on their approach to ICT use.

When Fiona sat for a follow-up interview in late July, she had been teaching some conversation classes with non-traditional students. Asked whether participation in the study had led her to think about her technology use or approach ICT differently, Fiona
replied that it had not. She ascribed this to her prior experience, which she held to have included a great deal of self-observation and reflection already. For Fiona, participation in the process did not seem to serve as a catalyst for any changes in her ICT use practice.

Fiona was asked to reflect on any patterns she had noticed in Namu instructors’ approaches to ICT. In response, she compared instructors at Namu to those in the USA, noting that there were both similarities and differences. She highlighted greater access and training in the USA, but also noted that instructors in both contexts would not use technology they were not comfortable with. She noted one major difference in instructor approaches: ICT used for instructors, and ICT used for students. She reported that, problematically, many instructors employed ICT in ways that made their own jobs easier rather than ways that had the greatest benefit for the students. Loosely, this distinction relates to the time and effort an instructor is willing to invest to learn to use, and to reinterpret a technology. An instructor who was student focused would seemingly be more likely to invest greater effort to learn new ICT, navigating greater complexity and even finding new affordances. That said, there is no reason instructors focused on easing their own responsibilities with ICT would not be able to find innovative ways to apply it.

Jessie’s follow-up interview was also conducted in late July. At this time, she had just completed teaching a two-week intensive English course, one that had caused her some difficulty due to the students’ advanced level and other class conditions that differed from her usual teaching situation. In these courses, she had put less focus on atmosphere, and she felt she had encountered less success with the class. She reported the class as having been saved by the use of Kahoot, a smartphone based multiple choice application.
Fiona reported that participation in the study had been helpful to her use of classroom technology. She noted that the video-cued interviews had been helpful in providing a different perspective for her to observe her practices. She noted that her use of Kahoot had emerged directly from the focus group discussion. Overall, she had positive things to say about participation in the study:

It’s been quite illuminative. I guess it helps with the whole reflective practitioner mindset. You think a lot about what you do. And as always, engagement is a big thing for me. Thinking of ways to increase engagement through finding ways to use technology instead of punishment (...) It has helped with my reflection in terms of technology and how I use it. Because I just do what feels right, and feels useful. I don’t necessarily analyze why I’m doing stuff? And so, having to sit and think, well, why do you use this? I’m like, it’s fun. But the fact that it’s creating this atmosphere, and it’s a part of what’s happening. These are impacts that came out through me actually talking it through.

Asked what patterns she thought she had observed in instructor technology use, Jessie proposed that there were low, medium, and high users of technology, in terms of frequency of use and skill, positive and negative attitudes towards technology, as well as aspiring versus complacent attitudes. To her, high users were possessed of advanced ICT skill and knowledge, medium made average use of technology, and low made little to no use. She noted that some who used technology were interested in increasing their skill and familiarity, while others were happy to use ICT in the same ways they always used it. Jessie considered herself to be a medium user with an aspiring and positive attitude.
Hugh’s follow-up interview was conducted in mid-August. Though Hugh had taught similar classes as Jessie, he did not comment on them in his interview. Rather, he reiterated many of the concerns he had stated during the semester. In his video-cued interview, Hugh had already expressed concern about his use of ICT. He articulated these concerns again in the follow-up interview:

I’m still concerned with the way I interact with the technology in the classroom.
I’m still concerned with how my focus goes away from learners and onto the technology to move us from one piece of something to the next something, and that’s troubling to me (...) Whenever I’m going to the next thing, I’m not engaging with them, I’m not even engaging in the lesson, I’m now engaging with the software, and I’m the only one engaging with it.

Hugh also repeated his concern of ICT’s role in the power dynamic. Echoing the discussion of e-lecterns above, he identified the artifacts as problematic, saying, “The podium is unnecessary. It’s a symbol. We don’t need the podium to do any of the things it does”. He compared the e-lectern to a pulpit, with the instructor positioned as the “Pope of the classroom”.

As asked about patterns in instructor ICT use, Hugh offered a similar description to that of Jessie, with instructors as low/no-use, medium-use, or high-use. He identified himself as medium-use. Notably, he presented high-use instructors as using a great deal of their own technology, rather than making greater use of that available in the classroom.

As asked if there was a normative element to these categories, Hugh asserted there was not.
He emphasized the importance of different teaching styles, some of which might use ICT more or less often:

I do think a person should be true to themselves with regard to this. If you’re not a techie guy, don’t feel like you need to be the techie guy (…) That’s where you run into the problem. The administration says we spent all this money on this stuff, you must use it. And the person who is not familiar or comfortable with it is going to be forced into a bad place, because their teaching style may not be effective with a powerpoint.

Hugh identified differentiation as a key factor in instructor approaches to ICT, and noted that there was tension between the purchase and provision of ICT and those instructors who did not teach well with it.

In sum, two of the participants held that their participation in the research led to greater reflection on their technology use. While some of this may have emerged from the interview process, it seemed that the greatest impact came from the video-cued interview. This was particularly the case with Hugh. Though not necessarily the target outcome of the research, the apparent positive influence of participation is a welcome result that suggests directions for future research and ICT teacher training. The ideas the participants had about teacher mindsets, while not applying directly to technology agency and teacher ideologies of technology, still resonated.
Chapter 10: Conclusion

This study was undertaken with the goal of exploring instructor interpretation and understanding of technology as it relates to classroom use. To this end, it introduced the theoretical concepts of technological agency and ideologies of technology. Drawing on various methods of data collection undertaken over the course of a semester, thick description was presented highlighting prominent aspects of the participants’ espoused opinions, ideas, and beliefs about ICT and their observed use of it in teaching situations. This allowed for patterns and points of interest in the participants’ ideas and actions to be identified. Finally, these were connected back to the proposed theoretical elements of technological agency and ideologies of technology introduced in chapter three, resulting in extension and refinement of these concepts. This exploration of espoused views, actual use, and their relation to both extant theory and the conceptual elements proposed here brings into relief some of the ways instructors interpret and apply ICT in their classrooms, their reasons for doing so, and some of the elements that influence those decisions. In particular, differences in instructor approaches to learning how to implement ICT stand out as a key consideration in understanding what leads instructors to use classroom ICT in the ways that they do. The dissertation concludes with consideration of implications, potential avenues of future study, and limitations of the study.

1 Implications

Two of the prominent themes in this study were the role of training for classroom technology integration, and the different experiences the participants had had with it.
What the participants’ views and experiences suggest is that ICT training should not be approached as a self-contained, terminal process of learning, but rather an open ended one, as a force for technological agency rather than rhetorical closure. It should be expected that any training conducted is only the first step in teachers’ progress with an ICT, and that teachers will have to play, experiment, and contextualize the technology if they are to effectively integrate it in their classrooms. Naturally, this means the ways ICT would be used would not be completely standardized, and not equally effective in every classroom, or at the very least not effective in the same ways. Technology only makes sense as a force for standardization if the human side of its implementation is disregarded. If standardization is set aside, and teachers are supported in differentiated use of ICT, both greater integration and effective use of ICT would likely emerge.

Another important point that arose in both interviews and observations was the influence of classroom layout and the mobility (or immobility) of major classroom ICT. What seems clear is that the placement of classroom ICT represented an implicit theory of the pedagogy that was meant to take place in that space, one that had very real influence on the teachers in this study (most evidently Hugh). Whether this theory of pedagogy was explicitly understood and intentionally designed for by those making layout decisions at Namu is unclear. However, intentional or not, a theory of pedagogy is present in the layout and influencing classroom interaction all the same. These ideas have been explored by Monahan (2002) and his theory of Built Pedagogy. On the part of administration and classroom designers, it may be the case that flexible rather than rigid layouts would allow teachers to better implement ICT in the classroom. On the part of teachers, it would likely be beneficial for them to be aware of these influences, and adapt
their practices accordingly.

Such was the experience of Hugh, who in the video-cued interview noted the impact that use of an e-lectern had on his classroom mobility. The catalytic impact experienced by two of the study’s participants highlights the value of reflection and discussion where classroom ICT use is concerned. Furthermore, the participants’ experience of the focus group interview suggests that there is great value in the fostering of cultures of technology use. Creating space for these sorts of discussions and interactions could be invaluable for encouraging effective integration of ICT in classrooms.

Though the concepts of technological agency and ideologies of technology were applied in the context instructors and classrooms, there is no reason to believe that their application must be limited to educational endeavors. Any situation where individuals (and groups) define problems and are given leeway in the application of technology to solve them admits of this interpretive frame.

As a final point, it should be stressed that technological agency and ideologies of technology are not meant to serve as normative constructs, against which teachers should be evaluated. The ideas introduced in this dissertation are not meant to form the basis for yet another discourse of deficiency in education, where teachers exhibiting higher technological agency and an overall tinkerer ideology are held to be superior to those who are not. What these concepts are meant to highlight is the differentiation that exists in the relationships instructors can have with classroom ICT, and the importance of taking into account the individual scope when initiating the introduction of new technology to classrooms, or conducting ICT based professional development. While
tinkerer teachers may be able to more effectively implement and integrate ICT into their classrooms, it is not at all clear that instructors can or should be made to adopt this ideology, and it is unlikely that holding user teachers accountable for their approach to technology can lead them to change that approach. What this research does suggest is that instructor interpretation of ICT might be encouraged through opportunities for self-observation supported by guided reflection, and the fostering of professional communities of ICT use where ideas can proliferate and different approaches to ICT can be modeled.

2 Contributions of this dissertation

This qualitative case study makes three contributions to the field of educational research on classroom technology. These contributions are methodological, descriptive, and theoretical.

a. Methodological contribution: Card sorting

As a qualitative case study exploring practice and meaning, this study employed a variety of established data collection techniques. Of the methods employed, card sorting stands out as being relatively innovative in this research context. This method was adapted from software-based user-experience testing, where it is used to explore the phenomenon of participant meaning making regarding elements of websites and digital applications. In this study, it was also a useful tool for exploring participant meaning making of instructional ICT. Some refinement of the method was necessary, resulting in two card sorts for each participant rather than one (as was originally planned). Though card sorting
has been used in social science research (see, for example, Neufeld et al, 2004), its usage and refinement here represents a novel approach to the exploration of meaning in educational research, and thus a contribution to the field.

b. Descriptive contribution: Elements of teacher relationships to ICT

The second contribution this dissertation makes to the field of educational research on classroom technology is in the description of the various factors that the instructors held to be pertinent to the use of ICT in the classroom. Some of these factors, such as ICT access and ICT reliability, were contextual. Others, such as what ICT was, how it was meant to be used, and what it was for, were conceptual in nature, pertaining to the meanings and theories that instructors had associated with ICT. The study revealed three overlapping but distinct conceptualizations of ICT and three distinct classroom approaches. Each instructor’s use of technology was a highly individualized mix of his or her conceptualizations of ICT, personality, history, and pragmatic considerations of the institutional context. Each instructor had an individual relationship not only with instructional ICT in general, but also with different specific technologies. While each shared the notion that classroom technology could be used poorly, this did not amount to an argument for a single right or wrong way to use technology. This individual differentiation problematizes broad claims of technology’s benefit for learning. What stands out most is the notion that the benefits of technology can emerge from the relationship between the teacher and the artifact. In short, to understand the place of technology in the classroom, the focus must be on this relationship as well as, if not more than, the artifact itself.
This aspect of the study represents a contribution to the field, in that it highlights the importance of individual instructors’ relationships to technology, and their conceptualizations about technology. Broadly, it provides an empirical warrant for the assertion that teachers’ ways of thinking about classroom technology matter, and must be taken into account in considering the potential beneficial impact of ICT on student learning. In doing so, it joins numerous studies that have examined various aspects of teachers’ ideas and beliefs about classroom technology (e.g. Angers and Machtmes, 2005; Bax, 2003; Curwood, 2014; Hodas, 1996; Lam, 2000; and Loveless, 2004, among others cited in chapter two). At the very least, it establishes that the importance of teacher cognition about instructional technology, observed in the various contexts of those studies (many of which were K-12), held true in the three cases of South Korean NNES English language instructors at a vocational college. The context differed from many of those explored in other studies in that the instructors in this study were given relative freedom to experiment with ICT and use it in their classrooms, with few requirements or restrictions. On the other hand, contextual factors such as access to technology and their perceptions of their students’ use of ICT also seemed to influence their use. In the face of these freedoms and limitations, the three instructors showed great variation in their conceptions of ICT, in the features of technology that they saw as relevant, and in their classroom use. The thick description employed in these cases shows just how multifaceted and complex these instructors’ relationships to instructional ICT can be, and suggests that such complexity is likely to be found in each instructor to some degree.

In addition, in highlighting this individual differentiation in instructor approaches to ICT, the findings present further evidence against essentialist understandings of
instructional technology, its place in the classroom, and against technological determinism in general.

c. Theoretical contribution: The value of technological agency and ideologies of technology

The third major contribution of this dissertation is that of the articulation, refinement, and application of the constructs of technological agency and ideologies of technology. While multiple studies have approached teacher cognition about technology in various ways (see works cited directly above), these constructs allow for a focus on teachers’ appropriation, reshaping, and innovative application of technological artifacts to classroom tasks. While some researchers have highlighted the importance of the concept of affordance for understanding teacher use of technology (Haines, 2015; Levy, 2000), the construct of technological agency goes further by turning attention to a teacher’s tendency and ability to find new affordances in technology. Importantly, technological agency relates to teachers’ perceptions of technology and attitudes towards it. By combining technological agency with frequency of technology use, it is possible to employ the construct of ideologies of technology to teachers’ espoused ideas and opinions of ICT and their observed patterns of use. Distinction can then be made between teachers who are likely to employ and reinterpret (i.e. find innovative affordances for) ICT in their classrooms, and those who are not. Understanding teachers as technology users and tinkerers is a valuable way to understand individual teachers’ approaches to ICT, and to provide appropriate support and professional development based on these approaches. Framing teachers’ relationships to ICT in terms of their self-ascribed right,
ability, or sanction to find innovative uses for the technology in their classrooms may aid in finding the best ways to help them accomplish their pedagogical goals with ICT’s support. Though applied here in three cases in a single context, these constructs are likely valuable for understanding teacher approaches to technology in a wide range of educational situations. Thus, these constructs represent a contribution to the field of educational research on classroom technology.

3 Future study

The findings of this study suggest a great number of directions research could take in the future. These are considered here. One obvious next step would be to investigate the phenomenon of interest with a comparative case study in a number of contexts, with a greater number of participants. Though the research design employed in this study would be far too labor intensive to deploy at a larger scale, the theory developed and refined here could be confirmed, denied, or refined with a leaner, more agile data collection approach that did not put as much focus on thick description. Alternatively, the card-sorting element of the study could be used with a greater number of participants in one context to see broad patterns in a population.

Nor would future research on this phenomenon need to be restricted to interpretive research. With modification of the research questions, a quantitative or mixed method study, employing questionnaires, could be used to investigate teacher approaches to technology use at a far greater scope than that employed here. Such a study could focus on actual technologies instructors have available and employ, and could look at learning approaches as well.
The findings of this study could serve as the basis for a professional development program focused on supporting and fostering reflective use of ICT, and technology use communities. Such a program would lend itself to a design-based research model, wherein recursive interventions are employed to develop and refine an effective professional development approach. Along these lines, at this time the Tinkerer teacher’s toolkit mentioned in chapter four is already in the formative stages of development, and will serve as the basis for a participatory research project.

On a smaller scale, one direction of study this research suggests is the process of familiarization, adoption, and integration of a technology in a classroom. Should the opportunity present itself, it would be interesting to follow the process and progress of teachers as they are given access to a new technology and figure out how to best apply it in their teaching. Such a study could be interpretive or mixed method, and could be valuable for exploring teacher ICT learning and interpretation as it occurs.

One interesting finding of the study was that each participant made use of Microsoft Word in a somewhat innovative way to display information for students. Of the three, only Fiona mentioned this as an unconventional use of the program. While it is only appropriate to speculate given the limits of this study, it is possible that this particular innovative use of a specific application for a specific problem was a socially shared feature of English teachers in the Namu context. Oroza (2012) found that reinterpretations of technology often spread in a social manner, with particular innovations emerging in specific contexts and locales. If the opportunity presented itself, it would be interesting to track a particular innovative use of an instructional technology in a context, and to explore the technology use culture in a school or university.
Oroza’s (2012) work, being focused on the Cuban context, looked at rather low-tech (mechanical) innovation rather than ICT. Though the participants did not consider Namu to be a high access environment where technology was concerned, there are many places in the world where an Internet-connected computer and projector would be a great luxury. It would be interesting to explore environments where resources were constrained to a far greater extent than at Namu, and to see what forms of technological agency might emerge in the face of more basic necessity. As an example of this, the researcher had the experience of teaching in a rural area in Eastern Europe, at a school that could not afford slate chalkboards and so employed painted wood and chalk.

Returning to Kozinets’ consumer technology ideologies, two positions that could benefit from more attention, where teachers are concerned, are the techtopian and green luddite positions. The latter position, especially, could serve as a useful frame for exploring a teacher population not considered in this research: Skeptical teachers who are reluctant to employ technology in the classroom. Given that purposive sampling in this study, along with self-selection, precluded representation of this viewpoint, it would be valuable to explore and thus provide another facet to the phenomenon represented in this work.

Two other perspectives that were not included in this research were those of the non-native English speakers (NNES) of the Namu Korean English teaching faculty and the students themselves. With the former group, it would be illuminating to explore what patterns of ICT use emerge from their practices and espoused ideas and opinions, and to compare these with those of their NES colleagues. Concerning the students, it would be valuable to have their perspective on classroom technology use in their own experience,
both from NES and NNES instructors. In addition, it would be valuable to explore the role technology plays in their own learning practices, language or otherwise.

Regarding the student experience, it is somewhat surprising that the participants did not voice concern about the role of language in student interactions with digital technology. Given the status of English as a digital lingua franca, many resources on the Internet are simply not available to students who have not attained a certain level of skill with English. Though this phenomenon was not mentioned by the participants in this study, it is likely a major factor influencing student use of ICT for learning.

4 Limitations of study

To employ an interpretive research framework is to accept that, no matter how carefully the research is designed and executed, there can be no ultimate and objectively correct conclusion to reach. Rather, a case is built for warranted assertions, buttressed by precautionary measures such as those taken here: Triangulation, member checking, and researcher reflexivity. One further step that can be taken is to entertain alternative interpretations and conclusions that might be reached. Further, this section will address concerns that might be expressed as to the warrants of the researcher’s interpretations, such as limitations of the study itself and ways, afforded by hindsight, that it may have been and yet may be improved upon.

This study was not undertaken with the goal of being empirically generalizable. Given that one of the main the phenomena of interest was the participants’ ideas, experience, and use, the thick description offered here cannot necessarily be predicted to hold in any other context. Instead, the goal of this study was to develop and test
theoretical constructs that may themselves have value when applied to other contexts.

Caution must be offered as to the nature of the data itself. The espoused ideas and actions of the participants are understood interpretively, not objectively. The participant reports of beliefs and ideas cannot necessarily be taken at face value. This is especially the case with video-cued interviews, where the participants are not only in a position to interpret and explain their use of ICT, but also justify and defend it. In other words, the reasons they report for using a technology may be post-hoc rationalizations. This consideration was taken into account in the analysis and presentation of data.

With regard to observations, here too caution must be offered. While it is hoped that the classes observed represented normal situations, the presence of both the researcher and the camera must not be dismissed. Though cautions were taken to avoid influencing the participants, it is entirely possible that the instructors could have used ICT to a greater extent during observations than they normally would have. That said, it was the general impression of the researcher that this was not the case.

Finally, the design of the study required a great deal of time and effort on the part of the researcher. Under different circumstances, it may have been possible to recruit a greater number of participants and/or observe a greater number of classes. In response, it can be offered that, while the methodological concept of data saturation is nebulous at best, it was in the researcher’s opinion achieved in this case, particularly where the participants’ ideas about ICT were concerned.

5 In closing

While the promise of ICT for the enhancement of classroom learning, both in general and
specifically in the realm of language acquisition, has been too often touted as unproblematic and self-evident, dissenting voices have pointed to history (Cuban, 1986), the undue influence of commercial interests (Apple, 1991; Selwyn, 2011), and the human element of teachers and school organizations (Hodas, 1996; Perrotta, 2013) to show how this promise has all too often fallen short. It has been a central tenet of this dissertation that it is meaningless to talk of technology in classrooms without talking about the humans that interact with and utilize said technology. Seen as a matter of human/technology relationships rather than objective and deterministic benefits conferred by the use of technology, it becomes important to take into account the variations in experience, temperament, and beliefs of the teachers who employ instructional technology. This human element is complex, chaotic, messy. It is hard to pin down. It has been the goal of this work to make the contribution of two theoretical constructs to help with the endeavor of making sense of this phenomenon. Technological agency can help to conceptualize teachers’ relationships to technology in terms of control, the freedom of interpretation and the constraint of rhetorical closure. In ideologies of technology can be found positions that can aid in the understanding of how teachers’ relationships to ICTs may vary, and how they might be given the most appropriate assistance in doing the most that they can, where they are, with what they have.
References


Koehler, M., & Mishra, P. (2009). What is technological pedagogical content knowledge (TPACK)?. *Contemporary issues in technology and teacher education, 9*(1), 60-70.


experience. Abingdon, UK: Routledge.


Skott, J. (2014). The promises, problems, and prospects of research on teachers’


Appendices

Appendix A: Classroom technology use survey
(adapted from Vannatta and Fordham, 2004)
Part A: Teacher Technology Use
Indicate the frequency that you used the following tools/applications in your instruction during this last semester. Examples of teacher use are: teacher demonstration, use of tool/application during lecture/presentation, etc.

1 = None
2 = Rarely (once or twice per semester)
3 = Moderate (several times per semester)
4 = High (almost weekly per semester)

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Computer with projection</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>Digital camera/camcorder</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3.</td>
<td>Scanner</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>Content-specific tools (e.g. language hardware)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5.</td>
<td>Word processing</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6.</td>
<td>Database</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7.</td>
<td>Spreadsheet</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8.</td>
<td>Graphics applications (Microsoft Paint, Photoshop)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9.</td>
<td>Content specific application (language application)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10.</td>
<td>Presentation software (e.g. PowerPoint)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11.</td>
<td>Multimedia (audio, video)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12.</td>
<td>Email</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13.</td>
<td>Internet</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>14.</td>
<td>Blog</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>15.</td>
<td>Social media</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>16.</td>
<td>Mobile application</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17.</td>
<td>Course management system (e.g. moodle)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Other, please list:

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>18.</td>
<td>__________________________</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>19.</td>
<td>__________________________</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>20.</td>
<td>__________________________</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>21.</td>
<td>__________________________</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

22. Have you studied a language besides your native language in the past five years? (Yes/No)
22a. If yes, which language(s)?
22b. How would you describe your level of attainment with these languages?
22c. What are your preferred methods of language study?

Appendix B: Classroom observation guide
Title: Exploring teacher ideologies of technology
Data collection: Video recorded classroom observation (Gass & Mackey, 2000) (Guide developed from Boyce & Neale, 2006)

Relevant research questions
1. How do these ideologies relate to teachers’ reported pedagogical goals? (What ICT is in terms of what it is for)
2. How do these ideologies relate to teachers’ observed classroom technology practices? Are they discrepant, or congruent?
3. What contextual factors (such as institutional policy and professional culture and/or ideologies of technology) might influence these practices?

Figure 1: SAMR model of classroom technology use

<table>
<thead>
<tr>
<th>Key points</th>
<th>Primary purpose</th>
</tr>
</thead>
</table>
| • Obtain footage of instructor  
• Focus on ICT use  
• Avoid filming students  
• Notes on ICT use will be taken | The aim of the class observation is to video record instances of instructor use of ICT in the classroom and take ethnographic notes detailing instances of technology use and emergent patterns (practices). The students are not part of the study, and so should not be filmed as much as possible. Any footage which includes student faces will be edited.  
The main point of interest is instructor ICT use. The investigator will take field notes during observation. These notes will include information about time and duration of technology use, and will categorize technology use along the four categories of the SAMR model (see fig 1). These notes will be compared against the video recording. These notes will be used to form some prompting questions for the semi-structured interviews and video-cued interview. |
Example entry blank

<table>
<thead>
<tr>
<th>Participant A</th>
<th>Observation 1</th>
<th>1/1/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>Technology</td>
<td>Duration</td>
</tr>
<tr>
<td>0:45</td>
<td>Powerpoint</td>
<td>10 min</td>
</tr>
</tbody>
</table>

Appendix C: Administrator interview guide
Interview Type: semi-structured interview
(Guide developed from Boyce & Neale, 2006)

Relevant research questions
1. What contextual factors (such as institutional policy and professional culture and/or ideologies of technology) might influence these practices?

<table>
<thead>
<tr>
<th>Introduction</th>
<th>Introductory text:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Thank You</td>
<td>I want to thank you for meeting with me today. My name is _______________. I am very interested in teacher use of information/communication technology in the classroom, and I am talking with you today because you are involved with ICT practices on campus, and I believe you can help me understand the sorts of things teachers here are expected to use ICT for.</td>
</tr>
<tr>
<td>• Name</td>
<td>This interview should take about 45 minutes. I am going to ask some questions about technology use at this university. Feel free to interpret the questions, or to ask for clarification at any point. Though I will be taking notes, I will also be recording this interview, and will be transcribing parts of it later. I will be the only one with access to the recording, though I will be happy to provide you with a copy if you wish. Anything I use from the transcription will be anonymous. The utmost care will be taken to ensure there is no way to identify you from the interview conducted today. I want to emphasize that this is completely voluntary. You don’t have to answer any questions you don’t want to answer, and you are free to end the interview at any time.</td>
</tr>
<tr>
<td>• Purpose of study</td>
<td>Before we begin, I would be happy to answer any questions you might have.</td>
</tr>
<tr>
<td>• Confidentiality</td>
<td>Are you willing to participate in this interview?</td>
</tr>
<tr>
<td>• Duration</td>
<td></td>
</tr>
<tr>
<td>• How will interview be conducted</td>
<td></td>
</tr>
<tr>
<td>• Opportunity for questions</td>
<td></td>
</tr>
<tr>
<td>• Signature of consent</td>
<td></td>
</tr>
</tbody>
</table>
### Interview
- Semi-structured
- May include prompting questions, clarification questions, or additional questions arising from participant responses.

### Phenomena of interest (POI): Institutional factors influencing ICT use.

**Questions:**
- Are there any requirements for teacher ICT use at this university?
- Are there any policies in place regarding how teachers use ICT?
- In your opinion, what has led ICT policy at this institution to take the shape it has taken?
- What sort of ICT training or support is offered to teachers by your program?
- To your knowledge, does this university have an approach to teaching with ICT that differs from other universities?
- Do you see any trends of ICT use among teachers?

### POI: Administrator’s ideas of ICT use/institutional history

**Questions:**
- How would you like to see teachers using ICT in classrooms?
- Can you tell me about a time where you thought a teacher was making a particularly effective use of ICT?
- Conversely, can you tell me about some ineffective use of ICT you’ve seen?
- Is ICT important in the teaching of language? How so?
- How has ICT use at this university changed over the past (2/5/10) years?

### Closing
- Closing comments
- Thank you
- Invitation for follow-up

### Closing text:
Is there anything you would like to say before we finish? Ok, thank you for taking the time to talk with me today. I’m going to be going over what we talked about. If at any later point you would like to discuss the research, don’t hesitate to contact me. I’ll be happy to chat, and to let you know how it’s going.

---

Appendix D: Three stage, semi-structured interviews

Interview Type: Semi-Structured, Three stage, in-depth interview (Seidman, 1991)
(Guide developed from Boyce & Neale, 2006)

Relevant research questions
1. What ideologies of technology do EFL instructors report concerning the affordances of ICT in the classroom context? (What ICT is in terms of what it can do)
2. How do these ideologies relate to teachers’ reported pedagogical goals? (What ICT is in terms of what it is for)
3. How do these ideologies relate to teachers’ observed classroom technology practices? Are they discrepant, or congruent?
4. What contextual factors (such as institutional policy and professional culture and/or ideologies of technology) might influence these practices?

<table>
<thead>
<tr>
<th>Introduction</th>
<th>Introductory text:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Thank You</td>
<td>I want to thank you for meeting with me today. My name is __________________. I am very interested in teacher use of information/communication technology in the classroom, and I am talking with you today because you are a teacher who uses ICT, and I believe you can help me understand your personal experience with it.</td>
</tr>
<tr>
<td>• Name</td>
<td></td>
</tr>
<tr>
<td>• Purpose of study</td>
<td></td>
</tr>
<tr>
<td>• Confidentiality</td>
<td></td>
</tr>
<tr>
<td>• Duration</td>
<td></td>
</tr>
<tr>
<td>• How will interview be conducted</td>
<td></td>
</tr>
<tr>
<td>• Opportunity for questions</td>
<td></td>
</tr>
</tbody>
</table>

This interview should take about 45 minutes, and will be the first of three. Though I will be taking notes, I will also be recording this interview, and will be transcribing parts of it later. I will be the only one with access to the recording, though I will be happy to provide you with a copy if you wish. Anything I use from the transcription will be anonymous. The utmost care will be taken to ensure there is no way to identify you from the interview conducted today. I want to emphasize that this is completely voluntary. You don’t have to answer any questions you don’t want to answer, and you are free to end the interview at any time.

Before we begin, I would be happy to answer any questions you might have.

Are you willing to participate in this interview?
<table>
<thead>
<tr>
<th>Interview 1: Context</th>
<th>Biographical info</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Begin with 11 open ended questions</td>
<td>• How long have you been teaching?</td>
</tr>
<tr>
<td>• Order of questions may be changed</td>
<td>• How would you describe your relationship with ICT in your daily life?</td>
</tr>
<tr>
<td>• Focus on technology use and teaching history, life arc, and context</td>
<td>• How would you describe your relationship with technology as a teacher? Does it differ, and if so, how? What’s the most important piece of technology in your life?</td>
</tr>
<tr>
<td>• Use clarifying questions as needed</td>
<td>• What’s the most important piece of technology in your classroom?</td>
</tr>
<tr>
<td></td>
<td>• Have you studied any languages? Did you/do you use technology in your studies?</td>
</tr>
<tr>
<td></td>
<td><strong>Broad ICT in the classroom questions</strong></td>
</tr>
<tr>
<td></td>
<td>• What sorts of ICT have you found valuable in the classroom?</td>
</tr>
<tr>
<td></td>
<td>• In terms of language teaching, what is ICT well suited for? What is it not suited for?</td>
</tr>
<tr>
<td></td>
<td>• How has your use of ICT evolved over your teaching career?</td>
</tr>
<tr>
<td></td>
<td>• Do you find ICT being used differently here than at other places you’ve taught?</td>
</tr>
<tr>
<td></td>
<td>• Is there anything you would like to add about your use of ICT for language teaching?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interview 2: Day to day details, use and learning</th>
<th>Exploring the ways ICT comes to be used as it is</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Begin with 8 open ended questions</td>
<td>• Can you tell me about a time when ICT was especially effective in your classroom?</td>
</tr>
<tr>
<td>• Order of questions may be changed</td>
<td>• Why was it so effective?</td>
</tr>
<tr>
<td>• Focus on concrete examples of ICT use in the classroom, and the process behind those choices</td>
<td>• Can you tell me a time when your use of ICT wasn’t as successful as you expected it to be?</td>
</tr>
<tr>
<td>• Use probing questions as needed</td>
<td>• Why do you think it wasn’t as effective as you expected?</td>
</tr>
<tr>
<td></td>
<td>• What features do you look for in good teaching ICT?</td>
</tr>
<tr>
<td></td>
<td>• Can you tell me a time when you’ve used a technology in the classroom in a way that it wasn’t meant to be used?</td>
</tr>
<tr>
<td></td>
<td>• What lead you to use it in that way?</td>
</tr>
<tr>
<td></td>
<td>• What are some other ICTs that can be used in interesting ways?</td>
</tr>
<tr>
<td>Stage 3: Meaning and significance</td>
<td>Broad questions about teaching and technology</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>• Begin with 9 open ended questions</td>
<td>• Can you tell me a little bit about what it means to you to be a language teacher?</td>
</tr>
<tr>
<td>• Order of questions may be changed</td>
<td>• How does ICT relate to that?</td>
</tr>
<tr>
<td>• Focus on meaning and significance in teaching and ICT use</td>
<td>• Do you think a teacher needs to use ICT in order to teach well?</td>
</tr>
<tr>
<td>• Use clarifying questions as needed</td>
<td>• What is your advice for someone who wants to use ICT in the classroom well?</td>
</tr>
<tr>
<td></td>
<td>• What should someone using ICT avoid doing?</td>
</tr>
<tr>
<td></td>
<td>• How do you decide how you’re going to use ICT in particular situations? Tell me a little about how you make that decision.</td>
</tr>
<tr>
<td></td>
<td>• How would your teaching be different these days if you couldn’t use ICT?</td>
</tr>
<tr>
<td></td>
<td>• In a broad philosophical sense, what is technology? What, in particular, is ICT? How does it differ from other sorts of technology?</td>
</tr>
<tr>
<td></td>
<td>• How do you see ICT in language teaching changing over the next ten years?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Closing</th>
</tr>
</thead>
</table>

*To be used following each interview.*

• Closing comments
• Thank you
• Invitation for follow-up

<table>
<thead>
<tr>
<th>Closing text:</th>
</tr>
</thead>
</table>

Is there anything you would like to say before we finish? Ok, thank you for taking the time to talk with me today. I’m going to be going over what we talked about. If at any later point you would like to discuss the research, don’t hesitate to contact me. I’ll be happy to chat, and to let you know how it’s going.

Appendix E: Video cued interview guide
Interview Type: Video cued interview (Gass and Mackey, 2000), semi-structured interview
(Guide developed from Boyce & Neale, 2006)

Relevant research questions
1. What ideologies of technology do EFL instructors report concerning the affordances of ICT in the classroom context? (What ICT is in terms of what it can do)
2. How do these ideologies relate to teachers’ reported pedagogical goals? (What ICT is in terms of what it is for)
3. How do these ideologies relate to teachers’ observed classroom technology practices? Are they discrepant, or congruent?
4. What contextual factors (such as institutional policy and professional culture and/or ideologies of technology) might influence these practices?
**Introduction**

- Thank You
- Name
- Purpose of study
- Confidentiality
- Duration
- How will interview be conducted
- Opportunity for questions

**Introductory text:**

I want to thank you for meeting with me today. My name is _______________. I am very interested in teacher use of information/communication technology in the classroom, and I am talking with you today because you are a teacher who uses ICT, and I believe you can help me/us understand your personal experience with it.

This interview should take about 45 minutes. I would like you to watch this video, which features clips of your classroom technology use. We will pause periodically so that you can comment on what you see. There are no wrong answers or criticisms implied. The point is not to defend or justify your ICT use, but simply to explain and comment on it. Following the video, I would like to give you the opportunity to talk about what you saw and about teaching with ICT in general.

Though I will be taking notes, I will also be recording this interview, and will be transcribing parts of it later. I will be the only one with access to the recording, though I will be happy to provide you with a copy if you wish. Anything I use from the transcription will be anonymous. The utmost care will be taken to ensure there is no way to identify you from the interview conducted today. I want to emphasize that this is completely voluntary. You don’t have to answer any questions you don’t want to answer, and you are free to end the interview at any time.

Before we begin, I would be happy to answer any questions you might have.

Are you willing to participate in this interview?

**Stage 1: Video viewing**

- Participant will view video of previous class
- Commentary will be prompted by video, not interviewer

**Stage 1 text:**

At a previous date, a video recording will be made of clips from the participant’s three observed 75 minute EFL conversation classes. This video will total 15 - 20 minutes. The participant will be invited to watch and comment upon the video. Commentary will be audio recorded, and interviewer intervention will be minimal.

Stage 1 text:

Alright, I am going to begin the video. Please comment on what you see as it plays. If there is anything you wish to expand upon, feel free. There will also be time following the video. Are you ready?
### Stage 2: General commentary

- Unstructured response
- Prompting questions (optional)
- Questions based on commentary (optional)

Interviewee is free to offer summarizing or generalizing commentary based on the video or on general beliefs about ICT use. If necessary, prompting questions may be employed. Beyond prompting questions, the researcher may employ questions based on interviewee commentary.

**Stage 2 text:**

Ok, is there anything you would like to say, having watched the video?

Prompting questions (if necessary)
1. Did you find anything surprising about the video?
2. How does the video relate to your general approach to technology?
3. Have your thoughts about ICT changed since those classes?

### Closing

- Closing comments
- Thank you
- Invitation for follow-up

**Closing text:**

Is there anything you would like to say before we finish? Ok, thank you for taking the time to talk with me today. I’m going to be going over what we talked about. If at any later point you would like to discuss the research, don’t hesitate to contact me. I’ll be happy to chat, and to let you know how it’s going.

---


Appendix F: Focus group guide
Interview Type: Focus group (Liamputtong, 2011)
(Guide developed from Boyce & Neale, 2006)

Relevant research questions
1. What ideologies of technology do EFL instructors report concerning the affordances of ICT in the classroom context? (What ICT is in terms of what it can do)
2. How do these ideologies relate to teachers’ reported pedagogical goals? (What ICT is in terms of what it is for)
3. How do these ideologies relate to teachers’ observed classroom technology practices? Are they discrepant, or congruent?
4. What contextual factors (such as institutional policy and professional culture and/or ideologies of technology) might influence these practices?

Focus group questions are divided into three types (Eliot and associates, 2005): Engagement, exploration, and exit questions. Within the engagement phase, the questions will address two topics: Technology use in the classroom, and the institutional context of technology use.
### Introduction
- Thank You
- Name
- Purpose of study
- Confidentiality
- Duration
- How will interview be conducted
- Opportunity for questions

**Introductory text:**
I want to thank all of you for meeting with me today. As you likely remember, my name is ________________, and I am investigating teacher use of information/communication technology in the classroom. I have had interviews with each of you, and now I would like to have a discussion about your opinions and experiences with ICT. I’ll be asking some questions, and am really interested in knowing what you think. These questions are addressed to all of you, and I hope to hear from each of you. This discussion should take about 60 minutes.

Though I will be taking notes, I will also be video recording this interview, and will be transcribing parts of it later. As with before, I will be the only one with access to the recording, though I will be happy to provide you with a copy if you wish. Anything I use from the transcription will be anonymous. The utmost care will be taken to ensure there is no way to identify you from the discussion conducted today. Again, I want to emphasize that this is completely voluntary. You don’t have to answer any questions you don’t want to answer, and you are free to end your participation in the discussion at any time. That said, though there may be cordial disagreement, I don’t anticipate our topic matter getting very controversial.

Before we begin, I would be happy to answer any questions you might have.

Are all of you willing to participate in this discussion?

### Stage 1: Engagement
- No more than 3 open ended questions
- Order of questions may be changed
- Focus on acclimating the participants to the focus group process

**Following introductions and some small talk**
- What’s the most important piece of technology in your life?
- What’s the most important piece of technology in your classroom?
- How has technology changed things for you as a teacher in the last five years?
### Stage 2: Exploration

- Based on 5 questions
- Elicit commentary on the meaning which teachers give to ICT in the classroom
- Additional questions to follow interesting points from the conversation.
- Material for tertiary track project

1. How does technology affect your teaching?
2. How is it a help, and how is it a hindrance?
3. How is ICT different from other technology in the classroom? (if necessary, clarify “other technology” as signifying things such as books, markers, etc.)
4. If you were to advise new teachers on using ICT to teach English, what advice would you give them?
5. Previous question, in terms of: specific technologies, ways of using them, pitfalls to avoid, tips and tricks.

### Stage 3: Exit

- Concludes the session
- Opportunity for additional commentary

Before we wrap things up, is there anything you would like to add about using ICT in the classroom?

### Closing

- Thank you
- Invitation for follow-up

**Closing text:**

Ok, thank you for taking the time to talk today. I’m going to be going over our discussion. If at any later point you would like to discuss the research, don’t hesitate to contact me. I’ll be happy to chat, and to let you know how it’s going.

---


Appendix G: Follow-up interview guide
Interview Type: semi-structured interview
(Guide developed from Boyce & Neale, 2006)

Relevant research questions
Member checking and follow up concerning:

1. What ideologies of technology do EFL instructors report concerning the affordances of ICT in the classroom context? (What ICT is in terms of what it can do)
2. How do these ideologies relate to teachers’ reported pedagogical goals? (What ICT is in terms of what it is for)
3. How do these ideologies relate to teachers’ observed classroom technology practices? Are they discrepant, or congruent?
4. What contextual factors (such as institutional policy and professional culture and/or ideologies of technology) might influence these practices?
### Introduction
- Thank You
- Name
- Purpose of study
- Confidentiality
- Duration
- How will interview be conducted
- Opportunity for questions

**Introductory text:**

I want to thank you for meeting with me today. As I’m sure you recall, I’ve been working with you over the past semester to explore the ways language teachers use technology in the classroom. Our conversation today is a follow-up to that research. We’re going to touch on a lot of the things we talked about previously, just to see where things stand with you now. Also, I would like to share some of my preliminary ideas with you, to see what you think about them. This interview should take about 45 minutes.

Though I will be taking notes, I will also be recording this interview, and will be transcribing parts of it later. I will be the only one with access to the recording, though I will be happy to provide you with a copy if you wish. Anything I use from the transcription will be anonymous. The utmost care will be taken to ensure there is no way to identify you from the interview conducted today. I want to emphasize that this is completely voluntary. You don’t have to answer any questions you don’t want to answer, and you are free to end the interview at any time.

Before we begin, I would be happy to answer any questions you might have.

Are you willing to participate in this interview?

At this point, please take some time to complete this questionnaire.

### Stage 2: General commentary
- Semi-structured
- Prompting questions (optional)
- Questions based on commentary (optional)
- Member checking

**Reflection on participation in study**

- First off, have you had any new thoughts about ICT in the classroom since the last time we spoke?
- What stood out to you about participating in the research process? What was the most interesting thing?
- Did you change your mind about anything while you were in the study?
- Is there anything we didn’t talk about that you feel was very important about the topic of using technology in the classroom?

**Member checking**

These questions will arise from preliminary analysis of the data, and so are not yet formulated.
Closing
• Closing comments
• Thank you
• Invitation for follow-up

Closing text:
Is there anything you would like to say before we finish?
Ok, thank you for taking the time to talk with me today.
I’m going to be going over what we talked about. If at any
later point you would like to discuss the research, don’t
hesitate to contact me. I’ll be happy to chat, and to let you
know how it’s going.

http://www2.pathfinder.org/site/DocServer/m_e_tool_series_indepth_interviews.pdf
China, Japan, and the United States. Chicago, IL: The University of Chicago
Press.
Appendix H: Card sorting

Directions
Participants are given a stack of cards each bearing one example of ICT, and asked to organize them in whatever way they see fit. No criteria or categories are suggested. Participants are asked to vocalize their process as they sort the cards.

Cards
Sort 1

<table>
<thead>
<tr>
<th>Word processing software</th>
<th>Mp3</th>
<th>Projector</th>
<th>Social media</th>
<th>Spreadsheet software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language learning applications</td>
<td>Laptop</td>
<td>Blogs</td>
<td>Course Management Software</td>
<td>Email</td>
</tr>
<tr>
<td>Internet</td>
<td>Scanner</td>
<td>Desktop computer</td>
<td>Streaming audio/video</td>
<td>Smartphone</td>
</tr>
<tr>
<td>CDs</td>
<td>Digital camera</td>
<td>SMS</td>
<td>Tablet computers</td>
<td></td>
</tr>
</tbody>
</table>

Sort 2

<table>
<thead>
<tr>
<th>Presentation Software (PowerPoint)</th>
<th>Streaming Video (Youtube)</th>
<th>Document Camera (ELMO)</th>
<th>Courseware (iTools)</th>
<th>Internet Applications (Flash applications)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email</td>
<td>Projector</td>
<td>Smartboard</td>
<td>Smartphone</td>
<td>Tablets (iPad)</td>
</tr>
<tr>
<td>Word Processing Applications (Word)</td>
<td>Flashcard Applications (Memrise)</td>
<td>Translation Applications (Google Translate)</td>
<td>Instant Messaging (Kakao Talk)</td>
<td>Language Learning Applications (Rosetta Stone)</td>
</tr>
<tr>
<td>Course Management Systems (Moodle)</td>
<td>Video Games</td>
<td>Google (Images, Docs)</td>
<td>Multiple Choice Applications (Socrative)</td>
<td>Personal Computer</td>
</tr>
</tbody>
</table>
VITA

Brandon Sherman
brandsherman@gmail.com

Education

Ph. D. (2016) Curriculum and Instruction
(Emphasis: Language, Culture, and Society)
The Pennsylvania State University, University Park, PA
Dissertation: Agency, Ideology, and Information/Communication Technology: English Language Instruction use of Instructional Technology at a South Korean College

Masters (2011) Philosophy
University of New England, Armidale, Australia

Professional Experience

Bachelor’s of Arts (2005) East Asian Studies, Chinese Language
Minnesota State University, Moorhead

Professional Experience

Assistant Professor, English as a Foreign Language (Mar. 2016 - current)
Woosong University & Information College, Daejeon, South Korea
Responsible for planning and executing engaging and informative English lessons for learners at a variety of levels, through a number of topics such as conversation, writing, TOEIC preparation, presentation, and interview skills.

Graduate Research Assistant (Jan. 2015 – Mar. 2016)
The Pennsylvania State University, State College, Pennsylvania
Conducted qualitative video and textual analysis, literature research, review, and summary, and data transcription. Currently providing creative contributions to research in several ongoing projects.

Assistant Professor, English as a Foreign Language (Mar. 2009 - Aug. 2014)
Woosong University & Information College, Daejeon, South Korea
See description above.

Publications of note

Instructional Coaching through Dialogic Interaction: Helping a Teacher become Agentic in her Practice
2016, Language and Education, Volume 31
Third author, with Dr. Mari Haneda and Dr. Annela Teemant

A Job Crafting Perspective on Teacher Agentive Action
2016, Tesol Quarterly Volume 50 (3)
Second author, with Dr. Mari Haneda