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An Evaluation of the Implementation of a CALL Program in a Pilot Curriculum at the Provo LDS Missionary Training Center

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ABSTRACT

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The current study examines the implementation of one computer-assisted language learning program (CALL) called Technology Assisted Language Learning (TALL) in a pilot language curriculum at the LDS Missionary Training Center. Because CALL implementation is determined in large part by how successfully users are able to use the computer program to learn language, a primary purpose of this study was to investigate which implementation issues affected the language learning success of the missionaries that used TALL in the pilot curriculum. A survey was, therefore, designed and administered to 86 missionaries from French, Spanish, German, and Mandarin language areas in order to determine which CALL user characteristics were predictive of TALL user success. Through a regression analysis , this study found that the most highly predictive factors on TALL user success were (a) a high indication of pro-activity on the part of the learners in figuring out how to use TALL to their advantage, (b) a high indication of goal-orientation in approaching TALL use with a specific purpose in mind, and (c) a high indication of interaction with the TALL program through frequent use of the electronic glossary feature, the 'listen to your voice' feature, and the strategy of repeating out loud the words and phrases encountered while working on TALL. The missionary survey was also analyzed descriptively, and results from this analysis revealed that missionaries in the pilot curriculum felt that more training on how to use TALL effectively would have helped them to be more successful.

Focus groups with the missionaries were also conducted in order to better understand their experiences with the TALL program. The analysis of these focus groups revealed that although many missionaries reported liking TALL, there were many who did not sufficiently understand how to successfully use it within the pilot curriculum; a lack of training seemed to be a big contributor to this lack of user success. Additionally, focus groups found that missionaries believed the TALL listening activities to be the most helpful TALL activities.

A teacher survey was also designed and administered to the 19 teachers who taught missionaries in the pilot curriculum. Results of the teacher survey revealed a desire for more formal training on how to train missionaries to use the TALL program effectively.

In conclusion and based on evidence in the literature and from this study, suggestions are provided for more effective teacher and learner training on TALL.

Keywords: computer-assisted language learning (CALL), implementation, evaluation, language curriculum, Missionary Training Center (MTC)

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CHAPTER 1: INTRODUCTION

Introduction to the Problem

In the field of language teaching, the nature of language and how it is acquired are topics that have been widely contested for ages. Although language theorists and educational practitioners may disagree on particulars, all readily agree on one thing: that language teaching and learning is an extremely intricate and difficult undertaking. It is for this reason that language teachers have turned to technology to assist them in their endeavors to create optimal conditions for their students to effectively acquire a second language.

As teachers first began to incorporate technology into their classrooms, many questioned whether or not these new components actually promote language acquisition or not. However, with the growing body of evidence that computer-assisted language learning (CALL) is effective, it has become common practice within most language curriculums. Chapelle (2009) calls this expansion of technologies being used in the language classroom "the vertical spread of technology" (p. 66); whereas in the past language curriculum materials consisted of textbooks, now these textbooks are accompanied by a host of various technologies geared to promote language learning: CD-ROMs, films, companion websites, online language games, curriculum-specific software, etc. With the wide range of technologies currently available, computer-assisted language learning has become an increasingly more efficient and practical resource for the language learning classroom—no matter the particular theory of language acquisition and teaching that is being espoused. There is no doubt that this increased implementation of technology is changing the way language is taught and studied in most language curriculums.

Statement of the Problem

Since the introduction of technology into the classroom, CALL literature has focused on studies comparing CALL with a non-technology condition. Such studies, which compare learning outcomes of CALL (experimental) versus classroom (control) groups, have consistently shown statistically significant results in favor of CALL (Chapelle, 2009). These findings attest to the capability of CALL as a language learning tool. Although CALL in general has repeatedly proven beneficial, an even more important issue in the field of CALL today—though it has received less attention in CALL literature—is determining the best means to maximize positive learning outcomes from available CALL programs.

Significance of the Problem

Now that technology is increasingly available in most language learning settings, the next issue, which Bush (2008) has called "the fundamental problem," is "what is to be done to best implement [it]?" (p. 432). Thus researchers have recognized that the extent to which CALL can benefit language learners is determined not only by how well it operationalizes conditions favorable to language acquisition (its pedagogical design) but by how well it is implemented within a curriculum.

Like Bush (2008), Gillespie and Mckee (1999) saw the need to move beyond just comparison studies, which have dominated research in CALL, to focus on CALL implementation as an integral factor in determining the success of language curriculums. Based on the results of their study, Gillespie and Mckee posit that in order for CALL to be integrated effectively into a curriculum, there must be a coherent overall language teaching and learning strategy. This finding suggests that maximizing language learning outcomes isn't solely dependent on the inclusion of CALL into a curriculum, but rather on *how* CALL is included. In

this sense, these findings point research in a similar direction to that which Bush (2008) has called for: a concentration on how CALL can best be implemented in order to "obtain maximum benefit from [its] capabilities" (p. 461).

Overview of the Study

Purpose. The purpose of this study is to investigate how well the CALL program called Technology Assisted Language Learning (TALL) has been implemented within a pilot language curriculum at the Missionary Training Center (MTC). The pilot language curriculum is an earlier and incomplete form of the MTC's new language curriculum, which is currently under development, and includes only those aspects of the new language curriculum that were developed before or at the outset of the pilot study. This evaluation of TALL implementation seeks as its primary purpose to understand which implementation issues are affecting the degree to which learners are successfully using TALL within the pilot language curriculum. The results of this study will provide the MTC with a greater understanding of how TALL must be implemented in order to maximize positive learning outcomes from it, and will provide the field of language acquisition with greater insight into implementation issues that lead to successful CALL use.

Over the past two decades, a significant amount of time, effort, and resources have been allocated to the development of TALL, which is now available for use in most languages taught in the MTC. This investment has undoubtedly yielded positive results for those missionaries who have been able to capitalize on its strengths and profit from its language learning opportunities. For the many missionaries who have benefited from TALL, however, it is quite possible that there are many more who have not taken full advantage of this resource. This is likely not

because TALL is an ineffective language learning tool, however, but could well be due to a large number of issues surrounding how it has been implemented within the language learning curriculum at the MTC.

Recently, the MTC has implemented a new language learning curriculum in which TALL has been integrated more rigorously in order to promote its unique language learning potential. Thus, this particular study will seek to evaluate various aspects of TALL's implementation within this new language curriculum through investigating the experiences of missionaries and teachers with the TALL program. Although CALL research supports a vast number of factors that contribute to successful CALL implementation, this study will focus on those deemed most critical in the educational setting at the MTC: TALL use, TALL training, and TALL language learning outcomes.

Research questions. The questions that directed this research include the following:

1. What is TALL's intended role within the pilot language curriculum?
2. How are missionaries using the TALL program within the new MTC language curriculum?
3. How effectively are missionaries being trained to use TALL?
4. How do missionaries perceive their success in learning the key language elements (vocabulary, grammar, listening, and pronunciation) through TALL?
5. What factors are contributing to or impeding missionaries from achieving successful results from TALL?

Setting. The MTC in Provo, Utah is a unique language teaching institution that serves approximately 20,000 missionaries each year. Although providing the missionaries with the necessary language skills is integral to the MTC's objective, its primary purpose is to help

missionaries gain the knowledge and skills necessary to effectively teach people interested in studying the beliefs of the Church of Jesus Christ of Latter Day Saints (LDS Church). The knowledge and ability of missionaries to effectively teach the LDS faith to people speaking another language obviously depends greatly on the ability of the missionaries to learn to speak their mission language effectively. It is for this reason that the MTC—in an effort to improve upon current language learning conditions—is implementing a new language learning curriculum. The purpose of this study was to evaluate the success of the implementation of the TALL program within a pilot version of the forthcoming new language learning curriculum.

Stake holders. MTC stakeholders extend beyond MTC administration into general LDS church leadership. This vast hierarchy of stakeholders means that decisions regarding all aspects of missionary education must be approved by the MTC administration as well as those in church leadership positions who are assigned to oversee the education of the missionaries in the LDS church. Thus, affecting any change to the missionary language curriculum is often difficult and time-consuming.

Missionaries. The young missionaries who come to the MTC are typically between the ages of 19-26. They come to the MTC from various cultural and academic backgrounds to complete a two-month long intensive language training program in one of 50 languages. Upon completion of their two-month long training, they each depart to their assigned mission in various geographical locations throughout the world.

Teachers. The MTC teaching staff is made up of former missionaries who are studying at Brigham Young University or another nearby university. Most of these language teachers are not pursuing degrees in language teaching and have had minimal experience with language teaching

and CALL prior to their employment at the MTC. Some teachers had access to the current TALL program when they were missionaries, and others did not.

To prepare them to teach, the MTC provides teachers of all languages with a short non-language-specific training in the institutionally accepted L2 teaching methods and techniques. Although the role of TALL within the new language curriculum is more substantial than ever before, the teachers do not currently receive very much training on how they and their missionaries should be utilizing this language resource.

Resources. The teachers and missionaries have at their disposal a limited number of language learning resources allowed them by MTC administration. These resources include a general language grammar book, a pocket dictionary, *Preach My Gospel* (the official LDS missionary guide) in the mission language, the LDS books of scripture, the TALL program, and a TALL study guide which contains a substantial portion of the content (vocabulary, phrases, and grammar) found in the TALL program.

Description of TALL

TALL is a computer assisted language learning program designed to help missionaries more effectively accomplish (in the target language) their primary purpose of teaching others about the beliefs of the LDS church. Although some form of TALL is now available in most of the 50 MTC languages, the capabilities of each TALL program vary according to the language. Most of the high frequency languages (French, Spanish, German, etc.) have grammar, listening, vocabulary, and phrase-practicing activities, whereas other small scale languages (Tahitian, Indonesian, Mongolian, etc.) have only the vocabulary and phrase-practicing activities. Because the TALL program was designed exclusively for missionary use, its content is determined by the activities and communications that missionaries are expected to engage in. The content of the

official LDS missionary guide, *Preach My Gospel*, influenced heavily the language content provided in the most recent versions of the TALL programs. These updated forms of the TALL program, TALL 4.0 and TALL 4.1, have been available for use since 2006, and have recently been more extensively implemented into the pilot language curriculum that the MTC began implementing January 2011.

Delimitations

There are three primary delimitations to this study. The first relates to the generalizability of the study. Although the MTC and the TALL program may share similar features with other settings and programs, they are still both very unique. Thus, this study will consider and evaluate only those aspects of implementation that are most relevant to the MTC and the particular CALL program that is being implemented. Second, the scope of this study will not include an evaluation of the pedagogical design of the TALL program, but will be solely an evaluation of its implementation within the language learning setting of the MTC. The third limitation is that this evaluation of TALL's implementation is being conducted through an investigation of missionary and teacher experience with the TALL program. This qualitative approach will not provide a quantitative measure of successful implementation, but will rely on the perceptions and experiences of those most closely involved in TALL's implementation. Perceptions and experiences are only as reliable as they are true; thus, the reliability of this study rests on the ability of the participants in this study to accurately understand and portray their own experiences. Measuring actual language gains made by the missionaries is beyond the scope of this research.

Definitions

- District: an organizational unit at the MTC equivalent to a language class.
- Missionary tasks: the specific tasks that missionaries will need to be able to do when they leave the MTC. These include tasks such as greeting someone, getting to know someone, or giving directions. TALL provides activities in which learners can practice these missionary tasks.
- Missionary lessons: Lessons outlining the beliefs of the LDS church; learning to teach these lessons effectively in the target language is the missionaries' primary purpose. TALL provides activities in which learners can practice the missionary lessons.
- Pilot curriculum: An earlier and incomplete form of the MTC's new language curriculum which includes only those aspects of the new language curriculum that were developed before or at the outset of the pilot study. The pilot curriculum was implemented by the MTC as a means of informing the new language curriculum (which is currently under development) of the aspects of the new language curriculum that need to be improved upon before full implementation of the new language curriculum begins. Because this study is concerned solely with the role of TALL in the pilot curriculum, additional details describing the pilot curriculum are not provided.
- Pilot missionaries: The missionaries in this study who participated in the pilot curriculum.
- TALL: The name of the computer-assisted language learning program that was developed for use at the MTC. It stands for Technology Assisted Language Learning.
- Investigator: A person that is interested in learning about the beliefs of the LDS Church.

CHAPTER 2: LITERATURE REVIEW

Chapter Overview

Although technology has certainly proved its capability as an effective language learning resource in most language programs today, there seems to be a growing tendency for teachers and administrators to become casual about how it is implemented. Although it is true that technology continues to increase in its capability to assist in language acquisition, how it is used by the learners and how it is implemented into a language learning program will largely determine whether or not it will yield effective results (Healey, 1999; Hubbard, 1996). In this sense, "technology is not an end in itself; it is only as useful as learners and teachers make it in working toward the goal of language acquisition" (Healey, 1999, p. 402).

Purpose. Because of the increasing use of technology in various language learning contexts, there is now a growing body of research in the field of CALL which offers insight into the many factors that play a significant role in its successful implementation. The list of relevant CALL implementation factors, however, is long and varies according to educational context. The purpose of this chapter, therefore, is to establish a theoretical foundation for what constitutes successful CALL implementation within an educational setting such as the Missionary Training Center (MTC). I will establish this foundation through identifying implementation factors within the CALL literature that are especially critical to successful CALL implementation in the language learning setting at the MTC. The factors identified and discussed in this chapter are those used to develop the data-collecting instruments used to assess the extent to which the MTC's TALL program has been successfully integrated into the new language curriculum.

In order to coherently discuss the many factors that play a role in successful CALL implementation, I have organized them into various categories. I will start by addressing the issue of how successful implementation translates differently within the particularities of each educational context. I will then proceed to address three specific categories of factors that most significantly influence successful implementation of CALL at the MTC (a) teacher factors that affect successful CALL implementation, (b) learner factors that affect successful CALL implementation, and (c) CALL training factors that affect successful CALL implementation.

Successful CALL Implementation: Context Dependent

Although technology has been utilized in language learning for decades, there continues to be a certain amount of disagreement within the field of CALL about what constitutes optimal technology use, or successful implementation (Hubbard & Levy, 2006). Developing a universally applicable model for successful implementation would be simple if every language learning program were operating under the same "ideal conditions," but this is not the case. Rather, there is an intricate set of interrelated constraints that every language learning program is required to cope with, such as available resources, limited time, and access to technology. In each case a unique set of factors will bear weight on the successful implementation of CALL in each particular language program (Hubbard & Levy, 2006). These factors can be divided into two general categories: (a) educational setting, and (b) educator profile.

Educational setting. First, the educational setting must be considered when determining which factors will affect the success of technology implementation. The research findings of Ensminger, Surry, Porter, and Wright (2004) support the notion that successful implementation will translate differently according to particularities surrounding each educational setting. According to their research, one cannot understand the key conditions to successful technology

implementation without considering the unique characteristics, motivations, and constraints inherent to the organization that is implementing the technology. In their study, Ensminger et al. asked employees from six different types of organizations which factors they believed most affected successful implementation within their particular organization. The study found that no single set of factors surfaced, but that each organization's employees identified a unique set of factors believed to be important for successful implementation in their organization. This finding, if applied to the field of education, would emphasize the need to consider the unique characteristics inherent to an educational setting when trying to develop and carry out an effective CALL implementation strategy. Without an in-depth understanding of the educational setting itself, CALL implementation strategies may conjure up plans that are ineffective, impractical, or that are simply impossible to realize considering the particular circumstances of the educational organization. Only when these organizational or setting-specific factors are taken into consideration, can successful implementation plans tailored to the organization and to its constituents be developed and effectively carried out.

Educator profile. In addition to identifying the particularities unique to each educational setting when trying to implement a CALL component, it is equally important to consider the profile of the teachers involved in the CALL implementation process. In fact, determining the profile of the teachers or professionals working within the educational setting is considered by many researchers to be the very key to developing successful implementation strategy (Ensminger et al., 2004; Timucin, 2009). Each organization's employees possess a unique set of characteristics—such as educational background, professional experience, age, interests, ambitions, and time availability. Some of these characteristics are influenced by the constraints of the educational setting they are operating under, while others constitute the very reason for

these individuals' employment. These characteristics, which in an educational setting comprise the educator profile, are imperative to consider when developing and carrying out a successful implementation strategy, because it is the professional educators and teachers who are ultimately responsible for successful implementation of CALL within their classrooms (Hong, 2010). Without tailoring an implementation strategy to meet the educators' needs, the chances of being able to successfully integrate CALL into any curriculum will be greatly compromised.

In sum, each educational organization and the professionals working within it have unique and inherent characteristics and constraints that differ from other educational organizations. Because of these differing educational settings and educator profiles, the factors considered most relevant to successful implementation will likewise vary from language program to language program. These characteristics and constraints, however, must be identified in each educational setting in order to determine those aspects of implementation on which to focus in order to achieve successful CALL implementation (Hubbard & Levy, 2006).

The following section of this chapter, therefore, is devoted to three categories of factors deemed critical to successful CALL implementation with respect to both the particular educational setting of the MTC and the particular profile of its teachers and learners that affect successful CALL implementation: (a) teacher factors, (b) learner factors, and (c) CALL training factors.

Teacher Factors that Affect Successful CALL Implementation

The first category of factors that will be discussed in this chapter are factors related to the teachers who are involved in the CALL implementation process.

Teacher impact in general. There is a great responsibility in successful CALL implementation that rests on the shoulders of the qualified professionals guiding and supporting

the learners (Jones, 2001). The importance of teachers is emphasized throughout the literature on technology implementation, and especially in Roger's (1995) diffusion of innovations theory (Sahin, 2006). This theory is one of the most widely used theoretical frameworks in the area of technology adoption, and although it has proved relevant for a variety of disciplines, it is arguably most appropriate for investigating the adoption of technology in educational environments (Sahin, 2006). According to its tenets, those who are required to adopt the technology are the individuals upon whom successful implementation will ultimately hinge, which of course in educational settings are the teachers. Without their full support during the process as well as their commitment to CALL's adoption, there is no way to achieve and sustain successful implementation (Owston, 2006). Teachers are in the closest position to directly impact their learners' experience with CALL, and their role in ensuring successful implementation should not be overlooked. Indeed, they are the first and "most fundamental" element (Owston, 2006, p. 9), and their attitudes, knowledge of the CALL component, and decisions regarding how their learners use it, will directly affect—either positively or negatively—the success of CALL integration (Hong, 2010; Timucin, 2009).

Teacher attitude toward CALL. Because the teachers ultimately have the greatest capacity to directly affect their student's experience and success with CALL, a teacher's attitude toward the CALL component itself is of primary importance (Jones, 2001). Whether teachers love, hate, or simply don't care about CALL, their attitude will directly influence their students' experience with it, either for the better or for the worse. Timucin's (2009) research illustrates well the impact that teacher attitude bears on technology implementation. In an effort to investigate the type of impact teachers had on CALL implementation, Timucin conducted a study on an English as a Foreign Language (EFL) program in Turkey that had required teachers

to implement a significant CALL component into their curriculum. Timucin recognized the significant role that teachers played in the process of CALL implementation, and thus aimed his study at understanding the teachers' attitudes towards, as well as their concerns and apprehensions about the implementation they were undergoing. Through an in-depth interviewing process with an open-ended protocol, Timucin found that the teachers in this particular program had all types of fears and apprehensions about the technology that they were supposed to be implementing, which he identified as a major obstacle to successful implementation that this program needed to effectively address. He identified several ways that teachers could be supported and have their needs met throughout the change process. To sum up the research done on this EFL program's technology implementation, Timucin firmly maintained that "the success of implementing technology depends on how it is perceived by the group of educators" that are influenced by its introduction" (p. 75). Thus, Timucin suggested that appropriate administrative measures be taken to regularly assess the attitudes of teachers, and provide positive support to allay their fears and help them overcome the obstacles that are impeding them from successful implementation. Sahin (2006) agrees that consulting teacher attitudes and providing necessary support is important for all organizations implementing a technological innovation.

Teacher knowledge of CALL. Teachers' attitudes are greatly affected by their understanding of the CALL component itself (Hong, 2010). Thus, teachers' ignorance of the innovation will be one of the most significant obstacles to successful implementation (Sahin, 2006). How can teachers guide students to effectively use the innovation if they themselves are unfamiliar with its capabilities, unsure of how to effectively integrate it with their classroom teaching, or unaware of the role it was designed to play within the language curriculum? Unless

the teachers know the CALL component so well that they see clearly how their students will benefit from it, it isn't likely that teachers will be able to effectively support or sustain its implementation (Owston, 2009). Teachers who are responsible for technology adoption must, therefore, be both be aware of the technologies' advantages and disadvantages and know how to use the technology, effectively taking into consideration both the purposes for which it is to be used and the needs of their students (Hubbard & Levy, 2006; Sahin, 2006). Ultimately it is this expert knowledge of the CALL component which will allow teachers to guide their students to using it successfully. Teachers must possess sufficient knowledge not only about the CALL program itself but also how their students must use it in order to learn a language. Further discussion regarding the type of CALL knowledge that is necessary for both teachers and learners is provided in more detail in several subheadings in the section discussing learner factors that affect successful CALL implementation.

Teacher support of CALL learners. One of the greatest impacts that teachers can have on their students' performance on CALL will come through their ability to provide ongoing and individualized support and guidance to their learners (Jones, 2001). Language learning is a complex undertaking, and each student approaches the task with different motivations, learning styles, objectives, and experiences. No language curriculum is sufficiently tailored in and of itself to meet each individual learner's needs, which is why the role of teacher is so crucial. Teachers are able to diagnose individual learner needs and lead them to CALL functions and activities that are appropriate for their particular circumstances (Hegelheimer & Tower, 2004; Wilhelm, 1996). A teacher's ability to take control of the learning environment and ensure that each student is having a successful experience with CALL will greatly influence the extent to which the CALL component will be recognized as being successfully implemented. Indeed,

teachers have more control over their student's individual CALL experiences than even they realize (Hubbard, 1996).

Learner Factors that Affect CALL Implementation

In any language program including a significant CALL component, effective language learning will not happen simply by learners going to the lab and waiting for learning to occur (Hubbard, 1996). Indeed, there are many factors surrounding the learners themselves that will determine whether or not they are able to use CALL successfully. This next major section, therefore, deals with the many factors that affect the extent to which CALL learners obtain successful results from CALL.

Learner attitude toward CALL. Owston's (2006) model for successful and sustained CALL implementation suggests that the attitude of the learners is an essential characteristic that can lead to optimal technology integration. This concept seems very intuitive—if learners find the CALL component helpful, they will use it. On the other hand, if learners don't like it or are unable to use the CALL component successfully (which affects the extent to which they perceive it as being useful or helpful), they will not likely be very enthusiastic about its integration into the curriculum. Thus, if learners do not have a positive perception of the CALL component, successful and sustained CALL implementation will be very difficult to achieve.

Although there are many factors that can influence learner attitude, one of the most significant factors is a learners' knowledge of language learning.

Learner knowledge about language learning. Language learners engaging with CALL need to have a sufficient amount of knowledge about how to learn a language in order to make informed judgments and decisions relating to the various language learning opportunities in their CALL environment. This language learning knowledge will allow students to take advantage of

all the capabilities the CALL program offers and truly capitalize on its use. The types of language learning knowledge that bear most influence on successful CALL implementation can be categorized under the following three subheadings: (a) knowledge pertaining to the resource itself, (b) knowledge of effective language learning practices, and (c) knowledge of personal language needs. Each of these topics will be discussed below.

Knowledge of the language resource. The first type of language learning knowledge that CALL users must possess has to do with the language resources available to them. In essence, this type of learner knowledge comprises an understanding of the language content and opportunities that each resource provides (Cohen & White, 2007) and can be divided into (a) general language resources and (b) CALL language resources.

General language resources. Each language program has a variety of language learning resources that students can use in conjunction with the CALL component to maximize language learning efficiency and success. These resources include textbooks, dictionaries, and language teachers, with each having a distinct purpose, inherent strengths and weaknesses, as well as the potential to provide a variety of language learning opportunities. Ignorance of what these resources contain will prevent students from being able to effectively use them in conjunction with the CALL component. For example, students may use a resource for a purpose that the resource does not treat as effectively as a CALL resource does; or, they may use a CALL program for a purpose that it doesn't treat as effectively as other resources might. In both instances, a lack of knowledge about the opportunities and limitations of each resource contributes to less than optimal use of the resources.

CALL language resources. It is imperative for students in a CALL environment, to have a good amount of knowledge about the CALL component in order to use it effectively and

successfully (Figura & Jarvis, 2007). They need to know what types of language tasks and activities are available for them to access. If, for example, they do not know that a program offers pronunciation activities or listening activities, they will obviously not use the program in those capacities.

Not only is it important to know the types of tasks and activities the CALL component offers, but learners must also know what types of interactive features a program offers. Interactive CALL features (also called *modifcational* options—such as textual input that accompanies audiovisual input, or electronic glossaries that allow students to quickly access definitions of words they encounter)—increase CALL's potential for language learning because they allow learners to further enhance and tailor each language task and activity to more closely meet personal learning needs. If used effectively, these features may allow students to more effectively learn the language (Hegelheimer & Tower, 2004). Students who are aware of the linguistic gains that can come from using such features will be more likely to use the program's interactive features and thus enhance their learning experience (O'Bryan, 2008).

Knowledge of effective language learning practices. The second type of language learning knowledge that affects successful CALL implementation is knowledge of effective language learning practices. In language learning that includes some form of CALL, there are certain practices that will allow learners to make the most of their language learning experiences. Once a student has knowledge about the CALL component itself—its opportunities, and features—they need to then have a knowledge of how to actually use that language resource to their advantage. Two of the most significant and effective language learning practices are the ability to (a) alter language activities to suit the learning needs at hand and to (b) visualize the purpose behind a particular activity.

Knowing how to alter language activities refers to a learner's knowledge of how to "add value to," or supplement the kinds of language activities a learner engages in (Cohen & White, 2007, p. 187). Such uses may involve the learner changing an activity, or altering the way that they carry out an activity in order to learn more effectively. Because CALL activities are not perfectly tailored to the needs, style, and level of each language learner, knowing how to alter an activity—such as using various features of the program to increase or decrease the difficulty of the activity—can be very important. This type of knowledge of how to tailor activities to better meet an individual learner's needs, as well as the ability to put that knowledge into practice, is what characterizes an "informed consumer of language" (Cohen, 2007). When learners are "informed," they know how to alter activities to make them more productive for them personally—which is key to being able to obtain successful results from CALL.

Another learning practice that informed language learners exhibit and which increases the opportunity for successful implementation is visualizing the purpose behind language tasks and activities (Cohen & White, 2007). Each activity or task is designed to help learners learn or solidify various elements of the language. Some students are easily distracted by the activity itself, and they mistakenly focus on simply "getting the task done," when the purpose behind the activity is to provide an effective forum for the learning and practicing of language. Instead of focusing on getting the task done, more effective language learners know how to focus instead on practicing and learning the language—which allows them not only to successfully complete the task, but more importantly to make greater language learning gains from the task.

While this knowledge is important for all language learners, it is especially important in language programs implementing a significant CALL component because students interacting with CALL are likely to spend more time doing language tasks or activities because of the

opportunity to continue working outside of class. Thus, if CALL learners don't know how to treat each CALL activity not simply as something to accomplish, but as a forum for meaningful language practice and learning, they will not likely achieve very successful language learning results from their language study. In turn, these learners may mistakenly perceive CALL activities as "busy work." And when students are unable to have optimal experiences learning the language on CALL, they may develop a negative attitude towards the CALL component, which will compromise its implementation in the language program.

Knowledge of personal language needs. The final type of knowledge that affects successful CALL implementation is CALL users' knowledge of their personal language needs. Every language learner is different; each has different language needs, preferences, and learning styles. Thus, an important part of knowing how to learn language effectively is to not only understand these personal language needs, preferences, and styles but also to know how to meet each of these successfully. In order for learners to do this, they must (a) be aware of the learning strategies that work best for them, and (b) be able to apply those strategies successfully in a variety of language learning situations. Both of these points are discussed below.

Knowledge of "best" strategies. First, informed language learners are aware of the language learning strategies that work best for them considering the particular type of language skill they are trying to learn—vocabulary, grammar, or speaking, etc. (Cohen & White, 2007). This knowledge or awareness not only entails an understanding of the various strategies that are available, but an understanding of which particular strategies help each learner to learn language most effectively (Healey, 1999; Figura & Jarvis, 2007). Once a learners are aware of the strategies that work best for them personally, they need to also know how to apply those strategies.

Ability to apply "best" strategies. Learners' knowledge of what strategies and methods help them learn best must also be complemented with knowledge of how to use those strategies to supplement a CALL activity if the learners feel that the parameters of the activity are not sufficiently helping them (Cohen & White, 2007). This knowledge entails the ability to be a proactive language learner—always aware of what is working or not working for them, and constantly seeking to ensure that their personal language needs are being met.

All of the types of language learning knowledge discussed in this section—including (a) knowledge of the resource itself, (b) knowledge of effective language learning practices, and (c) knowledge of personal language needs—are necessary for learners to make their learning experiences with CALL successful. Without this knowledge, students are more likely to perceive the CALL component negatively, or to use it less effectively (or to simply use it less)—which in turn affects the extent to which CALL is able to be successfully implemented within the language curriculum. (Kolaitis, Mahoney, Pomann, & Hubbard, 2006; Owston, 2006).

Learner ability to be autonomous. In addition to learner attitude and learner knowledge of CALL, another important learner factor that affects successful CALL implementation is learners' ability to pursue learning on their own.

Learner autonomy definition. Figura and Jarvis (2007) define learner autonomy simply as "taking charge of one's own learning" (p. 450). In this sense, the learners are responsible for all of the decisions concerning their own learning of the language and for the effective use of the materials at their disposal. Hubbard (2004) expands that definition of learner autonomy by adding that it is "the ability of a learner to acquire a language deliberately and systematically (as opposed to incidentally) outside the confines of a formal classroom, sometimes with guidance from an instructor, manager, tutor, or peer, and sometimes without such guidance" (p. 50). In

both of these definitions, the essence of learner autonomy is to be able to pursue one's own language learning effectively, either independently or with minimal outside guidance. When learners are prepared with knowledge about how to interact with CALL to their language learning advantage, they are able to be successful learners on their own; they are able to discern among the language learning options at their disposal and choose those that work best for them personally.

Learner autonomy in CALL. In a CALL environment, learners are presented with a greater variety of language learning options than they are in traditional classroom environments. Although many CALL components are used in a prescribed manner, as determined by the curriculum, or the classroom teacher, there are still many ways that learners are able to act deliberately within the CALL learning environment to enhance their experience with CALL. In other words, learners using CALL cannot simply log onto CALL and let the program control their learning (Hubbard, 1996); they need to be active and take control of their own time and the resources available to create a quality learning experience for themselves. The ultimate goal of CALL, after all, is to provide learners with the opportunity to pursue their learning independently, so that they can more efficiently and successfully meet their own language needs (Wilhelm, 1996). Without sufficient autonomy, however, learners will have difficulty being effective in a CALL environment, where learners are afforded a great deal of independence.

Learner autonomy in self-access CALL. Learner autonomy is even more important when the CALL component is designed for self-access. In this situation, the CALL program is designed to accommodate learners of varying levels of proficiency with varying learning styles, goals and interests (Chia, 2005), and is designed to be accessed by the students whenever they want and in whatever ways they feel is most effective for them. Hubbard (1996) calls this type of

CALL "pedagogical," where the student selects the sequence and determines when and how to study using the program (p. 24). In this type of a CALL environment, learners are given a lot more responsibility to decide for themselves how to use the computer program to accomplish their own language learning objectives. Thus, it is imperative that learners be able to choose effectively and independently the language opportunities that will help them successfully learn the language, otherwise they are not likely to have a quality learning experience with the CALL component.

Factors affecting learner autonomy. There are a variety of factors that affect the extent to which learners are able to learn the language effectively on their own in a CALL environment. Many of these factors have been previously elaborated on in this chapter. In addition to the factors discussed thus far, Healey (1999) argues that (a) learners' degree of self-motivation, (b) their preference for an independent learning style, and (c) the degree to which they understand their language learning goals, also impact the extent to which learners are able to be effective autonomous learners in a CALL environment. Chia (2005) also adds to that list by maintaining that the extent to which learners are able to choose the content, progression, and pace of their language study, and the materials and techniques they will use also affects the ability of learners to be truly autonomous.

Although it is true that some of the factors that influence learner autonomy, such as self-motivation and preference for self-learning, are inherently present or not present within each learner, they can still be heavily influenced by the type of training and support learners receive before and during their coursework on CALL. Furthermore their importance should not be underestimated, because without sufficient learner autonomy, learners are not likely to achieve successful results from CALL. And, as previously elaborated in this section, if learners are not

having successful experiences with CALL, they are not likely to perceive it favorably. This negative perception of CALL may in turn cause learners to avoid using the CALL component, which directly affects the degree of success to which CALL is successfully implemented within the language program.

Importance of CALL Training

The final section of this chapter will focus on CALL training, first focusing on its importance both for teachers and learners, and then moving to specific training factors that can affect successful CALL implementation.

Teacher training. One of the major issues in the implementation of technology in educational settings is the training and support that teachers receive in order to effectively carry out their responsibilities (Timucin, 2009). Without sufficient training, teachers will not be prepared to sufficiently guide and support their learners in successful CALL use. They cannot provide for others that with which they are inexperienced or unfamiliar. Hong (2010) appropriately framed the importance of teacher training by saying that "teachers must themselves first surmount the integration of technology by experiencing it and becoming familiar with it during their teacher education" (p. 55). Without first "surmounting" the CALL component, teachers will have no idea what their students are up against, and they will thus be ill-prepared in providing appropriate assistance and training to their learners. Ultimately, the teacher's lack of training will be to the detriment of the learners.

Learner training. No less important is the need for teachers, once trained and experienced with CALL themselves, to train their students to be able to use CALL to meet individual language learning needs. One of CALL's main strengths is that it provides each learner with the opportunity to pursue learning independently (Wilhelm, 1996). Cohen and White

(2007) note, however, that the average language learner is not naturally equipped with the knowledge and experience necessary to be an effective language learner in an independent learning environment. Indeed, learners may have had very little experience both with identifying their language learning preferences and needs, and with reflecting on and choosing among the various language opportunities around them (Cohen & White, 2007). It is, therefore, the teacher's role to help guide and train students to the point where they are comfortable and capable of navigating their own use of the software available, and to where they can discern when and how to use the computer to appropriately accomplish their own objectives. Students will most likely not be able progress to this point on their own; they will not automatically gravitate towards the CALL activities and experiences that might be most useful for them unless they receive some type of training to help them make informed judgments about themselves as language learners and the resources available to them (Cohen & White, 2007; Hubbard, 2004). Thus, as Jones (2001) wisely stated, "the entire success of CALL depends on [learner training]" (p. 364).

Learner / Teacher training impact. The impact of effective learner and teacher training is illustrated in a research study done by Kolaitis, Mahoney, Pomann, and Hubbard (2006). In this study, the researchers discovered that students were not using CALL software to its fullest potential simply because they were unaware of how to do so. Upon further probing, the researchers discovered that the teachers were at the source of the problem, because they were no more aware than the students of how to effectively incorporate the software into their students' learning. This lack of knowledge about the CALL component and how to integrate it into the curriculum resulted in a lack of teacher ability and motivation to take students to the computer lab and train them to use the software. As a result, the students were unmotivated to use the

software independently, and thus missed the opportunity to capitalize on the strengths and capabilities of a software component designed specifically to aid them in their language learning. Thus, teachers need to receive appropriate and effective CALL training if they would like to be able to train their learners to use the CALL component successfully.

CALL Training Factors that Affect Successful CALL Implementation

There are many characteristics that have been identified in CALL research that contribute to quality educational training for teachers and students alike. Although CALL components often differ significantly from one another in their designs, objectives, and capabilities, the type and quality of training that both teachers and learners need have similar characteristics.

Ongoing training. An important characteristic of CALL training in any language program implementing a CALL program into the curriculum is that the training happens more than once, in an ongoing manner. Currently, the most common form of CALL user training is offered "via one-shot work-shops" which can happen at the beginning of a course for learners, or at the outset of a particular teaching job (Lawless & Pellegrino, 2007, p. 593). CALL research indicates, however, that this type of development does not adequately meet the needs of its users (Lawless & Pellegrino, 2007). Instead, research supports the need for regular and consistent CALL training (Hubbard, 2004; Owston, 2007; Wilhelm, 1996), where CALL integration activities are spread out over time with opportunities for follow-up learning and feedback (Lawless & Pellegrino, 2007). Hubbard (2004) notes that there are assumptions made throughout CALL literature that teachers or students need simply to know how to operate the program in an initial training session, and that effective use will follow. However, Hubbard maintains that training must be sustained and ongoing in order for users to move from operational competence (which refers to a user's understanding of how to operate a program from a technical standpoint)

to learning competence (which refers to a user's understanding of how to operate a program in order to learn effectively).

Technical training. Another important factor bearing on the success of CALL training is that it provides adequate technical training. Students in a CALL environment must receive an adequate amount of technical training in order to be able to successfully navigate through the CALL program. Technical training refers to a type of training that focuses on how users operate a program, navigate through its functions, and access its help features. This type of training is important because learners must achieve a certain level of comfort with the technology they are using before they learn how to use it to accomplish their goals (Hubbard, 2004). Thus, knowing how to actually operate a program and navigate through it—accessing its available features—is critical for learners to then feel comfortable using the technology in order to accomplish a desired learning outcomes.

Loucky's (2006) study of developing vocabulary in a CALL environment illustrates the importance of the concept of knowing how to operate a program and access all of its features. His research found that students who were aware of and made use of the electronic dictionary feature consistently reached higher levels of proficiency than students who were not aware of and did not use that feature. In this particular study, students who made higher proficiency gains were also those who were aware of and made good use of the CALL program's features. Loucky's study illustrates the necessity of students receiving a thorough introduction to the basic operation of the CALL resource and all of its functions and features. For without that type of training, students are not likely to capitalize on all the language options the CALL program presents (Hegelheimer & Tower, 2004).

Pedagogical training. In addition to sufficient technical training, CALL users must also receive some type of pedagogical training that explains how the tool can help improve language proficiency. Unfortunately, such an approach is yet to be realized in much of CALL training today (Kolaitis et al., 2006).

Definition of Pedagogical training. Simply stated, pedagogical training refers to the type of training that provides CALL users with the knowledge and ability to use a computer resource to effectively achieve a desired learning outcomes. Hubbard and Levy (2006) argue that this type of training involves teachers and students receiving "pedagogical knowledge" and developing "pedagogical skill" in order to use CALL effectively (Hubbard & Levy, 2006, p. 16). Pedagogical knowledge is defined as "the systematic and incidental understanding of ways of effectively using the computer in language teaching" (p. 16). Pedagogical skill is defined as "the ability to use knowledge and experience to determine effective materials, content, and tasks, and to monitor and assess results appropriately" (p. 16). In essence, the combined notion of pedagogical knowledge and skill in regard to CALL refers not only to an *understanding* of the ways in which language skills should be taught or learned effectively using CALL, but to the *ability* to apply that knowledge in order to teach or learn effectively using CALL. Pedagogical training, therefore, refers to the type of training that provides teachers and learners with (a) an understanding of the language learning potential of CALL applications (O'Bryan, 2008), and (b) the knowledge of how to make informed decisions about using computer resources in order effectively to meet individual learning goals (Hubbard, 2004).

Importance of pedagogical training. Hubbard and Levy (2006) emphasize the importance of pedagogical training, noting that CALL users need to be aware of why they do what they do. They argue that CALL users must approach CALL with a pedagogical awareness

that allows them to select CALL learning or teaching approaches that are intentional and well-considered for the language learning tasks at hand in order to be most effective. Along with this, CALL users need to be able to discern which CALL tools are best suited for their language objectives, and they need to recognize, understand, and appreciate the strengths and limitations of the technology options available in their CALL environments. All of these practices will, if used, contribute to successful learning and teaching experiences with CALL. However, if these principles are not used, CALL users will be unable to "truly take control of, and derive maximum benefit from, their interactions with CALL applications" (O'Bryan, 2008). Teacher and student training, therefore, must include a substantial amount of pedagogical instruction in order to effectively prepare CALL users for successful and sustained use of the CALL component.

Pedagogical training principles. Hubbard (2004) offers five principles to pedagogically train both teachers and learners to use CALL effectively. These principles are expanded on and summarized below:

1. Experience CALL yourself. While it seems natural to expect that students need to experiment and familiarize themselves with the CALL program in order to use it effectively, teachers as well can benefit from this experience. Although they may not feel the need to actually log onto the program themselves and experience what they are asking their students to do, if they use CALL themselves, they will be better able to understand what questions or challenges their students will encounter, which will make them a more capable source of CALL support. They are also able to experience the range of opportunities and limitations the computer software provides, allowing them to more adequately train their students (Hubbard, 2004; Kolaitis et al., 2006).

2. Give learners teacher training. This principle suggests that both teachers and learners need to receive some type of training which provides them with knowledge about language learning in general. Usually, the teachers come prepared with this knowledge because of the professional training and instruction they have received. This knowledge helps teachers effectively manage their student's classroom learning, allowing them to make informed judgments about how to best help their learners acquire the second language. Learners, however, stand to benefit from receiving a similar type of teacher training, especially when they are expected to use CALL successfully on their own. In a typical CALL environment, learners are required to take on the role of teacher, teaching themselves how to be most effective with the CALL component. They therefore need to be able to make informed decisions about how to learn language effectively through using a computer program. This entails knowing how to identify language objectives, knowing how to determine an appropriate path using CALL to achieve those objectives, and knowing how to think and reflect on the learning process during and after CALL activities (Hubbard 2004; Kolaitis et al., 2006).

3. Use a cyclical approach. Technical and pedagogical training for teachers and learners should not occur just at the beginning of a learner's language course, or at the beginning of a teacher's practice; rather, it should happen on a regular basis. Treating training as a regular and ongoing process, as opposed to a one-time event, will help students and teachers to avoid information overload and allow reinforcement of important concepts that will lead them to use CALL successfully. This cyclical approach to training will promote long-term positive changes in how students and teachers interact with their CALL applications, which will inevitably determine the extent to which they will achieve positive results from CALL (Hubbard, 2004; Kolaitis et al., 2006).

4. Use collaborative debriefings. Collaborative debriefings are small sessions following a lab session where students or teachers divide into small groups and discuss reflectively what they did and why, as well as how they saw their actions linked or not linked to an identifiable learning objective. For learners, this collaborative reflection in groups engages them, makes them accountable, and allows them to learn from one another. For teachers, these collaborative debriefings provide them both with a needed forum for discussing concerns and needs that have arisen in their classrooms, and with an appropriate setting to share ideas and effective practices with one another (Hubbard, 2004; Kolaitis et al., 2006; Timucin, 2009). For learners, these debriefings provide learners with the opportunity to share with one another what has been working best for them. Effective practices shared among learners may help those who are struggling by giving them some new ideas of how to work with CALL effectively.

5. Teach general exploitation strategies. Teachers and students must learn how to adapt the software they are using so that it supports the language skills they desire to teach or learn. Adapting the software to meet their personal needs allows CALL users to exploit the program, or to capitalize on its strengths and capabilities. This is similar to the concept discussed previously in this chapter under the subheading *alter language activities*.

The CALL-oriented exploitation strategies that Hubbard (2004) specifically suggests teaching students (which are important for teachers to learn as well), are the following:

- Mine language material for other uses, such as writing down vocabulary learned through a reading or listening exercise. Students should always search CALL activities to gain the most from them, and at the same time be looking for ways to apply what they are learning.

- Make difficult material easier, which may involve using the computer helps, such as glossary or translation features, to help learn more effectively in activities that are a little too difficult for them. It is important to use such helps in order to accomplish language learning goals, and not simply to complete an assignment.
- Make easy material more difficult, which may involve controlling the computer program's interactive features to effect such changes as: turning down the volume of listening, changing the speed of listening material, hiding lists of multiple choice answers, or hiding graphics that provide visual support. Other ways to do this can come from students simply trying to do the activity faster, or waiting to fill in blanks in a dictation exercise until after the prompt instead of during it (Hubbard, 2004; Kolaitis et al., 2006).

In the three ways listed above, a student's objective isn't simply getting the right answer or finishing an assigned activity, but actually learning the language or improving a desired skill.

Pedagogical training impact. Because of the lack of pedagogical strategy training in CALL, Kolaitis et al. (2006) undertook a research project to develop pedagogically-centered CALL training (based on Hubbard's (2004) learner training principles) for their language teaching faculty members, who in turn provided it to their students in the same way they received it. At the heart of the teacher and learner training were Hubbard's (2004) five learner training principles (discussed in the previous section), applied to both teacher and learner training.

The faculty members participating in this study realized that they first needed to follow these five principles in their own training in order to in turn offer it to their students. They therefore followed the principles to gain insight into how to effectively train their students on

what they should be doing. After following these principles together as a team of faculty, they then trained other faculty members using the same principles. Once the teachers themselves were trained, the faculty then lead their students through the pedagogical training, preparing them to become wise and effective CALL users (Kolaitis et al., 2006).

Through this ongoing teacher and learner training, teachers became more interactive with students in the CALL labs, and began helping them to make effective choices. Students began utilizing strategies to exploit the different capabilities and features of the software. They chose activities based on the language goals they selected, took notes on what they were learning, and began analyzing their incorrect work. This pedagogical approach to training was very successful in this particular educational setting (Kolaitis et al., 2006).

CALL-oriented strategy training. Along with appropriate pedagogical training, effective CALL training must include some type of instruction on the CALL-oriented strategies available for users to employ while working on CALL. As noted in previous sections of this chapter, one expectation of learners using CALL is that they need to be able to function effectively and independently in the CALL environment. One of the empowering principles that allows self-access CALL users to use CALL successfully and independently is their knowledge of and ability to use effective learning strategies (Cohen, 2007; Figura & Jarvis, 2007). While there is currently much work to be done in order to incorporate more strategic approaches to CALL-based curricula (Cohen, 2007), teacher and learner training in effective CALL-based strategies is the starting point. Learners and teachers alike must be instructed and trained on the various strategies that are effective in their particular CALL environment, or they may never become aware of or be able to use these powerful learning tools.

When curricular programs choose to train CALL users and focus on a strategies-based approach to learning which is both relevant to the form of CALL they are using and the particular language being studied, positive learning results occur (Ishihara, 2007). In the field of CALL today, there is not much research that provides information on which of all the language learning strategies are most useful in a CALL environment (Loucky, 2006). However, there are a few studies that involve inquiry into general strategies that successful learners find helpful for maximizing their language learning in an independent-learner CALL environment (Hubbard, 2004; Hurd, 2000; Figura & Jarvis, 2007; Kolaitis et al., 2006; White, 1999). The most useful and versatile strategies cited in these studies can be divided into two categories: metacognitive strategies and cognitive strategies.

Metacognitive strategies. In language learning environments where learners are expected to do most of their work independently, such as in self-access CALL or distance language learning with CALL, students must be able to use a variety of strategies. Metacognitive strategies are especially important because they help students set up optimal learning conditions for themselves (Hurd, 2000; White, 1999).

Metacognitive strategy definition. Metacognitive strategies are derived from the concept of metacognition, which can generally be defined as thinking about thinking. According to the research of White (1999), metacognition in an independent language learning environment, such as a CALL environment, involves language learners becoming aware of how they are learning, and of their own ability to control their thinking during the learning process. Thus, metacognitive strategies are strategies related to learners awareness and control of their own learning processes, such as those offered by O'Malley and Chamot (1990): planning, organizing, and monitoring learning activities.

Metacognitive strategies in CALL. Research offers a number of metacognitive strategies that have proved effective in a CALL environment. According to Hurd's (2000) study, the following metacognitive strategies proved important for independent CALL learners:

- Set priorities or goals beforehand on how much time you will spend, what you want to achieve, and what you will do to accomplish what you want to achieve (see also Hubbard, 2004; Figura & Jarvis, 2007; Kolaitis et al. 2006).
- Reflect on which learning techniques or activities work best for you (see also Cohen & White, 2007; Healey, 1999).
- Make a point of reusing effective learning techniques or activities.
- Take note of language points that are causing particular difficulty.

Figura and Jarvis (2007) add to that list the following useful metacognitive strategies that successful CALL learners in their study reported using:

- Evaluate learning on the computer as they go along, which is similar to Hurd's (2000) notion of reflecting on learning.
- Identify areas of weakness in the language, a technique much like Hurd's (2000) notion of taking note of language points causing difficulty.
- Make plans to improve areas of weakness in their study.

These metacognitive strategies are ones that have proved most relevant and useful to CALL learners, or learners who are studying independently with CALL at a distance.

Metacognitive strategy training importance. White (1999) highlights the importance of metacognitive strategy use for independent learners by noting that distance learners—who are required to do most of their learning independently—rely on metacognitive strategies four times as often as regular classroom learners. Likewise, in a self-access CALL environment requiring a

similar amount of independent learning, learners must be familiar with and rely on metacognitive strategies in order to achieve successful learning results (White, 1999). In sum, because learners are not often prepared with refined language learning reflexes to plan, organize, and reflect on their own learning processes (Cohen & White, 2007), they must be trained to do so.

***Cognitive strategies*.** Although metacognitive strategies are integral to learner success in independent learning CALL environments, cognitive strategies are no less important. Cognitive strategies move beyond the planning, organizing, and monitoring of learning and provide learners with practical hands-on strategies that allow them make the most of each available language learning resource.

Cognitive strategy definition. Cognitive strategies in language acquisition are strategies that apply a specific technique to a particular language task (O'Malley & Chamot, 1990); this type of strategy allows students to truly maximize their learning gains from each task or activity that they participate in. Some of the most common strategies applied to various language tasks are: repeating, reasoning, and analyzing (O'Malley & Chamot, 1990).

Cognitive strategies in CALL. In Hurd's (2000) study, the cognitive strategies found to be relevant for independent language learners interacting with CALL at a distance were:

- repeat words and phrases out loud, which was the most commonly used cognitive strategy in the study;
- take notes on vocabulary encountered;
- test yourself regularly on vocabulary recorded in notes;
- record yourself speaking;
- take notes on what you are learning to improve concentration and retention.

Figura and Jarvis (2007) noted in one study that students who seemed to be successful with CALL (based on their positive attitude toward it) made use of several cognitive strategies:

- listen for important key words;
- use interactive features, such as subtitles to make a video activity more effective;
- look at the title and pictures before reading a text;
- read the same things multiple times to get more out of it;
- infer contextually the meaning of vocabulary words encountered;
- re-listen to a listening text.

Cognitive strategy training importance. In Hegelheimer and Tower's (2004) analytical study of student interactions with CALL, the authors noted that students were more likely to interact with the CALL program in ways that were formally introduced to them. This attests the fact that learners will most likely not cognitively interact with the CALL program using effective cognitive strategies unless they are given some type of formal training. Teachers will likewise be unaware of how to teach students how to maximize learning gains from CALL unless they are formally trained on the various cognitive strategies useful in a CALL environment.

Conclusion

This chapter outlined several of the many concepts and factors that play a role in successful CALL implementation. The MTC is a unique educational setting, and although this list of factors is not comprehensive by any means, it is representative of those deemed most relevant to the MTC's educational profile.

CHAPTER 3: METHODS AND PROCEDURES

Chapter Overview

As previously established, research findings in the field of CALL have repeatedly attested to the ability of CALL to improve and enhance language learning conditions in the language learning classroom. Today, the issue is no longer to prove whether CALL is capable or not, but to better understand how CALL needs to be implemented in order to ensure that its use yields maximum language learning outcomes; ultimately, it is how CALL is actually implemented within a language curriculum that will determine the extent to which positive learning outcomes are achieved.

Purpose. This study was designed and conducted in order to better understand those issues that affect and determine the outcomes of learner success in the implementation of a specific CALL program—TALL—within a pilot language curriculum at the MTC. The TALL program is a computer-assisted language learning program that was developed for use at the MTC. The results of this study will not only help the MTC understand how they can better implement the TALL program into the new language curriculum, but will contribute to the current understanding of the various factors that can lead to or detract from successful CALL use. The purpose of this chapter, therefore, is to explain the research methodology used to conduct this research study. In order to do this, I will (a) describe the three groups of participants who were involved, (b) describe the various instruments used to collect data, and (c) describe how the data were analyzed. Before describing these three study design components, I will provide a brief overview of the research methodology used in this study.

Methodology Overview

The methodology used to conduct this study was determined by the nature of the research questions driving it. These questions were developed based on previous research studies dealing with CALL implementation and then coordinated with the goals of the MTC to more closely meet their needs and ensure their full support in conducting the study. Due to the nature of these research questions, both qualitative and quantitative measures were necessary. The qualitative measures of this study helped shed light on the experiences that missionaries participating in the pilot curriculum were having with TALL, while the quantitative measures helped us to better understand the extent to which certain factors were influencing the pilot missionaries' use of TALL. The instruments used to collect and analyze both the quantitative and qualitative data in this study are described in detail below.

Data Collection

Participants. There were three categories of subjects that were selected and recruited to participate in this study: missionaries, teachers, and TALL administrators.

Missionaries. The 86 missionaries (16 female, 70 male) that participated in this study ranged in age from 18-24 years old. They came from varying cultural and academic backgrounds in order to complete a two month-long intensive language training in one of the four languages that participated in the pilot language curriculum. These were the primary research participants in this study.

The missionary participants were selected to participate in this study based on two factors. The first factor was that they be in a district (an organizational unit that equates to a language class) that piloted the new language curriculum, as only a select number of districts were assigned to pilot the new curriculum. The second factor was that their language of study be

either Spanish, French, German, or Mandarin, as these are four languages that have implemented the most recent versions of TALL—TALL 4.0 and TALL 4.1.

The missionaries were recruited to participate in this study by classroom announcements, which informed them about the nature and purpose of this research study.

Teachers. The 19 language teachers (6 female, 13 male) that participated in this study ranged from 21-26 years old and consisted of university students attending BYU full-time. Most of the teachers were somewhat familiar with TALL 4.0 and 4.1 from having used it as missionaries, but there was one teacher participant who had never used either version prior to being hired as a teacher.

The teachers were recruited to participate in this study based on two factors: if they taught a district of missionaries following the pilot language curriculum, and if they were teachers of Spanish, French, German or Mandarin.

The teachers were recruited to participate via a classroom announcement made during a weekly group meeting, similar to the announcement received by the missionaries. Recruitment continued through an email which reminded them of the nature and purpose of the research study and encouraged them to participate if they so desired.

Administrators. The three administrators that participated in this study were full-time MTC employees who were responsible for various language departments and who oversaw various aspects of TALL implementation, such as TALL training, development, and evaluation.

The administrators were recruited and selected to participate in an interview based on their particular responsibilities and knowledge relating to the implementation of TALL. The administrators were recruited to participate in this study via email, informing them about the study and requesting their participation.

Instruments.

Missionary questionnaire. The missionary questionnaire consisted of 48 questions and was designed to take 10-12 minutes. It consisted of multiple choice question items and one open-ended question. Each question was designed to measure a specific construct relevant to determining how successfully the pilot missionaries were prepared to use, and actually did use, the TALL program. A questionnaire was selected as the means to collect this data because of its ability to gather data from which both a descriptive and quantitative analysis could be derived.

Purpose. The purpose behind designing and administering the missionary questionnaire was twofold:

1. To obtain data that would allow the stakeholders to evaluate the degree to which the TALL program was successfully used by the missionaries in the MTC's pilot language curriculum. This purpose was naturally significant, considering the fact that missionary use of the CALL program is considered to be one of the most important factors bearing on the overall success of CALL implementation.
2. To discover the primary factors that were contributing to or impeding missionaries from achieving successful results from TALL. Once understood, these primary contributing and impeding factors would potentially allow the MTC stakeholders to make necessary changes to increase the capacity of future missionaries to use TALL successfully.

Validity and reliability. The validity of the missionary questionnaire was established by my thorough review of the literature on the constructs that were measured and through the qualified and professional judgment of the co-investigators in this study (Michael D. Bush,

BYU; C. Eric Ott, MTC). It was also established by piloting the survey with one district of pilot missionaries to ensure adequate variability in the spread of data.

The reliability of the missionary questionnaire was facilitated by implementing procedures that would help ensure that each missionary would answer the questions as honestly and accurately as possible. This was done by including at the beginning of the questionnaire a short paragraph which informed the missionaries (a) that their responses would be used for the purpose of helping the MTC understand how to better assist future missionaries for more successful use of the TALL program, (b) that their responses would not be used to negatively influence the employment of any MTC employee, so they should answer each question as honestly as possible, and (c) that the questionnaire consisted of 48 questions and was designed to take 10-12 minutes. This measure was taken to ensure that each missionary would feel comfortable answering the questions honestly and not be negatively influenced by an unnecessarily long questionnaire.

Teacher Questionnaire. The teacher questionnaire consisted of 27 questions, and was designed to take teachers 10 minutes. The questionnaire consisted of multiple choice question items and one open-ended question. Each question was designed to measure a specific construct that was deemed critical to understanding the extent to which teachers were trained on TALL, and the role in general that the teachers played in disseminating that training to their missionaries.

Purpose. The purpose behind the teacher questionnaire was similar to that of the missionary questionnaire, but with its own unique angle. Just as the missionary questionnaire, the teacher questionnaire was designed to obtain data that would provide an evaluation of how well the TALL program was implemented within the pilot language curriculum. However, its unique

purpose was to determine more specifically the role that teacher training played in contributing to or impeding missionaries from achieving successful results from TALL. This questionnaire, therefore, focused on how teachers were trained and supported by administration, as well as how they trained and supported the missionaries on TALL.

Validity and reliability. The validity of the missionary questionnaire was established using procedures similar to those employed for the missionary survey. Because of the limited number of teachers who met the criteria to participate in this study, piloting the teacher questionnaire with teachers was not a viable option. This measure would have helped increase validity, had it been possible.

Focus Groups. The focus groups of this study took place in the pilot missionaries' classrooms, and lasted between 10-15 minutes. Classroom teachers were not included in the focus groups. Each focus group was led by the same researcher—a member of the MTC research and evaluation team—who invited each district of missionaries to share their experience using TALL in the pilot language curriculum. The focus group discussions were audio recorded and transcribed by the same research employee who led the focus groups.

Purpose. The purpose of the focus groups was to be able to gather more descriptive information from the missionaries regarding their experience using TALL in the pilot language curriculum. Focus groups were chosen to collect this type of descriptive data because the missionaries were already participating in focus groups as part of the entire curriculum evaluation that the MTC was undergoing.

Validity and reliability. To ensure that the data collected was valid and reliable, a series of measures were taken. First, the researcher approached each focus group with a number of prepared questions to ask the missionaries, each question tied directly to some aspect of the

research questions guiding this study. This was done so that the type of responses from the missionaries would be related to the purpose of this study.

The reliability was established by ensuring that each focus group was conducted in the same manner. As part of this, the researcher focused on creating an environment where the missionaries would feel comfortable sharing their true thoughts and perspectives. The researcher, therefore, recorded each focus group so that her energy and attention could be directed to making the missionaries feel comfortable expressing themselves. This allowed her to ask follow-up questions which narrowed general responses to include more detail, ensuring that missionary responses truly reflected their experiences.

Interview. I conducted the interview with the TALL administrators. Each interviewee was emailed the above research questions in advance in order to make any preparations or inquiries necessary. They then attended a group interview, in which all three of the administrators were present, which lasted a little under an hour. The interviewees were not required to answer every question, only the ones that they felt capable and qualified answering. Each interview was audio-recorded and then transcribed afterwards.

Purpose. The purpose of the interviews was to find out from various administrative managers and developers of TALL their perspectives on the following issues: (a) what the intended role of TALL was in the new curriculum, (b) what TALL's most useful capabilities are, and (c) what both teachers and missionaries need to know about TALL in order to capitalize on those capabilities.

Validity and reliability. The validity of the interview questions used in each interview was established by making sure that each question selected was relevant to the research questions guiding the overall evaluation study. Additionally, in order to ensure that each interviewee was

able to represent their ideas and perspectives accurately, the questions—as explained above—were emailed to each interviewee in advance. This allowed them to think and organize their thoughts beforehand, as well as to make any inquiries or do any research necessary to make sure that their responses accurately represented each issue.

The reliability was accomplished by the same researcher leading and transcribing the group interview. A copy of the written analysis of the interview was also emailed to each interviewee, to make sure that their thoughts and perspectives had been accurately represented.

Data Analysis

Quantitative analysis. Quantitative analyses were used in this study to analyze the data collected from the missionary questionnaire. There was only one research question—finding out which factors were contributing to or impeding the missionaries from achieving successful results from TALL—that necessitated the use of inferential statistics. To answer this question, a correlation analysis, a reliability analysis, and a series of regression analyses were conducted.

The correlation analysis was used to help the researchers define a new variable that represented successful TALL learners. Because the scope of this study did not include a quantitative measure of successful TALL use, I needed to define a variable based on items in the survey that adequately represented successful TALL use. Thus, according to my literature review, I examined the constructs measured on my survey and decided on eight items—each self-reported measures—that I felt adequately characterized successful TALL users. These items were:

(a) frequency of TALL use (item LTU1);

(b) time spent on TALL per lab session (item LTU2);

(c) overall opinion of TALL's usefulness (item LTAtt1);

(d) improvement made to each language skill (items LLO1-LLO5, see note on Table 1 for the language skills represented by each item).

A correlation analysis was done on the above items to make sure that they were indeed significantly correlated and thus could be assumed to measure the same construct. As shown in Table 1, the items were highly inter-correlated, so a reliability analysis was performed to make sure that the items included in the correlation matrix were truly representative of the construct designed to indicate successful TALL users (item LTU1 was negatively correlated, so scores on the item were reversed and kept in the mix).

Table 1
Correlation Analysis Between 'Successful TALL User' Variables

		LTU1	LTU2	LTAtt1	LLO1	LLO2	LLO3	LLO4	LLO5
LTU1	Pearson Correlation	1	-.390**	-.341**	-.201	-.433**	-.098	-.130	-.261*
	Sig. (2-tailed)		.000	.001	.063	.000	.370	.233	.015
	N	86	86	86	86	86	86	86	86
LTU2	Pearson Correlation	-.390**	1	.465**	.410**	.445**	.301**	.268*	.413**
	Sig. (2-tailed)	.000		.000	.000	.000	.005	.013	.000
	N	86	86	86	86	86	86	86	86
LTAtt1	Pearson Correlation	-.341**	.465**	1	.580**	.504**	.403**	.382**	.448**
	Sig. (2-tailed)	.001	.000		.000	.000	.000	.000	.000
	N	86	86	86	86	86	86	86	86
LLO1	Pearson Correlation	-.201	.410**	.580**	1	.276**	.423**	.463**	.402**
	Sig. (2-tailed)	.063	.000	.000		.010	.000	.000	.000
	N	86	86	86	86	86	86	86	86
LLO2	Pearson Correlation	-.433**	.445**	.504**	.276**	1	.254*	.156	.422**
	Sig. (2-tailed)	.000	.000	.000	.010		.018	.152	.000
	N	86	86	86	86	86	86	86	86
LLO3	Pearson Correlation	-.098	.301**	.403**	.423**	.254*	1	.618**	.400**
	Sig. (2-tailed)	.370	.005	.000	.000	.018		.000	.000
	N	86	86	86	86	86	86	86	86
LLO4	Pearson Correlation	-.130	.268*	.382**	.463**	.156	.618**	1	.383**
	Sig. (2-tailed)	.233	.013	.000	.000	.152	.000		.000
	N	86	86	86	86	86	86	86	86
LLO5	Pearson Correlation	-.261*	.413**	.448**	.402**	.422**	.400**	.383**	1
	Sig. (2-tailed)	.015	.000	.000	.000	.000	.000	.000	
	N	86	86	86	86	86	86	86	86

Note. Correlation is significant (p <.01) (2-tailed). Correlation is significant (p <.05) (2-tailed). LLO1 = self-reported vocabulary improvement. LLO2 = self-reported grammar improvement. LLO3 = self-reported listening comprehension improvement. LLO4 = self-reported pronunciation improvement. LL05 = self-reported improvement in phrase use.

As shown in Table 2, the reliability of the scale was shown to be acceptable (Cronbach's alpha of .824), which verified that these items were indeed highly correlated and could be

assumed to represent a reliable measure of how supposedly successful users of TALL rate their usage of the software. The new variable was then created, which is the variable that was used as the dependent variable in the regression analyses performed in this study.

Table 2
Item Total Statistics for Correlation Analysis Between 'Successful TALL User' Variables

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
LTU2	19.2558	17.793	.572	.358	.801
LTAtt1	19.8488	16.953	.677	.503	.784
LLO1	20.4767	18.488	.593	.433	.798
LLO2	20.6977	18.802	.528	.399	.807
LLO3	20.6628	19.097	.526	.444	.807
LLO4	20.6977	19.084	.499	.450	.810
LLO5	21.0698	18.513	.581	.348	.799
LTU1R	20.9767	20.211	.387	.253	.824

The series of regression analyses performed in this study were used to find out which of the survey items could predict the success of TALL learners. This allowed us to more fully discover which factors seemed to contribute to missionaries' successful use of TALL.

Qualitative analysis. The bulk of the analysis used in this study was more qualitative in nature, requiring both descriptive statistics and descriptions of written and oral data. The analyses using descriptive statistics of various survey items allowed us to better understand and describe the experiences of missionaries using TALL in the pilot curriculum—which was an important step in understanding our research questions. The description of written (from the survey) and oral (from the interview) data allowed researchers to find out what the intended role of TALL was in the pilot curriculum, and what both teachers and missionaries need to know about TALL in order to use it effectively.

CHAPTER 4: RESULTS

Chapter Overview

The purpose of this chapter is to report the results of (a) the interview with TALL administrators, (b) the missionary questionnaire, (c) the teacher questionnaire, and (d) the missionary focus groups. Because this study generated a great deal of data, only the data revealing specific insight into the research questions guiding this evaluation study are reported here.

Interview Results

TALL's intended role in the pilot curriculum. In order to effectively evaluate the MTC's implementation of TALL, which is the guiding purpose of this research study, TALL's role within the pilot curriculum must first be understood. This section will, therefore, describe TALL's intended role within the pilot curriculum. As mentioned earlier, the pilot curriculum is an earlier and incomplete form of the new language curriculum and includes only those aspects of the new language curriculum that were developed before or at the outset of the pilot study. Because this study is focused solely on the role of TALL in the pilot curriculum, a full description of the pilot curriculum will not be provided. The description of TALL's role in the pilot curriculum comes from the data collected during a group interview with three of the primary administrators involved with TALL's development and implementation.

Learner use of TALL. Within the pilot curriculum, the missionaries are meant to use TALL for four hours per week during their independent language study time. This time is designated for missionaries to pursue their individual language learning needs, so there are no

prescribed activities that missionaries are required to do during this time. Missionaries are expected, rather, to have an understanding of what aspects of the language they personally need to learn—according to their target language teaching appointments, and other language needs—and are supposed to use this TALL time to work on these personal language goals.

In addition to those four hours of missionaries' independent learning on TALL, the pilot curriculum asks that they spend one hour per week working on TALL under the instruction of their teacher. This hour is designed to be a teacher-prescribed hour, where the teacher chooses what will be done on TALL, as a means of training the missionaries on how the system should be used. The teachers are able to use this hour to help familiarize the missionaries with the various types of language activities and learning tasks that can be done on TALL, so that missionaries are able to be more effective during their independent TALL time. This provides missionaries with training necessary to make informed language learning decisions on TALL, which will in turn help them to use TALL in a way that will help them make greater language learning gains.

Teacher's role with TALL. The pilot curriculum describes the teacher's role in regard to TALL as one of facilitation and learner support. Although learners are meant to use TALL independently—without a schedule of prescribed activities from their teacher—it is reasonable to assume that TALL will be used most effectively when the teacher provides support and direction for them. This means, therefore, that teachers are able to direct missionaries to TALL activities that will help them accomplish their personal language goals. They are also encouraged to follow up with their missionaries' use of TALL, and make sure that each missionary is using TALL comfortably and successfully.

As part of this pilot-prescribed teacher support, teachers are asked to spend at least one hour of "teacher TALL time" with their missionaries per week. This hour, as described previously, is used at the teacher's discretion and based on the learner's needs. The only guidelines provided are that the teachers use the time to both help missionaries familiarize themselves with the TALL resource, and provide them with strategies for using TALL to effectively pursue their independent learning. The burden of missionary TALL training, therefore, lies almost completely with the teacher.

Effective use of TALL. In order to enable teachers and missionaries to effectively use TALL within the parameters of its role in both the pilot and future curricula implementations, the administrators mentioned several things that missionaries and teachers should know about TALL, which I have summarized below:

Knowledge of TALL's content. This refers to an understanding of what language elements—grammar, listening, vocabulary, phrases, etc.—are available on TALL, as well as what TALL activities to practice and study these language elements exist.

- Knowledge of TALL's organization. This refers to the way content moves through the program. Because the TALL program and the MTC language curriculum were developed independently from one another, and the language curriculum was not designed to be dependent on TALL, TALL's design is not a perfect match for the current language curriculum. Therefore, although missionaries are asked to use the system as a self-access CALL program, it was originally designed to be used in a more rigid fashion—driven by fixed learning outcomes with a pre-determined content sequence that could not be controlled by the learner. Although TALL developers have since developed various versions of TALL that exclude many of these rigid features in an attempt to achieve more

learner control (see Appendix B for a description of the various versions of TALL that have emerged from this effort), the program was never completely re-created to perfectly fit the current MTC learning environment. Thus, because of its unique history, the organization of the program is very particular, and must be understood to avoid user confusion and frustration.

- Knowledge of the "tricks" around TALL's organization. This refers to ways in which a learner can bypass certain program restrictions, such as using the search function to access desired content outside of the confines of specific language activities and their particular flow of content. Thus, it is important for learners to understand the constraints of the software design and how to get around them, in order for them to avoid frustration and pursue more effective independent language learning.
- Basic operational knowledge. This refers, simply, to understanding where and how to access TALL's available content, activities, and features in order to find what is desired.
- Knowledge of TALL's available interactive features. This refers to knowing what modificational options—the features used to modify an activity to make it easier or more difficult, such as hiding picture icons in a vocabulary activity—learners have access to, as well as understanding how using these features can help learners to enhance and tailor their learning experiences on TALL.
- Knowledge of TALL's capabilities and strengths. This is particularly important, because TALL has specific capabilities not present in other missionary language resources. These are the capabilities on which missionaries should focus their TALL use in order to make the best use of their study time. Considering the three versions of TALL currently being used at the MTC (each based on learner control), some of TALL's most prominent

capabilities mentioned by the administrators are (a) the electronic glossary search option, (b) native speech models of vocabulary, phrases, and entire passages, and (c) listening and reading activities (both scripted and non-scripted) that allow for strategy practice and comprehension checks (see Appendix A for the specific capabilities of each of these three versions of TALL). The electronic glossary allows missionaries to search for words—their spellings, meanings, or translations—and receive immediate results, which is the most time-effective way to look up needed words to prepare for teaching appointments or other missionary target-language activities. Likewise, TALL's native speech models allow missionaries to listen to native speakers provide accurate models of pronunciation, intonation, and stress patterns in the target language. This provides missionaries with the opportunity to work on their pronunciation—listening and trying to imitate the speech models as many times as needed—in a manner that no other resource can provide. The listening and reading activities (both scripted and non-scripted) allow learners to practice effective listening and reading strategies and check comprehension, both of which are intended to help them to make greater language learning gains as they continue to study and learn at the MTC.

- Time to "play around" with TALL, and discover how it can be an advantage to each learner. This refers to any type of training time that missionaries and teachers receive, where they can explore on their own the full range of content and language opportunities that TALL provides. This allows learners to figure out how TALL is best able to benefit their personal language studies.

Beyond this list of specific things that missionaries and teachers must know about the TALL program itself, the administrators mentioned things that missionaries need to be able to do while working on TALL in order to make the most effective use of TALL study time:

- Set appropriate goals to accomplish on TALL. This includes being able to set and work on more short-term goals based on immediate language needs—such as a pending teaching appointment in the target language—as well as being able to set more long-term goals to work on more general aspects of proficiency. In order to set appropriate language goals to accomplish on TALL, learners must set goals that take advantage of TALL's capabilities and strengths.
- Make informed decisions on TALL to accomplish language goals. This requires, first, an understanding of the intent of the TALL activities, and how those activities function to benefit language learners. Then, once the missionaries understand the purposes behind the activities, they must be deliberate and proactive in their choice of what to do on TALL. They need to understand that what they gain from TALL will be determined by the effort they put into their TALL learning experience; this will allow them to make decisions according to their language needs, their learning style preference, and according to TALL's capabilities and strengths.
- Evaluate learning on TALL. This refers to learners being able to evaluate what is working for them, and what is not. Each learner comes with their own set of learning styles and preferences, and thus may learn more effectively doing certain types of activities than doing others. Learners need, therefore, to be able to judge which activities are working best for them, so that they can reuse them to their own benefit. Likewise,

they need to be able to judge which activities are less effective for them, and make plans to avoid using TALL in those ways.

Missionary Questionnaire Results

Missionary TALL use. This section reports how the missionaries describe their use of TALL during their MTC stay, based on the results of the questionnaire. Because questionnaires are by nature self-assessments, the results of this section are only as accurate as the missionaries accurately represented themselves on each item.

Frequency and duration of TALL use. Of the 86 missionaries that participated in this study, 50% of them reported having used TALL at least once a day. Of the 50% of missionaries using TALL once a day, only 47.4 % of them used TALL for 60 minutes per lab session, as the curriculum asked. Although this percentage may seem quite low, 29% of all of the missionaries were unaware that the curriculum had a specific requirement for TALL use, so there may have been some confusion or ignorance on the part of the missionaries due to a lack in communication.

Frequency of TALL use for specific language learning purposes. In order to further understand how the missionaries were using the TALL program, a portion of the questionnaire was used to determine the language learning purposes for which the missionaries chose to use TALL. The questionnaire found that most often the missionaries used TALL to increase their vocabulary and improve their grammar (see Figure 1).

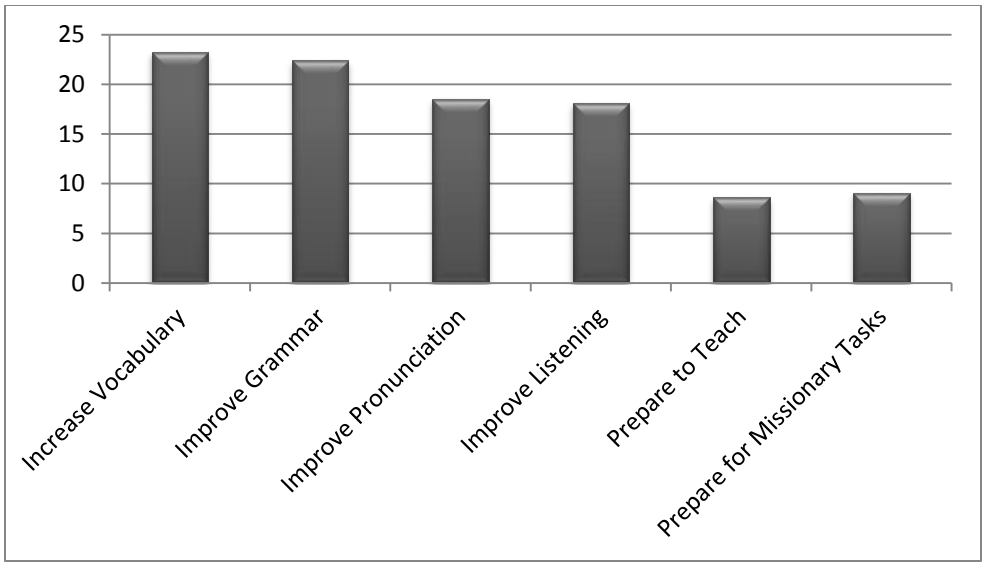

Figure 1. **Most Often Used Language Learning Purposes. This chart represents the percentage of missionaries that indicated having used TALL either 'often' or 'very often' for each language learning purpose.**

It found, conversely, that missionaries were least likely to use TALL to prepare both to teach the missionary lessons, and perform the missionary tasks (see Figure 2).

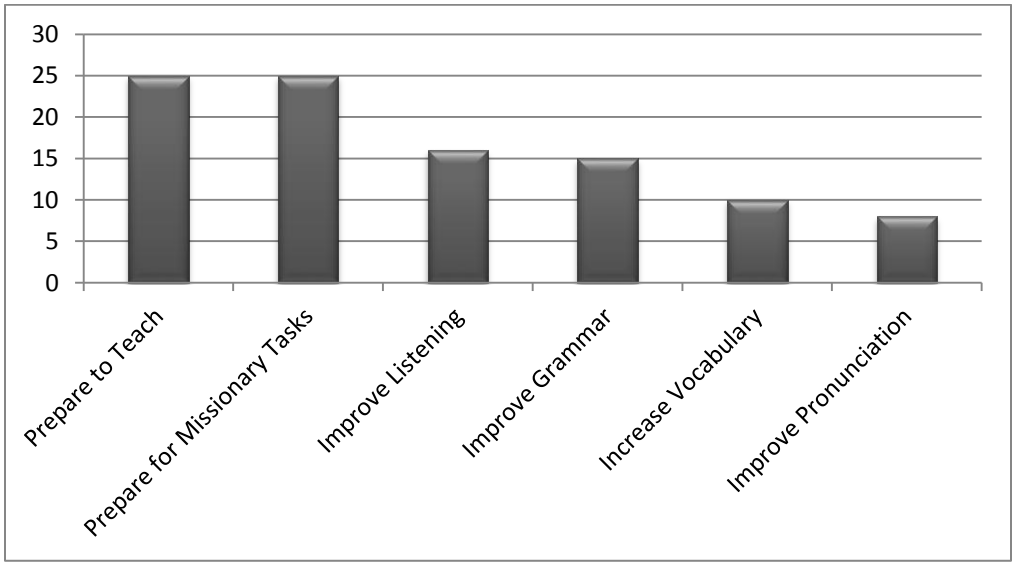

Figure 2. **Least Often Used Language Learning Purposes. This chart represents the percentage of missionaries that indicated having either 'rarely' or 'never' used TALL for each language learning purpose.**

Frequency of use of TALL's interactive features. Results from the questionnaire indicated that missionaries most often used the 'Listen to Words/Phrases' option, which allows

the missionaries to hear words and phrases encountered on TALL and that are pronounced by a native speaker of the target language. The least often selected interactive feature was the 'Keyboard Help' option, which helps students type in the correct accents (see Figure 3).

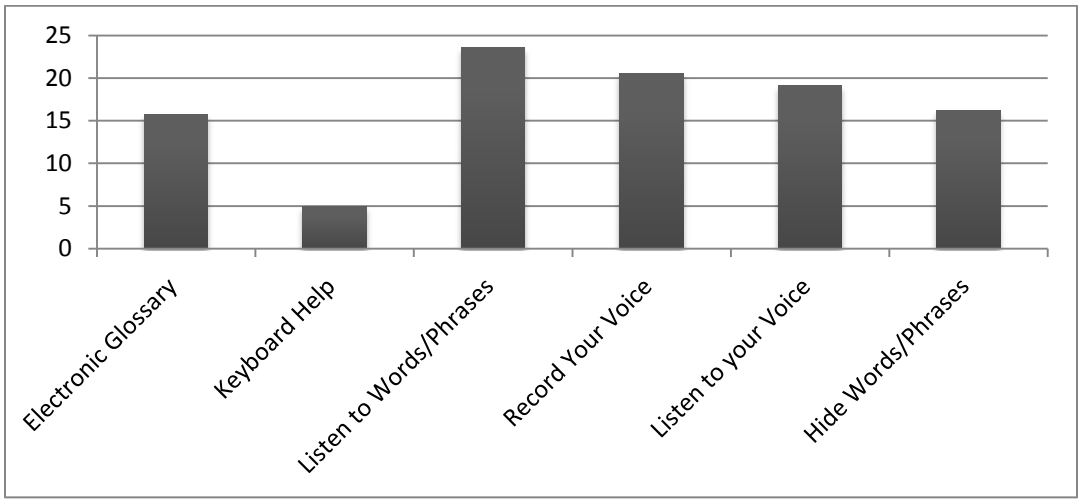

Figure 3. **Most Often Used Interactive Features. This chart represents the percentage of missionaries that indicated having used, either 'often' or 'very often,' each interactive feature.**

Missionary TALL training. One of the over-arching research questions of this study was to evaluate how effectively the missionaries in the pilot curriculum were trained to use TALL. The following section, therefore, reports the results of the questionnaire on the subject of training received by the missionaries.

TALL tutorial completion. The TALL program has a short tutorial that it offers missionaries, to familiarize them with the content and features of the program. The TALL program invites each user to go through the tutorial before using the system; however, 29% of the missionaries did not take the tutorial. Because that percentage was so great, Iwanted to know how many of those missionaries who missed the tutorial, had also not received a significant amount of in-class instruction on how to use TALL. By running a cross tabulation between both variables, it was discovered that that 80% of the 29% that did not take the tutorial reported

having rarely or never received in class instruction on how to use TALL. This means that roughly 23% of all of the missionaries may have been confused as to how TALL worked. A more detailed discussion of TALL training that missionaries received will follow this section.

Presence of teacher-led training. The curriculum designates the teacher as the facilitator of missionary TALL use, and asks that teachers spend at least one hour a week instructing missionaries on how to use TALL. There is no other source of training on TALL that is meant to be greater than the classroom teacher. However, the questionnaire found that only 32.6% of the missionaries indicated that they felt their teacher was their greatest source of TALL instruction. Upon performing a cross-tabulation, I found that that only 32.1% of the 32.6% of the missionaries who felt that their teacher was the greatest source of instruction indicated having 'often' or 'very often' received in-class instruction on how to use TALL (see Figure 4). Overall, this inquiry suggested that the presence of formal teacher-led training was minimal among the missionaries in the pilot group, even among those who selected their teacher as their number one source of instruction on how to use TALL.

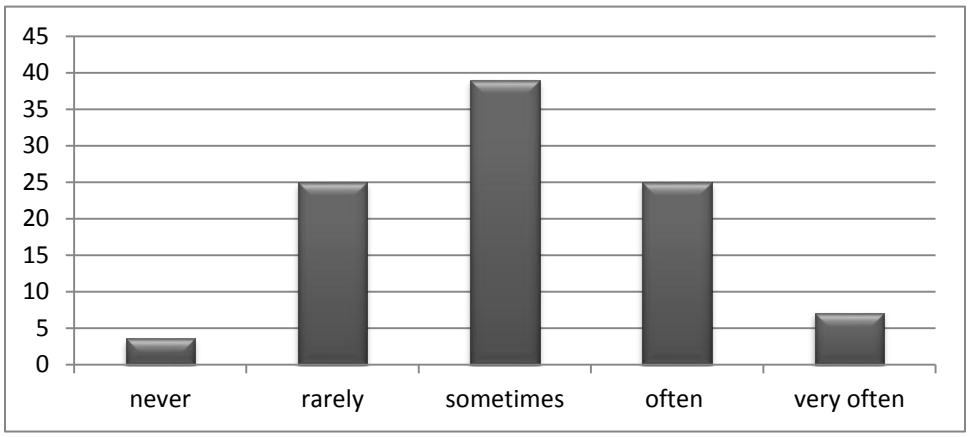

***Figure* 4. Frequency of In-Class Training Received by Missionaries who Felt their Teacher was their Greatest Source of Instruction on TALL.**

Presence of training on using TALL to improve specific language skills. Because each CALL program differs in its treatment of the various language skills it includes, an important part of training is that the learners understand the ways in which they can use the program in order to improve a specific language skill (grammar, vocabulary, pronunciation, listening, or preparing to teach). Thus, the questionnaire inquired about the frequency of this type of specific skill instruction. The results indicated that 50% of the missionaries felt that they received specific training on how to improve their language skills through using TALL (see Figure 5).

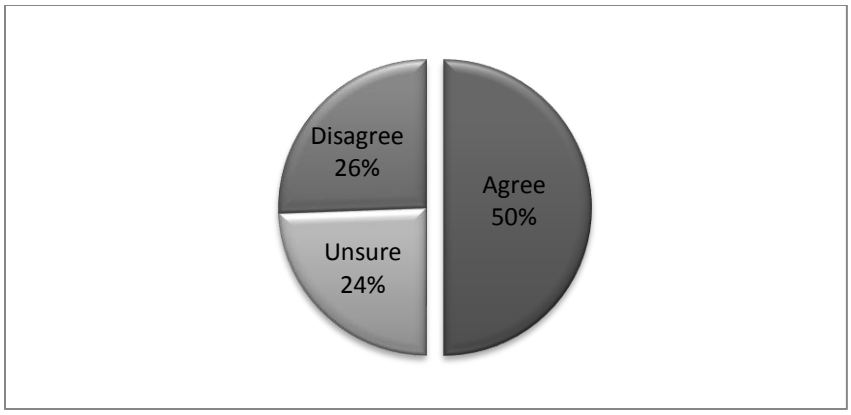

Figure 5. **Missionary Perception that Training was Received on: Improving Specific Language Skills Using TALL.**

The questionnaire did not ask from where they received this training, so it could have been the brief and insufficient explanation offered by TALL, or it could have been a more specific type of instruction that happened in class. At any rate, of that 50% of missionaries who indicated that they either often or very often received training on specific language skills, the most commonly received training was on how to use TALL to improve grammar, while the least taught skill was using TALL to prepare to teach the missionary lessons (see Figure 6)

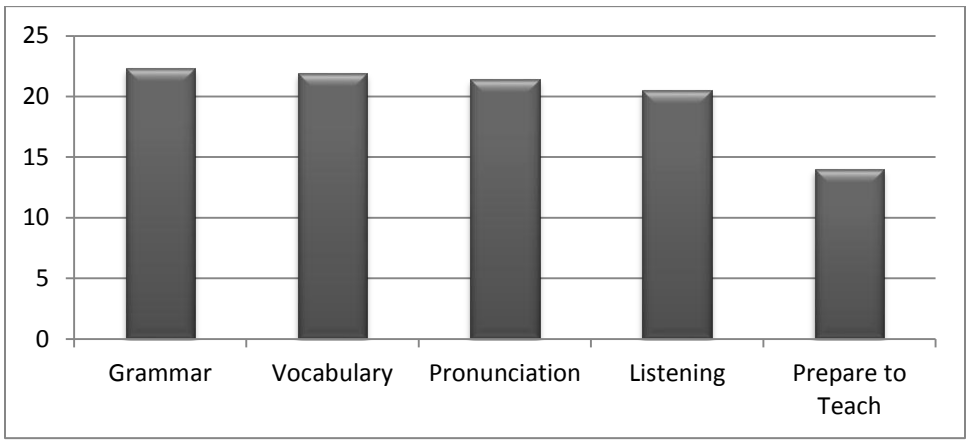

Figure 6. **Most Often Received Skill Training. This chart represents the amount of each type of skill training that the 50% of the missionaries who had received frequent training on TALL, received.**

Overall perception of TALL training adequacy. Overall, the views of the missionaries were split as to whether or not the training they received met their needs as TALL users. While 39% of them agreed that their training adequately met their needs, the greater 61% of them were either unsure or disagreed that the training was adequate (see Figure 7).

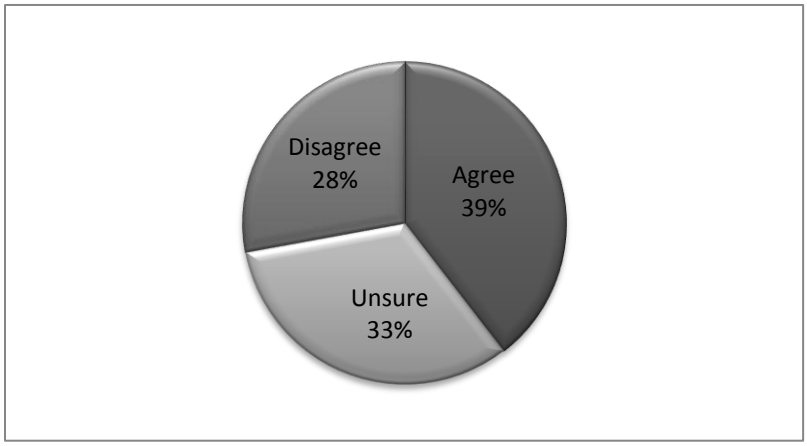

Figure 7. **Missionary Overall Perception of TALL Training Adequacy. This chart represents the percentage of missionaries who agreed that the TALL training they received adequately met their needs as a TALL user.**

Missionary language learning outcomes. Another guiding research question of this study was to find out how effectively the missionaries perceived themselves to have learned the key language elements through TALL. This is an integral question to any evaluation of CALL implementation, because it represents how well the learners were able to use the program to achieve language learning gains—which is the ultimate goal of any CALL program. Figure 8 (above) represents the missionaries' perception of overall improvement in their language skills due to their use of TALL.

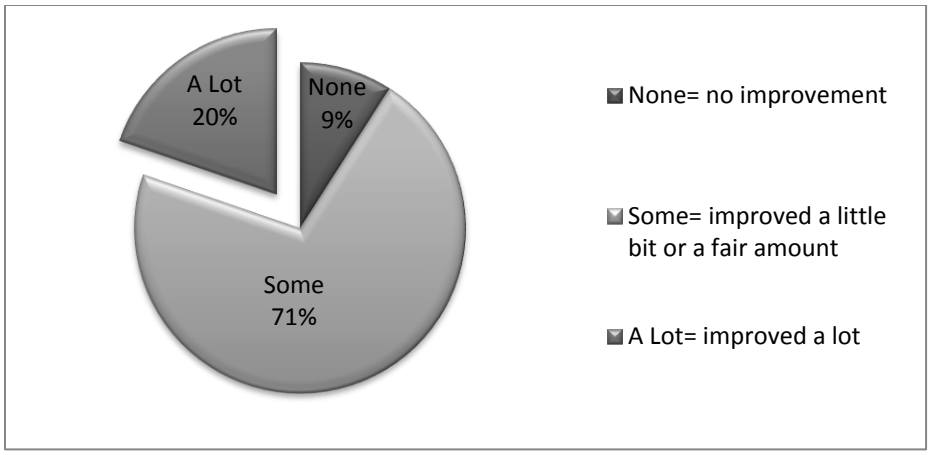

Figure 8. **Missionary Perception of Overall Language Skill Improvement.**

Figure 9 explains which language skills the missionaries perceived to have improved the most through their use of TALL.

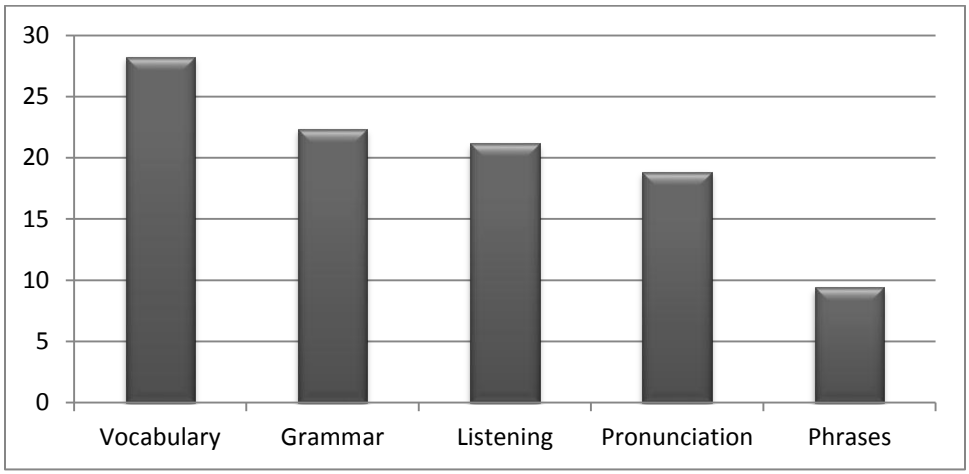

Figure 9. **Amount of Improvement to Specific Language Skills due to TALL. This chart represents the percentage of missionaries who perceived themselves to have made 'a lot' of improvement to each language skill.**

Contributing factors to successful TALL users. One of the main purposes of distributing the missionary questionnaire was to be able to discover whether there was significant correlation between the learners who seemed to be successful TALL users (as represented by the "successful TALL user" variable defined and described in chapter 3) and the various constructs

that the questionnaire measured. I needed, therefore, to be able to determine which of all the constructs measured were reliable predictors of successful TALL usage. This was done through using inferential statistics to perform a series of regression analyses between the dependent variable I defined as "successful TALL use" and the following constructs: "good CALL user" characteristics, use of CALL strategies, use of TALL's interactive features, and TALL training received. These constructs were selected based on evidence in CALL literature that these constructs make more successful users of CALL. The results are reported below.

Regression analysis for "good CALL user" characteristics. To begin analyzing the constructs that seem to predict successful CALL users, a regression analysis was performed that included the six "good CALL user" characteristics (a term used here to describe a group of items included in the survey that research supports as being overall effective CALL practices) included in the survey. The regression analysis revealed that there were several items that were statistically significant predictors of successful TALL users. Together, these three items accounted for 43.3% of the variance in the dependent variable that indicated whether or not the learner was a successful TALL user. The items are named and listed below in order of their significance:

- Item LTAbl5, which is an item that measures whether or not learners are proactive. A high score on this item indicated that even though TALL may not be a perfect program, the learners felt they were able to figure out how to use it to their advantage. This is the variable that accounted for the greatest amount of variance in successful TALL usage—28.8% ($p<.001$), which means it was the greatest predictor of successful TALL usage within this particular construct (see Appendix A, Tables 1 & 2, for each regression model's variables, r^2, and significance level).

- Item LTAbl1, which is an item that measures the goal-orientation of TALL learners. A high score on this item indicated that users consistently went to the TALL lab with a specific purpose in mind. This variable accounted for 11.1% of the variance in the dependent variable of successful TALL usage, which is significant at the $p<.01$ level.
- Item LTAbl6R, which is as item that measures how focused a CALL learner is on their language objectives. A high score on this item indicated that users did not forget what they were trying to accomplish while working on TALL. This variable accounted for 3.4% ($p<.05$) of the variance in the measure of successful TALL usage.

Together, these three items describe the type of learner that approaches TALL with a determination to make the best use of the TALL program in order to accomplish their personal language goals; they are not distracted by TALL's weaknesses, nor do they allow themselves to lose sight of their objectives while working on TALL. These are the qualities or characteristics that seem to describe successful TALL users in this study.

Regression analysis for "CALL strategy use." The regression analysis on CALL strategy use revealed that four of the ten strategies included in the survey were statistically correlated with our measure of successful TALL learners. These four strategies—two cognitive, and two metacognitive—are listed below in order of significance

- The cognitive strategy of repeating words and phrases out loud. A high score on this item indicated that the user used this particular strategy very often as they worked on TALL. This was the most significant predictor of success, accounting for 18.3% of the variance within the measure of successful TALL learner, which is significant at the $p<.001$ level (see Appendix A, Tables 3 & 4, for each regression model's variables, r^2, and significance level).

- The metacognitive strategy of setting and working on goals based on personal language needs. This strategy accounted for 9.4% of the variance, which is significant at the $p<.001$ level.
- The metacognitive strategy of reflecting on which learning techniques or activities worked best. This strategy accounted for 5.8 % of the variance which is significant at the $p<.005$ level.
- The cognitive strategy of writing down vocabulary to test themselves on later. This strategy accounted for 3.5% of the variance, which is significant at the $p<.05$ level.

Although each of these strategies is unique in and of itself, the statistical significance of these items suggests that successful TALL learners in this study used both cognitive and metacognitive strategies, both to regulate and evaluate their learning experiences and to maximize their learning outcomes through interaction with the program.

Regression analysis for "interactive feature use." The regression analysis on interactive feature use revealed that frequent use of two of the six interactive features listed on the survey were significantly correlated with successful TALL learners. The following are the two interactive features, listed in order of significance.

- Frequent use of TALL's electronic glossary. This interactive feature accounted for the greatest amount of variance (17.3%) in our measure of successful TALL user, which is significant at the $p<.001$ level (see Appendix A, Table 5 & 6 for each regression model's variables, r^2, and significance level).
- Frequent use of the 'listen to your voice' option. This feature accounted for 9.1% of the variance, which is significant at the $p<.005$ level.

Although both of these interactive features are unique by nature, high usage of both of these interactive items suggest that successful TALL learners tried to gain the most from each language activity that they engage in through interacting with the computer.

Regression analysis for "TALL training received." Although the literature supports differently, the regression analysis performed on this survey did not reveal TALL training as a major predictor of TALL user success. Only one of the five survey items measuring TALL user training was statistically significant; this item was instruction received on using TALL to improve listening. This type of instruction accounted for 7.3% of the variance, which is significant at the $p<.05$ level.

Most highly correlated factors with successful TALL users. In order to discover the most powerful predictors of success with TALL, a regression analysis was done on all of the items included in each of the constructs measured in the previous section—'good CALL user' characteristics, CALL strategy use, interactive feature use, and TALL training received. Of all the items entered into the analysis, five items emerged as significantly predictive of TALL user success.

Proactive, goal-oriented CALL learner. The two items that comprise this category are (a) item LTAabl5, in which users indicated that even though TALL may not be a perfect program, they were able to figure out how to use it to their advantage ($p<.001$), and (b) item LTAbl1, in which users indicated going to the TALL lab with a specific purpose in mind ($p<.005$) (see Table 3). Both of these items denote a proactive learner who chooses to approach TALL with their own set of objectives and purposes to accomplish, as well as with a determination to figure out how the TALL resource can best help them accomplish those purposes.

Interactive CALL learner. The three items in this category are (a) item LStratU13, in which the user indicated frequently repeating out loud the words and phrases encountered while working on TALL ($p<.001$); (b) item entitled Frequent use of TALL's 'Electronic Glossary', in which the user indicated using the electronic glossary to look up words while working on TALL ($p<.001$); (c) item entitled Frequent use of TALL's 'Listen to your Voice' Option, in which the user indicated making frequent use of a button allowing the user to hear their own recorded voice speaking in the target language ($p<.005$) (see Table 3).

All three of these items denote a type of learner that is interactive with the TALL program. Such interactive CALL learners do not expect that TALL will magically teach them with no great effort on their part, but they understand that what they gain from TALL will depend on the effort that they put into it. Thus, they make use of the interactive features that allow them to gain the most from each language activity.

Table 3
'Most Highly Correlated Successful TALL User Factors' Coefficients and Signficance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.452	2.264		4.616	.000
	LTAbl5	3.290	.565	.536	5.825	.000
2	(Constant)	5.749	2.338		2.459	.016
	LTAbl5	2.990	.519	.487	5.758	.000
	LStratU13	6.403	1.499	.362	4.272	.000
3	(Constant)	3.988	2.288		1.743	.085
	LTAbl5	2.424	.524	.395	4.625	.000
	LStratU13	5.249	1.469	.296	3.574	.001
	LTAbl1	1.471	.463	.280	3.178	.002
4	(Constant)	3.941	2.166		1.819	.073
	LTAbl5	1.798	.533	.293	3.375	.001
	LStratU13	5.161	1.391	.291	3.711	.000
	LTAbl1	1.545	.439	.294	3.521	.001
	Frequent use of 'Electronic Glossary'	.862	.266	.263	3.235	.002
5	(Constant)	1.747	2.207		.792	.431
	LTAbl5	1.831	.510	.298	3.590	.001
	LStratU13	4.095	1.381	.231	2.965	.004
	LTAbl1	1.547	.420	.295	3.684	.000
	Frequent use of 'Electronic Glossary'	.858	.255	.262	3.365	.001
	Frequent use of 'Listen to your Voice' Option	.910	.313	.218	2.903	.005

Note. Dependent Variable = Successful TALL Use.

Missionary suggestions for TALL implementation. In the missionary survey, the missionaries had the option of giving their own suggestions of how the MTC could better help them in their use of TALL. Only 53 of the 86 missionaries responded to this item by offering the MTC suggestions. The most common suggestion given by the missionaries who responded to this item (excluding suggestions given on changing the TALL program itself) dealt with TALL training and teacher support.

More TALL training. 26% of the missionaries who made specific suggestions as to how the MTC could better serve them in their use of TALL suggested that the MTC provide more training on how to use TALL. Many of these participants mentioned being lost their first few

weeks of using the system, and that an introductory training session on how to use TALL would have greatly helped them. As part of this training, missionaries suggested receiving instruction on

- how they are supposed to use TALL in order to be most effective with it;
- how to navigate through the TALL program;
- what content and activities exist on TALL, so that they have a better idea of the opportunities and capabilities TALL offers;
- how they are supposed to bypass some of TALL's rigid features.

More teacher support. 19% of the missionary suggestions also mentioned needing more support and direction from their teachers on how they should be using TALL. As part of this support, missionaries mentioned that teachers could

- provide suggestions of helpful activities to accomplish on TALL;
- help the missionaries to be effective on TALL, since it was used as their main source of language instruction;
- help missionaries focus on TALL activities that coordinated with classroom instruction
- be present as they worked in the TALL lab, so that they could follow up with them on their TALL learning, and assist them where necessary (6% of the suggestions mentioned this);
- provide a schedule for the missionaries of language topics or activities to accomplish on TALL.

Missionary Focus Group Results

In the focus groups, missionaries' comments focused largely on their frustrations with the TALL program itself. Since this evaluation study did not include an evaluation of the effectiveness of the software, but rather how it is implemented, those frustrations will not be listed here. Missionary responses to the researcher's questions are summarized below.

TALL training.

Mandarin missionaries. The Mandarin speaking missionaries reported receiving the greatest amount of formal training on how to use TALL. They had an initial TALL orientation at the beginning of their stay at the MTC, which helped them become more familiar with TALL. They also mentioned having ongoing workshops on how to use TALL for specific language skills throughout their stay—such as how to do the reading and listening activities on TALL. This type of training was viewed very positively by this group of missionaries. Overall, the Mandarin missionaries expressed a more positive attitude toward TALL than the other languages, and they spent less of their focus group time speaking about their TALL frustrations.

German missionaries. The German speaking missionaries did not mention having received any type of formal training. When asked if they felt TALL helped them to learn the language, they responded that once they figured it out, they felt it was decently helpful. But initially, it was not. Only after they figured out on their own how to use it did it prove helpful to their language learning.

French missionaries. Only one of the five French districts mentioned receiving a little bit of instruction on how to use TALL. This little bit of training did not seem to have ameliorated their opinions about TALL, however, as most of their comments were expressions of

disappointment and frustration with TALL, or suggestions of how the program could be more effective.

No other French districts mentioned receiving formal training on how to use TALL to learn the language. Again, these missionaries' comments seemed to be laden with more negative remarks about glitches in the program. Several districts mentioned that their dislike of TALL was due to never being properly shown how to use the program. One district mentioned being shown how to use it operationally, but not how to use it to learn the language.

Some missionaries were positive about TALL, and mentioned that as time progressed and they were able to "figure things out," it began to be more effective. One missionary's comment on this subject was "as long as we know what TALL can do for us, then it is helpful; but when we don't know what it is all about, it isn't helpful."

Spanish missionaries. Of all the languages, the Spanish missionaries mentioned most emphatically their desire to receive more training on effective use of TALL, especially an initial orientation at the beginning of their stay. One missionary commented that he didn't know how to choose effectively among the various language opportunities on TALL, so he would just pick "random things," which wasn't effective.

One of the districts that didn't receive much instruction on TALL had a very positive attitude about TALL nonetheless. These missionaries did say, however, that they didn't like it at first, because they didn't know how to use it; but by the third week of sticking with it, they started finding it helpful.

Most helpful TALL aspects.

Mandarin missionaries. One missionary mentioned that at first TALL was really helpful for vocabulary practice, but not so much later on. The overwhelming consensus among the

Mandarin speaking missionaries, however was that the listening activities were extremely helpful. One missionary commented that the listening activities helped them "leaps and bounds." One missionary mentioned the reading activities as being helpful, as well.

German missionaries. The German speaking missionaries did not provide much detail on their favorite activities, but they did mention the helpfulness of vocabulary activities and that they "loved" the listening activities.

French missionaries. The majority of the French missionaries who commented on their most preferred aspects of TALL mentioned the listening activities. In addition, several missionaries commented on the help TALL provides with pronunciation, because it allowed them to both hear native speakers speaking, and their own voices imitating the native speakers.

Spanish missionaries. Just as the French missionaries, the majority of the Spanish speaking missionaries mentioned liking the listening section—which allowed them to hear native speakers and try to imitate their speech. Several missionaries also mentioned how helpful the vocabulary section was in helping them prepare for their lessons.

Teacher Questionnaire Results

Teacher suggestions for TALL implementation. Included in the teacher survey was an item allowing the missionaries to offer the MTC suggestions as to how they could better help implement TALL into the curriculum. Of the 20 teachers that participated in this study, 17 of them responded to this item.

More teacher training. Of those teachers who responded to this question, all of them focused on the desire to receive more teacher training on TALL. They offered the following suggestions as to which topics should be covered:

- Time to play around with and familiarize themselves with the TALL program; 55% of the teachers reported on the survey as not feeling like they had been able to take adequate time to become familiar with the program.
- Instruction on the role teachers should play in regard to TALL; 20% of the teachers did not feel like they understood the role TALL was supposed to play in the curriculum, which means that a good percentage was probably unsure about the role the teachers were supposed to play in regard to the program.
- Instruction on how to use TALL most effectively so that they can help their missionaries; 45% of the teachers reported feeling unprepared to teach the missionaries how to use the program to learn specific elements of the language.
- Instruction on how TALL can meet the needs of struggling missionaries.
- Instruction on how to support their missionaries (set goals, follow-up) in their use of TALL.
- Instruction on what content and activities TALL offers, and how these can be used to effectively learn the language.
- Instruction on how teachers can incorporate TALL into their classroom instruction, so that they can better help missionaries to use the program effectively; many of the teachers expressed the need to bring TALL into the classroom by following up with missionaries and by taking class time to solicit and answer questions.

Overall, the results of the survey suggest that the majority (65%) of the teachers did not feel the training they received on TALL was adequate enough to meet their needs, considering the more prominent role of TALL in the new curriculum. The only language area where the majority (2 out of 3) of the teachers agreed to receiving adequate training was the German area.

50% of the German teachers who responded as receiving adequate training on TALL reported that their greatest source of instruction was their coordinator. The other 50% of them reported that the distributed teacher materials were their greatest source of instruction; perhaps these sources may be the most effective for providing training, but it is hard to tell because of the relatively small number of teacher participants in this study.

Conclusion

This chapter reported the results from the three data-collecting instruments involved in this study (a) the interview with TALL administrators, (b) the missionary questionnaire, (c) the missionary questionnaire, and (d) the missionary focus groups. A discussion of the implications of these results will follow in the next chapter.

CHAPTER 5: DISCUSSION

Chapter Overview

Several significant obstacles impeding TALL from being more successfully implemented have surfaced from the results of this study. These obstacles deal with how the missionaries in the pilot curriculum reported using TALL as well as with the amount of TALL training received by both the teachers and the missionaries in the pilot group. These two main categories of obstacles will be discussed first, after which I will offer specific suggestions as to what type of TALL training teachers and future missionaries need to receive when the new language curriculum is implemented. These suggestions are based on findings from this research study, and on CALL training principles supported in the literature.

Implementation Obstacles.

Missionary use. The first category of obstacles that surfaced from this study dealt with how the missionaries used TALL within the pilot curriculum.

Purpose in using TALL. From the analysis of the missionary survey it seems that missionaries in the pilot were not taking full advantage of TALL's language learning potential to help them prepare to accomplish their missionary purpose (being able to effectively teach others, and help them to embrace the beliefs of the LDS faith); this is evidenced in the fact that missionaries indicated being least likely to use TALL to prepare for both their missionary teaching appointments and to perform the missionary tasks, which is their primary language learning objective. Not only is it their primary language goal, but according to the interview with

administrators, it is a guiding purpose of TALL's role in the pilot curriculum that missionary TALL use be guided by what they need to do during language teaching appointments.

The fact that missionaries indicated being least likely to use TALL to prepare to teach and perform missionary tasks may be evidence that they are missing the purpose behind the language activities and tasks that they perform on TALL. According to Cohen and White (2007), a sign of effective language learners is that they can visualize the purpose behind the language activities and tasks that they perform. Missionaries, therefore, may benefit from understanding how each activity or language element they are practicing should be contributing to their ability to teach their beliefs in the target language. Indeed, their teaching appointments should drive their decisions on what to do on TALL. Evidence from this study suggests that having an overarching purpose or goal based on personal language needs—such as improving some proficiency aspect of their teaching—when approaching TALL is highly predictive of successful TALL use.

Interaction with TALL. In this study, 36.8 % of the missionaries reported rarely or never using the interactive features on TALL. There may be many reasons for this—such as not being aware of the features' existence, not being aware of the linguistic gains that can come from use of those features, or not knowing how to use each feature effectively. Whatever the reason, there were a lot of missionaries participating in the pilot who did not take advantage of the opportunities these features provide. Although this particular research study did not inquire into why these features were not used more often, we did discover that self-reported successful use of TALL was highly correlated with frequent use of both the electronic glossary and the 'listen to your voice' option—which are both interactive features that capitalize on the strengths of TALL. Frequent use of the electronic glossary was also found to be correlated with higher proficiency

attainment in Loucky's (2006) study, which supports our own finding that electronic glossary use was predictive of successful TALL use ($p<.001$). Missionaries might increase their use of these features if they are introduced to these features formally and if they are aware of the linguistic gains that come from using them effectively (Hegelheimer & Tower, 2004, O'Bryan, 2008). More on this subject will follow in the section on suggestions for TALL training.

Not only would increased use of the interactive features help missionaries to learn more effectively on TALL, but increased cognitive and metacognitive interaction with TALL might as well. As missionaries interact more with the TALL program by (a) using the available interactive features to enhance their activity on TALL, and (b) employing effective cognitive and metacognitive strategies as they work on TALL, they demonstrate the ability to be proactive TALL learners. This type of learner recognizes that what they gain from TALL will be determined in large part by the effort and skill that they put into their language learning experience using TALL. This type of proactive and interactive CALL learner proved to be one of the most highly predictive characteristics of successful TALL users in this study. Missionaries might benefit from understanding how approaching TALL in this way could benefit their studies.

Training Obstacles. The second category of obstacles to successful TALL implementation dealt with TALL training. These TALL training obstacles are discussed below.

Learner and teacher training on TALL. One of the biggest obstacles that seemed to surface from this study is the lack of formal teacher and learner training that is provided to the MTC language instructors and missionaries alike. All of the teachers who participated in this study suggested that they would benefit greatly from a more formal and in-depth training on how to use TALL effectively, so that they could in turn provide the necessary training and support to the missionaries. And the majority of missionary suggestions (excluding suggestions made to

change the program itself) dealt with a desire for more specific and formal training on TALL, as well as more individual and ongoing TALL support from their teachers. Research in CALL strongly supports the necessity of such training for teachers (Hong, 2010; Hubbard, 2004; Hubbard & Levy, 2006; Kolaitis et al., 2006; Timucin, 2009) and learner CALL training (Cohen & White, 2007; Hubbard, 2004; Jones, 2001) in order to achieve effective CALL use. More specific details on the implications that this study has for teacher and learner training at the MTC will follow.

TALL training specialists. Another training obstacle that surfaced in the results of this study was the lack of training specialists available to support TALL's implementation. Although the teachers were meant to be the missionaries' main training specialists, only a relatively small percentage of missionaries (32.6%) reported feeling that their teachers were their greatest source of TALL training that they received. This suggests that either the teachers weren't aware of their role as missionary TALL trainers, or they were not prepared with the expertise on the system necessary to effectively fulfill that role. Whatever the reason, there seems to have been a lack of training specialists to train the teachers, and as a result, the teachers did not seem to be a strong source of TALL training to the missionaries. In my interview with those assigned to implement and manage TALL, they themselves expressed their belief that finding adequate TALL training specialists to train the teachers and the missionaries, is one of the main obstacles to providing more effective TALL training to TALL users.

TALL Training Suggestions

Overall, the greatest implication that I have gleaned from conducting this study is that without the necessary guidance and training, missionaries will not be able to capitalize on the unique language learning potential that the TALL program has to offer. TALL, as any other

CALL program, will not yield successful results if the users are unable to use it effectively. Thus, every obstacle that surfaced from this study could theoretically be tackled through a more rigorous, organized, and informed approach to TALL training. This is why I have dedicated the final portion of my discussion to suggestions for future TALL training. These suggestions are based on both the results from this study, and on effective CALL training practices supported in the literature and as documented in Chapter 2.

Individual TALL familiarization session. Before any formal training is received, TALL users should have the chance to log onto TALL and experience the program (Hubbard, 2004; Kolaitis et al. 2006). Such exposure would allow learners to become familiar with the TALL program without any pressure to perform on it. In order to make this time effective, TALL users should not have any particular task to accomplish on TALL, but should be free to explore its functionality in whatever way they want. This would allow them to establish some type of frame of reference to help them be able to better understand and retain what they learn during more formal TALL training sessions.

Formal TALL training orientation. After TALL users have had a chance to experience TALL themselves, they are ready to receive formal training on how to use TALL. As part of this formal training—which could take place in several smaller training sessions, or in a bigger TALL orientation session—TALL users would learn about (a) TALL's role in the curriculum (how they are expected to use, and what they are expected to learn from TALL), (b) the content, activities, and tasks that are found on TALL, and (c) how learners can be most effective in their use of TALL. Each of these items is discussed below in more detail.

Knowledge of TALL's role. Teachers and learners must know how they are expected to use TALL in the context of the new language curriculum. Missionaries should know, for

example, whether TALL will be their main source of grammar and vocabulary instruction or whether they will receive in class instruction on these language elements.

If TALL is to be used to accomplish whatever the missionary feels will help them to prepare to teach in their target language teaching appointments, missionaries should be aware of this. Then, they will know that the needs of their teaching appointments should be guiding their decisions on TALL.

Knowledge of TALL's content. Teachers and learners must also learn about what content, activities, tasks, and features are on TALL so that they are familiar with TALL's capabilities and are thus able to use it more successfully (Cohen & White, 2007; Hegelheimer & Tower, 2004; Figura & Jarvis, 2007). With this type of knowledge, learners will not find themselves working on only one type of activity because it is the only activity they know how to do on TALL. Instead, when learners and teachers are familiar with a wide range of activities and language elements that are available to practice, they can more wisely choose from among TALL's opportunities those which will best help them accomplish their own language learning goals.

TALL's organization. A clear and complete understanding of how TALL's content and activities function within the program's organization is also essential for teachers and learners alike. As discussed in the interview with management, TALL's organization may cause frustration to users who are unaware of it and how to work effectively within it. Thus, an initial and simple explanation of TALL's organization and flow of content will be important to learners or teachers before they first begin to use the program.

Knowledge of effective TALL use. Both learners and teachers also need to know what constitutes effective use of the TALL program; thus, part of learner training must focus on what

learners must do in order to use the TALL most effectively within the learning environment at the MTC. Several principles, discussed in more depth in Chapter 2, will help to guide this type of training.

Knowledge of personal language needs. First, learners must realize that in order to use TALL successfully, they need to be able to identify their own personal language needs, and allow those needs to guide their activity on TALL. These needs can be determined by the desire to obtain greater clarification on a certain grammar principle or by a more holistic desire to better understand investigators responses in teaching appointments.

Setting and pursuing language goals. Once learners' needs are identified, goals must be formulated so that learners are approaching TALL use with a specific purpose in mind. Once learners formulate appropriate language goals based on their language needs and they proceed to the computer lab, the learners must make sure that they don't lose focus on their goals. And they must allow their decisions on TALL to be guided by their need-based goals. In sum, findings in the literature and in this study support the fact that goal-driven study on CALL will greatly determine the outcomes of language learning success; knowing this might provide the missionaries with some type of motivation to set and work on goals during their TALL study.

Knowing how to exploit TALL to maximize language learning. Teachers and learners must realize that they are not prisoners to the constraints imposed by TALL's design, but that they have the ability to determine, in large part, the language gains that they can make from each activity or task they perform. Cognitive strategies, such as taking the time to repeat out loud words or phrases or writing down vocabulary encountered, can help users make the most of each language activity and task—even if the particular task is not proving as useful as had been thought. TALL learners in this study that used these types of strategies to make the most of each

language activity reported more success learning the language through TALL. Missionaries must understand, therefore, that their decisions to be proactive during each language activity—exploiting each activity for any language gains to be made—will help them to learn the language more successfully from TALL (Hubbard, 2004; Kolaitis et al., 2006).

An additional way to exploit a particular activity is to make use of the its interactive features, as discussed at the beginning of this chapter, in order to actually change or alter an activity to more closely fit a learner's needs. This can involve, for example, using the electronic glossary feature to make difficult reading activities easier. It can also involve using the 'hide' feature to hide picture icons in order to make easy vocabulary activities more difficult. There are many ways that users can use the interactive features of the TALL program to tailor each activity to fit their language level or needs. Learners should be aware of the gains that can be made from using such features to tailor activities so that more language improvement can be made from them (Hegelheimer & Tower, 2004; Figura & Jarvis, 2007; Kolaitis et al., 2006).

The specific TALL interactive features that were significant predictors of self-reported successful TALL use in this study were (a) frequent use of the electronic glossary feature ($p<.001$), and (b) frequent use of the 'listen to your voice' option ($p<.005$); this finding might suggest that these are some of the most effective features to make use of while on TALL, and it might be important to mention their potential worth to TALL users during this section of TALL training.

Ongoing TALL training. After learners receive the formal training on TALL, they must have a chance to try out and practice what they learned in an environment where a TALL specialist is present. This could happen during the TALL scaffolding period, where TALL users

will receive the type of ongoing training that CALL users need and that CALL research supports (Hubbard, 2004; Owston, 2007; Wilhelm, 1996; Lawless & Pellegrino, 2007).

TALL scaffolding period. The scaffolding period could last for however long the MTC desires, and it would consist of several consecutive TALL training sessions. These training sessions would be guided by pre-determined TALL lesson-plans—created by qualified TALL administrators who are aware of CALL pedagogy, and carried out by TALL trainers or specialists—that allow missionaries to experience the wide range of opportunities that TALL presents in a more controlled environment where a specialist can provide individual help and direction where necessary. For teachers, the specialist can be a TALL administrative manager who is very knowledgeable about the program and how it can be used effectively; for missionaries, the specialist can be their classroom teachers who have experience and are trained on TALL.

Many missionaries in the pilot study expressed the desire to have a schedule to direct them on their TALL use, because they found themselves lost at times in all the content and language opportunities that TALL offers. They also expressed the desire to have more TALL support from their teachers. With this scaffolding period, missionaries will have the initial structure they desire, and a supportive environment in which to practice using TALL effectively; this will prepare them to make better decisions on TALL so that when they begin to use it on their own to accomplish their own language objectives, they are more effective with their time.

Teacher follow-ups. After the scaffolding period is over, missionaries would be on their own to pursue their own language goals on TALL until they complete their stay at the MTC. Teachers should continue to follow up with missionaries regarding their use of TALL during regularly scheduled, one-on-one time interviews. This way, the missionaries would feel

accountable for their activity on TALL, and they would have the opportunities to express concerns about TALL or receive added direction from their teachers after formal training has ceased.

Recommendations for Future Research

Based on the results from this study, I have several recommendations for future research that might contribute to a general understanding of how to best implement CALL as well as help the MTC to continue to improve the ability of missionaries to use TALL successfully.

One recommendation would be to take the suggestions for TALL user training offered in this study and attempt to implement them in a pilot study. By comparing language learning gains made by missionaries in the pilot group who received TALL training with language learning gains made by missionaries who did not receive TALL training, the MTC would be able to find out how great a difference the implementation of formal TALL training can make in missionary TALL usage. This would allow the MTC to decide whether or not the resources required to provide TALL training to all missionaries would be justified.

Another suggestion for future research would be to focus on discovering what characterizes successful TALL usage. Although this particular study did attempt to discover successful TALL user qualities, it was hindered by the fact that there was no way of quantitatively measuring those who were truly successful in their use of TALL; such quantitative measures were simply beyond the scope of this research study. However, if a research study were able to focus solely on finding out which factors contribute to missionaries' successful use of TALL, it would be possible to spend more time and resources developing a more reliable measurement of successful TALL usage that includes both self-reported and quantitative measures. This would allow the MTC to make a more reliable assessment on which TALL user

factors actually increase missionaries' ability to make language learning gains from TALL. Such a study would provide the MTC with a greater understanding of what missionaries must do in order to truly capitalize on TALL's language learning potential.

Conclusion

The suggestions I have offered may not be perfectly achievable with the current constraints that the MTC is operating under—financial and otherwise. Because I am not an employee of the MTC, I am not able to determine what is and is not feasible within the current learning environment at the MTC. It is my hope, however, that (a) the results from this study will help establish the necessity for more organized and informed TALL training in the new language curriculum, and (b) that my suggestions in this chapter might serve to inform the format and content of the TALL training that could be implemented in the new language curriculum.

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APPENDIX A

ADDITIONAL TABLES FROM THE ANALYSIS OF RESULTS

Table 1

Analysis of Regression Model Summary for "Good CALL User" Characteristic

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.536[a]	.288	.279	4.13498
2	.632[b]	.399	.385	3.82064
3	.658[c]	.433	.412	3.73391

Note. Dependent variable = successful TALL learner.

Table 2

"Good CALL User" Characteristics Coefficients and Significance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.452	2.264		4.616	.00
	LTAbl5	3.290	.565	.536	5.825	.00
2	(Constant)	7.117	2.258		3.151	.00
	LTAbl5	2.498	.560	.407	4.464	.00
	LTAbl1	1.880	.479	.358	3.923	.00
3	(Constant)	6.271	2.240		2.800	.00
	LTAbl5	2.171	.567	.354	3.833	.00
	LTAbl1	1.506	.498	.287	3.024	.00
	LTAbl6R	1.095	.495	.211	2.214	.03

Note. LTAbl5 = proactive TALL learner;
LTAbl1 = goal-oriented TALL learner;
LTAbl6R = Focused TALL learner.

Table 3

Regression Analysis Model Summary for "CALL Strategy Use"

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.428[a]	.183	.173	4.42896
2	.526[b]	.277	.260	4.19077
3	.578[c]	.335	.310	4.04499
4	.608[d]	.370	.339	3.95965

Note. Dependent variable = successful TALL learner.

Table 4

"CALL Strategy Use" Coefficients and Significance

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	16.429	1.674		9.814	.000
	LStratU13	7.571	1.747	.428	4.335	.000
2	(Constant)	15.995	1.589		10.063	.000
	LStratU13	6.468	1.686	.365	3.835	.000
	LStratU15	3.037	.923	.313	3.289	.001
3	(Constant)	15.684	1.539		10.194	.000
	LStratU13	6.057	1.635	.342	3.705	.000
	LStratU15	2.712	.899	.280	3.015	.003
	LStratU16	2.498	.938	.244	2.663	.009
4	(Constant)	14.958	1.544		9.689	.000
	LStratU13	5.954	1.601	.336	3.718	.000
	LStratU15	2.511	.885	.259	2.836	.006
	LStratU16	2.062	.941	.201	2.191	.031
	LStratU11	1.906	.891	.196	2.138	.035

Note. LStratU13 = repeating words and phrases out loud;
LStratU15 = setting/working on goals based on personal language needs;
LStratU16 = reflecting on which learning techniques or activities work best for them personally;
LSratU11 = writing down vocabulary to test themselves on later.

Table 5

Analysis of Regression Model Summary for “Interactive Feature Use”

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.415[a]	.173	.163	4.45661
2	.514[b]	.264	.247	4.22765

Note. Dependent variable = successful TALL learner.

Table 6

“Interactive Feature Use” Coefficients and Significance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	19.695	1.004		19.621	.000
	Frequent Use of TALL's electronic glossary	1.361	.325	.415	4.186	.000
2	(Constant)	15.490	1.617		9.577	.000
	Frequent Use of TALL's electronic glossary	1.350	.309	.412	4.375	.000
	Frequent Use of TALL's 'listen to your voice' Option	1.265	.393	.303	3.216	.002

Note. Dependent variable = successful TALL learner.

APPENDIX B

DESCRIPTION OF AVAILABLE VERSIONS OF TALL

TALL VP (Vocabulary and Phrases) Description

This was the TALL program that was developed because the MTC wanted to provide language learning software to all missionaries as quickly as possible without waiting for the extended development process that would be required of the TALL 3.5 and 4.0 designs. The design teams identified Vocabulary and Phrases as key TALL components desired for all missionaries, along with accompanying print materials, so the TALL VP software and corresponding print materials (VP Booklet) were developed for all languages taught at the MTC. This particular piece of software uses a default path which controls the flow of concepts through activities, and the order of activities. Learners can select a specified number of concepts to study, but cannot control the sequence of activities, and must wait to review selected concepts until prompted by the "spaced review" function of the software.

TALL 4.0 Description

This is the version of TALL that was designed based on feedback from Training regarding TALL 3.5 (an earlier version of TALL referred to as the Lab-Class-Lab Model), and because Training wanted content that more closely matched the Preach My Gospel (the missionary lesson manual) content. The TALL interface and content were, therefore, designed to reflect Preach My Gospel content and organization Training also wanted full learner control to move concepts between activities, instead of the software 'brain' controlling both the flow of concepts through activities and the order in which learners completed those activities. The TALL

4.0 design allows learners to select any activity and move concepts to any activity at any time. One result of this function is that TALL's original ability to define "mastered" concepts is difficult within the design of the 4.0 version because the learning path cannot be controlled or fully determined. The content in TALL 4.0 includes Vocabulary, Phrases, Grammar, and some Listening comprehension activities . The current languages that have access to TALL 4.0 are Spanish, French, German, and Portuguese.

TALL 4.1 Description

This version of TALL is based on TALL 4.0, but was designed to include a reading component to address the need for missionaries learning new writing systems, and to include a more robust listening comprehension component. The reading component in TALL 4.1 focuses on helping missionaries learn to read the language-specific writing systems and increase their reading comprehension skills as they study and prepare to use missionary scriptures in their target language. The listening component in 4.1 focuses on helping missionaries improve their ability to listen and understand the needs of those they are teaching; as part of this, it includes listening strategy development activities, and listening passages with comprehension questions including scaffolding resources (e.g., vocabulary hints or prompts to use various strategies, background information, or contextual clues to inform listening). TALL 4.1 differs from TALL 4.0, therefore, in its inclusion of these reading and listening components. The content in 4.1 includes Vocabulary, Phrases, Grammar, Reading, and Listening activities. The current languages that have access to TALL 4.1 are Mandarin and Japanese.

APPENDIX C

INSTRUMENTS

Missionary TALL Survey

The following questionnaire is designed to find out various aspects of your experience with using the TALL program in the pilot language curriculum. Your responses will remain anonymous and will be used to help the MTC understand how to better assist missionaries for more successful use of the TALL program. Your responses will *not* be used to negatively influence the employment of any MTC employee, so please answer each question as honestly as possible; your honesty will increase the MTC's capacity to improve TALL learning conditions for future missionaries. The questionnaire consists of 47 multiple choice items and 1 open-ended item, and is designed to take 10-12 minutes to complete.

1. About how often did you use TALL?
- ❍ More than once a day
- ❍ Once a Day
- ❍ 2-3 Times a Week
- ❍ Once a Week

2. About how much time did you spend on TALL each time you went to the lab?
- ❍ 5-10 min.
- ❍ 15-20 min.
- ❍ 20-30 min.
- ❍ 40-50 min.
- ❍ 60 min. (1 hour)
- ❍ More than 60 min.

3. How much time were you told to use TALL per day?
- ❍ 10-15 min.
- ❍ 20-30 min.
- ❍ 30-40 min.
- ❍ 40-50 min.
- ❍ 60 min. (1 Hour)
- ❍ However much time was helpful for me personally.
- ❍ I was not told a specific amount of time.

4. How much of the TALL tutorial did you complete?
- ❍ Some of it.
- ❍ All of it.
- ❍ None of it.

5. How often did you go to the TALL lab with a specific purpose or goal to accomplish?
- ❍ Never
- ❍ Rarely
- ❍ Sometimes
- ❍ Often
- ❍ Always

6. How often was a teacher present in the TALL lab when you were working on TALL?
- ❍ Never
- ❍ Rarely
- ❍ Sometimes
- ❍ Often
- ❍ Always

7. How often did your classroom teacher provide in class training on how to use TALL effectively?
- ❍ Never
- ❍ Rarely
- ❍ Sometimes
- ❍ Quite Often
- ❍ Very Often

8. From what source have you received the most helpful instruction on how to use TALL?
- ❍ My Teacher
- ❍ Another Teacher
- ❍ A Missionary
- ❍ A Training Meeting
- ❍ Distributed Missionary Materials
- ❍ TALL Tutorial
- ❍ Other _____

(9-14) How often did you use TALL for the following language learning purposes?

	Never	Rarely	Sometimes	Often	Very Often
9. To increase your vocabulary	❍	❍	❍	❍	❍
10. To improve your grammar	❍	❍	❍	❍	❍
11. To improve your listening comprehension	❍	❍	❍	❍	❍
12. To improve your pronunciation	❍	❍	❍	❍	❍
13. To prepare for teaching appointments	❍	❍	❍	❍	❍
14. To practice the missionary tasks	❍	❍	❍	❍	❍

(15-20) During a typical TALL session, how often did you use TALL's following interactive features?

	Never	Rarely	Sometimes	Often	Very Often
15. Electronic glossary / dictionary ('vocabulary reference')	❍	❍	❍	❍	❍
16. Keyboard help button	❍	❍	❍	❍	❍
17. Listen to words / phrases option	❍	❍	❍	❍	❍
18. Record your voice option	❍	❍	❍	❍	❍
19. Listen to your voice option	❍	❍	❍	❍	❍
20. Hide words / phrases option	❍	❍	❍	❍	❍

21. Which of the following strategies did you use regularly while on TALL? Check all that apply.

- ❑ Write down relevant vocabulary to test yourself on later.
- ❑ Take notes on what you were learning.
- ❑ Repeat words and phrases out loud.
- ❑ Alter activities to better fit your needs (eg., hide pictures to make vocabulary guessing more difficult).
- ❑ Set and/or work on goals that are based on your personal language needs.
- ❑ Reflect on which learning techniques or activities were working best for you.
- ❑ Make a point to use and reuse activities that worked best for you.
- ❑ None of the above.

(22-25) I was given specific training on how to use TALL to improve the following language skills:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
22. Grammar	❍	❍	❍	❍	❍
23. Listening Comprehension	❍	❍	❍	❍	❍
24. Vocabulary	❍	❍	❍	❍	❍
25. Pronunciation	❍	❍	❍	❍	❍

26. I was given sufficient training on how to use TALL in order to prepare for my teaching appointments and other missionary tasks.

- ❍ Strongly Disagree
- ❍ Disagree
- ❍ Neither Agree nor Disagree
- ❍ Agree
- ❍ Strongly Agree

27. Overall, the instruction I received on how to effectively use TALL adequately met my needs as language learner.
- ❍ Strongly Disagree
- ❍ Disagree
- ❍ Neither Agree nor Disagree
- ❍ Agree
- ❍ Strongly Agree

28. I understand the role TALL was designed to play in missionary language learning.
- ❍ Strongly Disagree
- ❍ Disagree
- ❍ Neither Agree nor Disagree
- ❍ Agree
- ❍ Strongly Agree

(29-31) To what extent do you agree with the following statements as they apply to you?

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
29. I am good at figuring out new computer programs on my own.	❍	❍	❍	❍	❍
30. I am more comfortable using computers when I have someone helping me.	❍	❍	❍	❍	❍
31. I am a better language learner when I don't use a computer.	❍	❍	❍	❍	❍

(32-36) To what extent do you agree with the following statements as they apply to you?

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
32. It was hard to know what to study on TALL.	❍	❍	❍	❍	❍
33. I was good at navigating my way through TALL.	❍	❍	❍	❍	❍
34. It was difficult to know which TALL activities were the most productive for me personally.	❍	❍	❍	❍	❍
35. Even though TALL may not be a perfect program, I figured out how to use it to my advantage.	❍	❍	❍	❍	❍
36. It was easy to forget what I was trying to accomplish when I was on TALL.	❍	❍	❍	❍	❍

(37-40) How helpful was it for you to study with the following language resources:

	Waste of Time	Not Very Helpful	Somewhat Helpful	Very Helpful	Essential
37. TALL	❍	❍	❍	❍	❍
38. Language text books (including TALL guide and dictionary).	❍	❍	❍	❍	❍
39. Other missionary distributed materials (scriptures, PMG, etc.)	❍	❍	❍	❍	❍
40. Materials I created myself.	❍	❍	❍	❍	❍

(41-45) How much did your following language skills improve through using TALL:

	Not At All	A Little Bit	A Fair Amount	A Lot
41. Vocabulary	❍	❍	❍	❍
42. Grammar	❍	❍	❍	❍
43. Listening Comprehension	❍	❍	❍	❍
44. Pronunciation	❍	❍	❍	❍
45. Phrases	❍	❍	❍	❍

46. In your opinion, how often should missionaries go to the TALL lab?
❍ Once a Week
❍ 2-3 Times a Week
❍ Once a day
❍ More than once a day

47. In your opinion, how long should missionaries use TALL each time they go to the Lab in order to be most effective?
❍ 10-15 min.
❍ 20-30 min.
❍ 30-40 min.
❍ 40-50 min.
❍ 60 min. (1 hour)

48. What suggestions, if any, do you have about how the MTC could make TALL more effective for missionaries? Be as specific as possible in 1-2 sentences.

Teacher TALL Survey

1. Did you have access to the current TALL program when you were a missionary at the MTC?
- ❍ Yes
- ❍ No

2. If so, how often did you use it as a missionary?
- ❍ Very Rarely
- ❍ Rarely
- ❍ Sometimes
- ❍ Often
- ❍ Very Often
- ❍ Did not have access to it.

3. I understand what one needs to do in order to effectively learn a new language?
- ❍ Strongly Disagree
- ❍ Disagree
- ❍ Neither Agree nor Disagree
- ❍ Agree
- ❍ Strongly Agree

4. I understand the role TALL was designed to play in the MTC language curriculum.
- ❍ Strongly Disagree
- ❍ Disagree
- ❍ Somewhat Disagree
- ❍ Somewhat Agree
- ❍ Agree
- ❍ Strongly Agree

(5-7) To what extent do you agree with the following statements as they apply to you?

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
5. I was taught computer-specific language learning strategies that can help missionaries maximize their learning experience from TALL.	❍	❍	❍	❍	❍
6. I was taught how to help missionaries effectively use the TALL program to improve specific language skills (e.g., grammar, vocabulary, etc.)	❍	❍	❍	❍	❍
7. Overall, the instruction I have received on TALL has adequately met my needs as a Teacher.	❍	❍	❍	❍	❍

(8-9) How often do your training meetings focus on the following:

	Very Often	Often	Never	Rarely	Sometimes
8. How to help missionaries learn the language effectively.	❍	❍	❍	❍	❍
9. How to help missionaries use the TALL program effectively.	❍	❍	❍	❍	❍

10. How much of the TALL tutorial have you completed since you were hired?

❍ Some of it.
❍ All of it.
❍ None of it.

11. From what source have you received the greatest amount of training on TALL?
- ❍ My Coordinator
- ❍ Another Teacher
- ❍ Distributed Teacher Materials
- ❍ TALL Tutorial
- ❍ Other _____

(12-15) To what extent do you agree with the following statements as they apply to you?

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
12. I think that many activities on TALL are a waste of time.	❍	❍	❍	❍	❍
13. I think an hour is too much time for missionaries to spend on TALL at a time.	❍	❍	❍	❍	❍
14. Overall, I think TALL is an effective language learning tool.	❍	❍	❍	❍	❍
15. I don't feel I know TALL well enough to judge its effectiveness.	❍	❍	❍	❍	❍

(16-18) To what extent do you agree with the following statements as they apply to you?

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
16. I am good at navigating my way through TALL.	❍	❍	❍	❍	❍
17. It is hard for me to know which activities will be the most useful for my missionaries.	❍	❍	❍	❍	❍
18. I understand how to help my missionaries use TALL in order to learn their mission language.	❍	❍	❍	❍	❍

19. Which of the following TALL features have you practiced using while on TALL? Check all that apply.

- ❑ Electronic glossary / dictionary ('vocabulary reference')
- ❑ Keyboard help button
- ❑ Listen to words / phrases option
- ❑ Record your voice option
- ❑ Listen to your voice option
- ❑ Hide words / phrases option
- ❑ None of the above.

20. I have taken sufficient time to familiarize myself with the TALL program.

- ❍ Strongly Disagree
- ❍ Disagree
- ❍ Neither Agree nor Disagree
- ❍ Agree
- ❍ Strongly Agree

21. For which language learning purposes do you usually encourage your missionaries to use TALL? Check all that apply.

- ❑ To increase their vocabulary.
- ❑ To improve their grammar.
- ❑ To improve their listening comprehension.
- ❑ To improve their pronunciation.
- ❑ To prepare for their teaching appointments.
- ❑ To practice the missionary tasks.

22. Which of the following strategies have you specifically taught your missionaries to use while working on TALL? Check all that apply.

- ❑ Write down relevant vocabulary to test yourself on later.
- ❑ Take notes on what you learn.
- ❑ Repeat words and phrases out loud.
- ❑ Alter activities to better fit your needs (ex: cover up answers to make a question more difficult).
- ❑ Set and/or work on goals that are based on your personal language needs.
- ❑ Make note of which language points cuase you difficulty.
- ❑ Reflect on which learning techniques or activitieswork best for you.
- ❑ Make a point to use and reuse activities that worked best for you.
- ❑ None of the above.

(23-26) To what extent do you agree with the following statements?

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
23. I feel prepared to provide in-class training to missionaries on how to use TALL to learn specific elements of the language (e.g., grammar).	❍	❍	❍	❍	❍
24. I spend class time teaching missionaries how to make the most of their TALL experience.	❍	❍	❍	❍	❍
25. I take time to solicit and answer questions that missionaries have about TALL.	❍	❍	❍	❍	❍
26. I make time to follow up regularly with each missionary on what they are doing on TALL.	❍	❍	❍	❍	❍

27. What suggestions, if any, do you have about how the MTC could better prepare teachers to help their missionaries use TALL effectively? Please describe in 1-2 sentences.

Questions Asked During the Interview with Administration

1. What language opportunities was TALL originally designed to provide the missionaries? What was the original need behind the creation of TALL?

2. Has the purpose of the TALL 4.0/4.1 program evolved since its inception? If so, how?

3. What are TALL's most useful capabilities (or strengths) as far as enhancing language learning

4. What do missionaries need to know about TALL in order to capitalize on its capabilities?

5. What should teachers know about TALL in order to effectively help missionaries capitalize on its capabilities?

6. What is the intended role of TALL in the new language curriculum? How or in what ways would administration like it to be used by teachers and missionaries?

7. How are teachers and missionaries trained on how to use the TALL program?

8. What is it expected that teachers and missionaries be able to do while using the TALL Program