

**Learner-controlled captioning: a new frontier?
Exploring the impact of learner control on the development of listening skills
in a multimedia environment**

(or, The Importance of Eating your Vegetables)

Charles Gibbs

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ABSTRACT

Learner-controlled captioning: a new frontier? Exploring the impact of learner control on the development of listening skills in a multimedia environment

Charles Gibbs

Much research has demonstrated that the addition of text to videos, films or television programs can benefit second language learning. However, when the goal of using such materials is to develop listening comprehension skills, the addition of captions or subtitles may not lead to the anticipated results because learners may have a tendency to read the script, rather than to develop listening skills. It is not easy for learners to adjust their listening environment to suit their changing needs. This research explored the impact of giving learners control over their listening environment. Thirty-one adult students of English in Montréal, Québec viewed nine web-based videos over a two-week period. One group was given control over the use of captions, while the second group was exposed to captions on a continual basis. It was hypothesized that the learners who were given control would avoid the pitfalls of reading captioned videos, and in so doing would develop listening comprehension skills that could be transferred to materials without captions to a greater extent than the learners who were not given such control. Scores on post-treatment comprehension tests were higher for the group that had been given control over captions during the treatment, but these results were not significant. However, significant results were found when the participants were grouped by initial listening ability. Weak listeners were more likely to improve their listening skills, while stronger listeners learned more new words. The paper concludes by elaborating on the future direction of learner-controlled captioning.

Dedication

The author would like to dedicate this thesis to all adult students, who, despite age or social condition, persevere in their education and make the expression “lifelong learning” a personal reality.

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CHAPTER 1

Introduction

Language teachers around the world have expressed a growing interest in using multimedia tools in the classroom. In particular, many teachers strive to use audio applications, such as DVDs and web-based listening files, in their second or foreign language classrooms. However, students often encounter difficulty understanding these authentic aural texts, especially if they are characterized by rapid or accented speech.

Although they are often used as synonyms, the term *captions* describes written text in the same language as the audio track, while the word *subtitles* refers to words that have been translated from the language of the audio track. The expression *closed-captions* designates text that has been added to television programmes for the benefit of viewers who are hard of hearing. Closed captions can be added to most television programs, and both captions and subtitles are a common functionality of most new DVD products. Captions or subtitles can also be added to web-based videos using a variety of software. Very recently, it has become popular among Internet users to alter digital videos by adding text, annotations, sounds or images. This practice is called “video blogging” or “vlogging”. These new developments have great potential for language learning around the world.

For many educators, the addition of captions or subtitles to audio documents is generally believed to promote learning by helping students comprehend materials, build vocabulary

and encourage conscious language learning (Chung, 1999). Captions are seen to help students notice syntactic features as well as acquire cultural knowledge, such as authentic expressions, from the target language (Taylor, 2005). Research has demonstrated measured student improvements in comprehension, word recall and vocabulary reuse in oral output (e.g., Garza, 1991; Baltova, 1999; Borrás & Lafayette, 1994; Neuman & Koskinen, 1992; Danan, 1992). Some research has established a positive relationship between the use of captions and vocabulary learning, as well as a positive impact on student motivation (Stewart, 2004; Neuman & Koskinen, 1992; Jones, 2003; Danan, 2004).

Researchers have tried to determine how captions can be optimized for learning purposes. For example, studies have dealt with the issue of whether to use subtitles or captions (Danan, 1992; Markham, 1999; Markham, Peter & McCarthy, 2001), the number of words that should be provided onscreen at a single time (Guillory, 1998), the effect of a subject's background knowledge before using captions (Markham 2001), and the effect of learner age on the usefulness of captions (d'Ydewalle & Vad de Poel, 1999). Some authors have approached the issue from the classroom perspective, suggesting strategies for teachers who use video materials in their classrooms (Lin, 2001; King, 2002). Others are concerned specifically with the benefits of captioning for the development of rule acquisition (Van Lommel, 2006) or reading skills for second language or native speakers (Koskinen, Wilson, Gabrell & Neuman, 1993; Koolstra, 1999; Linebarger, 2001; Kothari, Takeda, Joshi & Pandey, 2002).

The use of subtitling and captioning also has its critics in the educational community. Many teachers fear that students will become dependent on reading instead of developing listening skills. This fear has not been disproved by research. Many researchers question whether the higher test scores among students who are exposed to subtitled documents can be attributed simply to increased comprehension resulting from reading the text, rather than to better listening skills (Lund, 1991; Johnson, 1992; Lynch, 1998; Hirai, 1999; Wong, 2001). Surprisingly, very little research has explored this problem, and none that I found has done so from a longitudinal perspective. Most of the studies showing positive effects of the use captioning have demonstrated improved comprehension of video productions, but not necessarily the development of listening skills. In almost all previous studies, participants may have completely ignored the auditory channel. In addition, the studies did not evaluate the transfer of listening skills to new situations.

The “ideal” multimedia listening tool

As discussed, the utility of captions for comprehension has been widely demonstrated (see also the literature review, forthcoming). However, considering the possibility that improved comprehension may come from reading rather than listening, the continual use of captions may not benefit, and may even hinder the long-term development of listening comprehension skills. It is this author’s opinion that a multimedia environment could be designed specifically for the needs of second language students who wish to use recorded materials to improve their listening skills. Students would be able to test their

understanding of the material without assistance, and then access help when needed. This “ideal” multimedia tool would have the following characteristics:

- Beginner learners could choose to watch a video with captions (and other annotations);
- Intermediate or advanced learners would first be able to test their comprehension of an audio document without captions or subtitles;
- When faced with difficulty, learners could press a “help” button that would automatically rewind the video and add the captions they need;
- The captions onscreen would be linked to a translation dictionary, allowing users to look up words, expressions or even grammatical structures;
- Captions would disappear after a short time, forcing learners once again to try to understand on their own.

An accessible substitute

To the best of this author’s knowledge, the proposed “ideal” multimedia tool is not presently available in commercial or educational circles. This model may well offer an interesting path for the future design of multimedia learning materials. Nonetheless, it is possible to create a web-based learning environment that approaches the “ideal” tool described above for experimental purposes. This thesis used two web-based resources, the website YouTube and the course platform Moodle, to create a listening environment in which learners are first challenged to understand on their own, but when facing difficulty, are then provided the help they need to overcome their problem. This research project

aims to determine if this type of listening environment could serve to help language students develop listening skills in a better way than traditional captioning.

YouTube is a popular video sharing website, created and officially launched in 2005. YouTube allows Internet users around the world the possibility of viewing or sharing television or movie clips, music videos, professional documentaries or home movies. The growth and popularity of YouTube has been astounding. It is estimated that more than six billion videos were viewed in January 2009, and that 15 hours of new videos are uploaded to the site every minute¹. A certain number² of YouTube videos allow users to:

- Pause and rewind the video with ease (see Figure 1);
- Add captions with a single click of the mouse (see Figure 2);
- Resume the video when ready;
- Remove the subtitles when desired.

Moodle is a web-based platform that is widely used in educational circles. Instructors can build the platform with a variety of resources and exercises, such as documents, tests, videos, etc., which can be accessed from anywhere. Students log on to the Moodle site using an individual username. Using this popular course platform, it is possible to embed YouTube videos in the upper portion of a page, and insert an Internet translation dictionary in the lower portion (see Figure 3).

¹ Information obtained from the site <http://en.wikipedia.org/wiki/YouTube>, accessed April 3, 2009.

² Only a fraction of the videos posted on YouTube include the feature of subtitles or captions. These subtitles or captions have been created by an individual user, and are supported by YouTube technology.

The following figures show how YouTube videos are presented using Moodle in the present research project³. For the present research, the Moodle site being used is found on the server of the Université du Québec à Montréal. Figure 1 shows where listeners may pause or resume the video using an arrow at the bottom left of the video box (dotted arrow), then rewind or fast-forward using the round button on the red line (solid arrow). In Figure 2, captions have been added to a video by clicking on an icon at the bottom right corner of the video box (solid arrow). The dictionary, which is present at all times, must be raised by the participant in order to look up words. The arrow in Figure 3 shows the bar that has been raised to expose the dictionary.

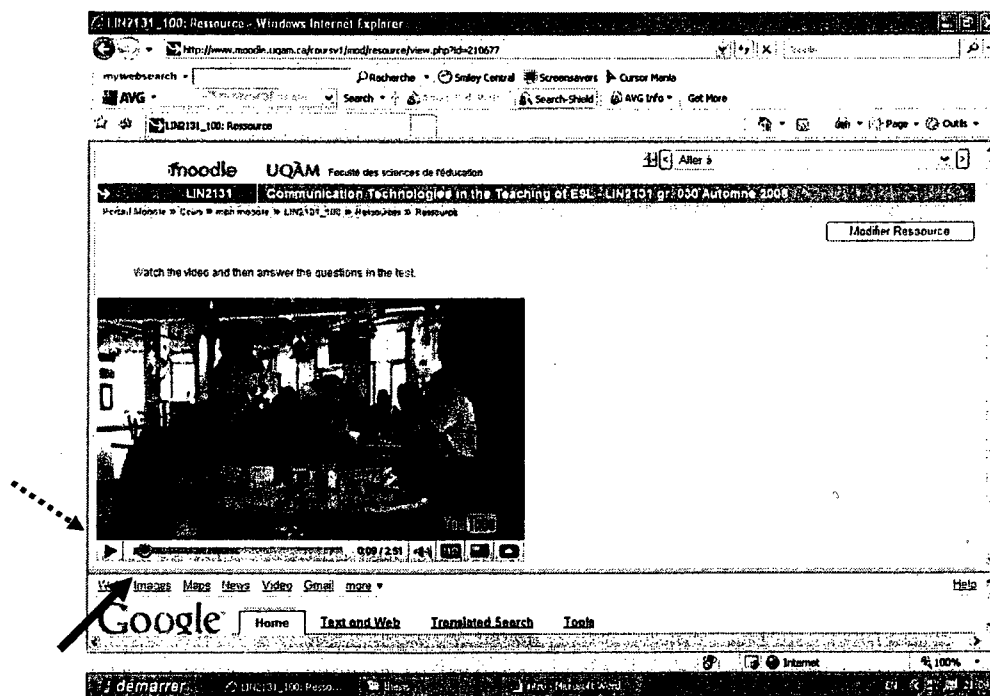


Figure 1. YouTube video embedded in Moodle, no captions, dictionary hidden.

³ In order to explore the Moodle site, please contact the author by email at gibbscharles@hotmail.com.

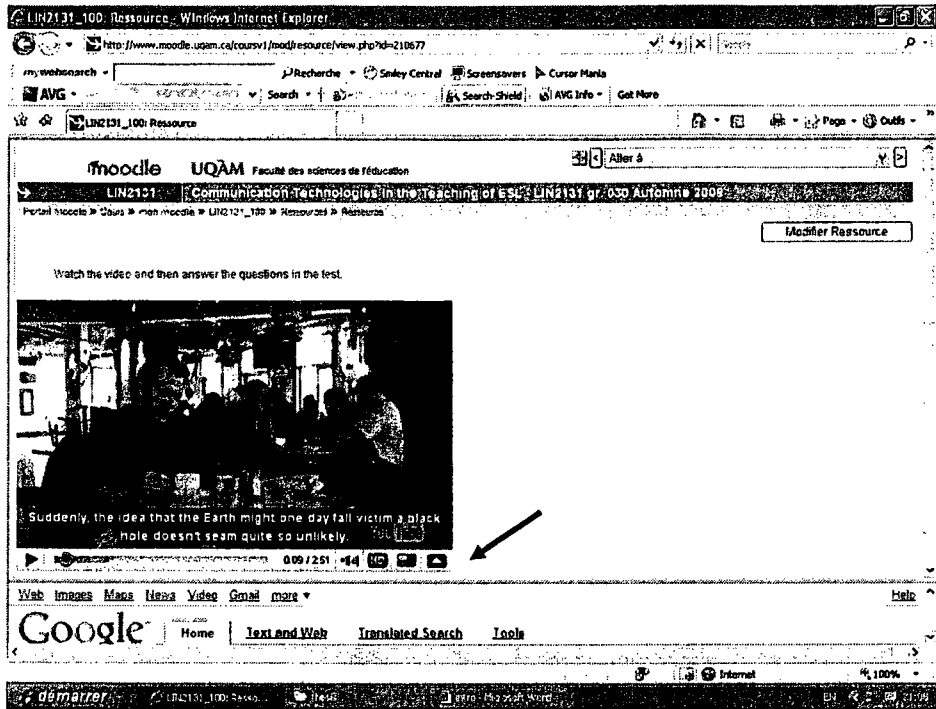


Figure 2. YouTube video with captions, dictionary hidden.

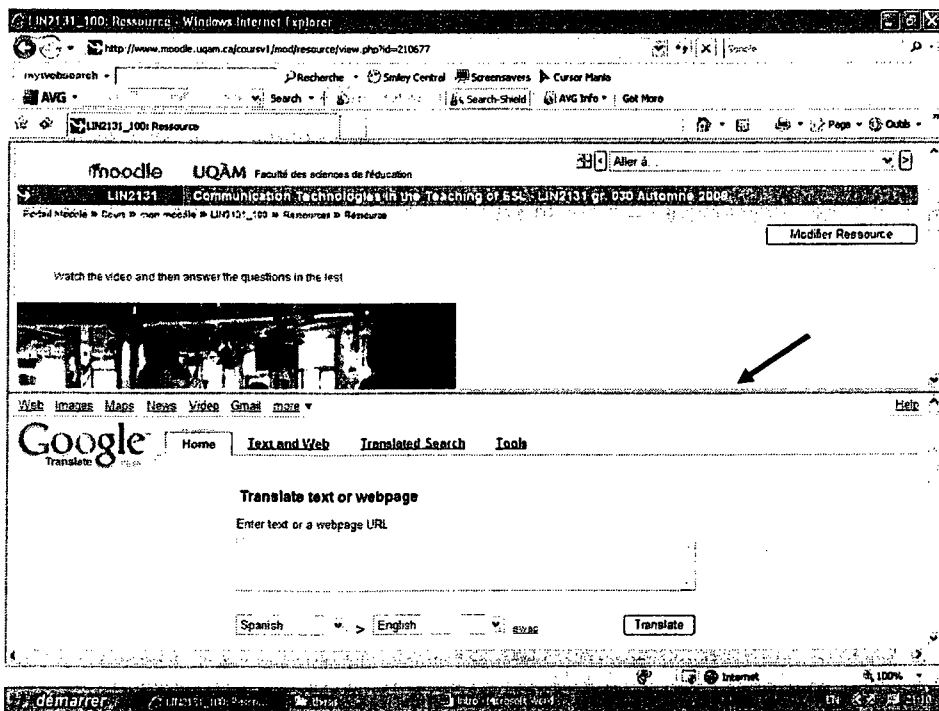


Figure 3. YouTube video hidden, dictionary exposed.

YouTube videos are posted by individual users, organizations or media, and they range in length, language and genre. Although there are billions of videos available on YouTube, the language learning potential of this medium has remained largely unexplored. The positive aspects are numerous. YouTube videos are often short and they provide access to a variety of accented speech. Many YouTube videos deal with modern, newsworthy topics that are interesting to students. A small percentage of the videos include captions or, more often, subtitles. Luckily for language teachers and students, it is possible to search exclusively for captioned video content⁴. It is therefore possible to find accessible, quality captioned video materials that can make an excellent addition to language instruction.

The down side of using YouTube for language learning is that finding appropriate videos remains a challenge. Many of the videos on YouTube are too short in length or do not have suitable content when dealing with the public. It would seem that most of the subtitled videos on YouTube have been posted by speakers of other languages, either to publicize the cultural products of their country or to make English videos accessible to speakers of their language.

⁴ On the YouTube site, after entering a topic or a title in the space bar and clicking on “search”, a series of videos will appear. It is then possible to select only the videos with captions. Under the “Type” option, choose “Closed captions”. Videos that are captioned are enabled with the CC function which is present on all videos, at the bottom right corner of the video frame.

Goals of the study

In exploring how captioned videos on YouTube embedded in the courseware Moodle could simulate the “ideal” tool described above, this research project filled a void in the literature on captioning in three ways. First, it introduced a listening condition in which learners have the power to control the use of captions onscreen. To my knowledge, this condition has not yet been studied in the literature. Until now, researchers studying captioning have used the grouping variable “captions on” versus “captions off”. In the present research, the grouping mechanism was based on the *control* over captions rather than the *presence* of captions. Some participants were given control over captions (the “learner-controlled” or LC group) while others were exposed to captions on a regular and systematic basis (the “continual captions” or CC group). In the former condition, participants were allowed to stop the video production to access the captions they needed for short periods of time, after which they were asked to remove the captions. The latter group did not have such control. I hoped to uncover any potential benefit of using this unique procedure on the development of listening skills, and to determine whether any known advantage of using captions, such as improved comprehension, vocabulary acquisition or motivation, was affected in the process.

Secondly, the research design aimed to assess the impact of captioning on a somewhat longitudinal basis. Participants in this research project watched six captioned videos over a two-week period. Other than Vanderplank’s (1988) study of motivation (see forthcoming section), no other researcher to my knowledge has collected data using

participants who have undergone more than two experimental listening sessions. Additionally, gains in the development of listening skills were measured by comparing initial and final results on listening tasks that contained no captions. This procedure was used in order to determine if increases in final test scores could be attributed to the development of transferable listening skills when no more captions were available. I found only two previous studies that adopted a similar approach (Markham 1999; Diao, Chandler, & Sweller, 2007).

Finally, the research was qualitative as well as quantitative. Post-listening interviews targeted issues relating to attitudes, learning styles, levels of motivation and experience with subtitling. This qualitative data was collected to help understand what viewing strategies were adopted, by which type of learner and to what benefit.

The remainder of this thesis is organized as follows. In chapter 2, the literature related to captioning and subtitling will be reviewed in detail from three theoretical perspectives: second language acquisition, motivation and cognitive load theory. The chapter will conclude with the research questions and hypotheses. In chapter 3, the methodology of the research project will be discussed. Chapter 4 will be devoted to presenting and interpreting the results of the data collection. Finally, in light of the results and analyses, the author will make suggestions for instructional design, pedagogical use of captioning and future research in chapter 5.

CHAPTER TWO

Literature Review

Various theoretical perspectives from the fields of applied linguistics and educational technology can shed light on the issues raised by this research project. Theories of second language learning, such as the input hypothesis, help to explain the usefulness of captioning in the acquisition process. Consideration of the issue of motivation is also essential. Finally, from the field of educational technology, Cognitive Load Theory provides an interesting framework that helps to describe the learning processes with its dual channel system of input processing. Before discussing how these theories apply to the field of captioning, it is important to define the construct of “listening skills”.

Second language listening: what is it?

It has often been suggested that of the four skills demanded of second language learners (reading, writing, speaking and listening), that of listening is the most complex (Staehr, 2008; Wagner, 2008). Debate surrounds the issue of whether second language listening is best characterized as a unitary, integrated skill, or if it can be divided into subskills. It has also been suggested that one high-order skill is combined with various subskills. The number of possible subskills is open to interpretation. Among those that have been suggested are: the comprehension of explicitly stated versus implicit meaning, the ability to infer information, to appreciate texts, to recognize and to decode words (Song, 2008). Listening has also been treated as a dual process of extracting information and then using that information for communication purposes (Rivers, 1966). However, this taxonomy

has proven simplistic, since it represents only one type of cognitive function. Many others take place simultaneously (Song, 2008). Anderson (1995) argued that listening is better understood as a three-stage process that begins with the perceptual processing of phonemes, follows with a stage of parsing in which cognitive representations are matched with information stored in long-term memory, and concludes with a utilization phase in which the collective information is related to an existing schema in the mind of the listener. Other theorists of listening propose a dual model of simultaneous (but unequal) top-down and bottom-up processing (Buck, 2001). In this model, a learner's mental representations and strategies (top-down processing) interacts with the information contained within the aural text (bottom-up processing). During this interaction, hypotheses anticipated by the "top" are confirmed or rejected by information obtained from the "bottom".

Recently, multimedia pedagogy has further clouded the waters over the construct of "listening". The term "video listening" describes situations in which learners listen to aural texts that are accompanied with video images. Some have argued that this new form of listening taps an additional set of subskills related to decoding non-verbal information. For this reason, the use of videos for language testing purposes has been questioned. It has been demonstrated that students who view video images as they listen to aural texts obtain higher scores on comprehension tests (Wagner, 2008). For teachers, this suggests that video listening should not be ignored in the classroom. However, for testing specialists who want to create standardized tools for evaluating listening, tests that require

students to watch videos are problematic. Skills other than listening are brought to bear on the results.

In the present research project, listening will be considered primarily a holistic, albeit complex and interactive process. Although listening can be broken down into various processes, no one process alone will lead to the ultimate goal of comprehension. Language learners often have the feeling that they understand, or they do not understand; learners do not necessarily know *why* they do not understand, or what part of the listening process is being challenged. Nonetheless, it is useful to consider such aspects of listening as the ability to comprehend main ideas versus supporting detail, as well as word recognition and word knowledge, as factors that help educators describe the listening skills of second language learners. The issue raised by video listening can be compared with the other “receptive” skill, reading. When teaching reading, it is commonplace for teachers to encourage students to develop strategies, such as using visual clues, to help them understand a text. In the same way, students who are exposed to “video listening” should be encouraged to use all of the clues – both visual and auditory – that the video may provide in order to understand. Since today’s young language students have been raised in the electronic age, it does not seem unreasonable to include video listening within the broad definition of listening skills. In this thesis, the construct of “listening skills” will be defined as the ability to understand the main idea and supporting details in authentic aural document without textual support that has been added specifically for the purpose of comprehension.

Captioning and Second Language Acquisition:

Comprehension.

Adding captioning to foreign language materials can be beneficial for several aspects of second language acquisition. Krashen's Input Hypothesis places great emphasis on a student's ability to understand an aural or written message, which he calls "comprehensible input". Comprehension, after exposure to input that is slightly beyond grasp ($i + 1$), leads to acquisition. According to Krashen, "We are able to understand language containing unacquired grammar with the help of context, which includes extra-linguistic information, our knowledge of the world, and previously acquired linguistic competence" (Krashen, 1985, p 2). This theory can go a long way in explaining learning through the use of captions and subtitles. Very often, the written form of a word falls into the category "previously acquired linguistic competence", while the aural form has not yet been acquired. Captions make the input more comprehensible.

Research points strongly to improved comprehension of second language materials when captions are added. Garza (1991) was one of the first to collect quantitative and qualitative data on the benefits of captioning on the comprehension of the linguistic content of video material. He also examined the reuse of specific vocabulary used in the videos. The study compared students of English and Russian as foreign languages. Ten video segments were chosen for viewing, five in English and five in Russian. The episodes had a high audio/video correlation (the images provided clues to understanding the audio content). Each segment represented a distinct video genre: dramatic film, light comedy, news feature, animated feature or music video. Seventy students of English were

divided into two equal groups, one of which viewed the material with captions and the other without. Forty students of Russian were divided in the same way. Students were given a ten-question multiple choice comprehension test and were asked to engage in a retelling task. The goal of this activity was to determine if the captions helped students reuse the inherent language of the video segment in free speech. The results of the study indicated that the use of captioning significantly increased students' performances on the comprehension tests. Although the students of English obtained higher test scores, captions helped the students of Russian dramatically more than their ESL counterparts. Among the different video genres, the gap between the ESL and Russian groups was largest after listening to music videos. Additionally, the qualitative data indicated that students in both groups who experienced captions were able to reuse specific vocabulary much more effectively than those who had not experienced captions, suggesting that captions can make the language used more memorable.

Language Use and Recall.

Danan's (1992) study was an extension of the research by Garza and others on the influence of captioning on vocabulary recall. Danan's research project was important because it was the first to compare the effectiveness of different captioning conditions: standard (target language audio with first language subtitles), reversed (audio dubbed in the first language with target language text) and bimodal (target language audio and captions). Test results showed that students exposed to the reversed captioning condition obtained the best results on a vocabulary retention test and a translation test designed to

study longer-term learning. The study also suggested that the reversed captioning group was able to recall known words more readily than either of the other groups. Danan concluded that a developmental model using captioning as a pedagogical tool can be devised. Following this model, beginning learners should start by viewing material with reverse captioning to build their vocabulary, and then try to understand bimodal captioning in order to improve comprehension. As they become proficient, students can attempt viewing materials with no textual support.

With Danan's proposed developmental model, vocabulary acquisition precedes the development of listening skills. It has often been suggested that there is a minimal threshold of vocabulary before language learners may begin to understand aurally. In studying this question, Staehr (2008) suggested that knowing the 2000 most common words in English is a minimal requirement to understand while listening. Of course, the degree of understanding depends on the communicative situation at hand. Webb (2009) suggested that knowledge of 5000 to 9000 frequent words is required in order to understand 98% of the words heard. The 98% coverage criterion is needed to be able to infer meanings of the remaining unfamiliar words (i.e., to comprehend). This research suggests that acquiring new vocabulary through listening to materials designed for native speakers may be difficult.

Vocabulary Acquisition.

Language students face the challenge of learning thousands of words in order to develop communicative abilities. Teachers use all types of activities to help their language learners acquire new vocabulary. Second language acquisition research suggests that both the frequency of input and the depth of processing are factors that determine language learners' success in learning new words incidentally⁵ (Laufer & Hulstijn, 2001). Laufer and Hulstijn attempted to add precision to the nebulous concept of "depth" (or "elaboration") of processing, which had been used previously, by creating a construct of *involvement* known as "need, search and evaluation". This "Involvement Load Hypothesis" speculated that vocabulary learning is optimized in conditions in which three factors of involvement are present: students gain awareness of their *need* to understand a new word, they *search* for its meaning (by consulting resources or using other strategies), and they *evaluate* the results of their search (by comparing the found meaning with other words or by making links to previous knowledge). Their experiment on Hebrew-speaking students of English strongly supported the claim that the degree of involvement is a determinant factor in incidental vocabulary learning (Hulstijn & Laufer, 2001).

In the same way, learners who engage in listening tasks may need to reach a certain level of involvement with the vocabulary before incidental vocabulary learning may take place. Multimedia listening environments make it more likely that students will achieve this

⁵ In this thesis, "incidental vocabulary learning" will be defined in the same way as Hulstijn & Laufer: "A situation in which individuals process new information without the intention to commit this information memory" (Hulstijn & Laufer, 2001, p. 554).

level of involvement, since they have more control over their environment. Second language readers are in full control of the medium: they can pause, reread, exploit visual clues, highlight words or look up new words to help them understand. Multimedia materials now also allow second language listeners to possess a similar level of control: they can pause, rewind, repeat, add visual clues and consult external resources.

Language teachers often hear of success stories of students who have learned foreign languages by watching television. This is often true for young children. In a study exploring vocabulary acquisition by students exposed to captioned television programmes, Neuman and Koskinen (1992) concluded that captioning lead to learning new words without formal instruction. However, it is important to note that the participants in Neuman & Koskinen's study were young children (grades seven and eight) who were already bilingual. More recently, Stewart and Pertusa (2004) studied incidental gains in vocabulary among intermediate university students Spanish who watched two full-length captioned DVDs. These authors found that students who watched Spanish DVDs with Spanish captions had more success learning new words than those who watched with English subtitles, although the difference between the two groups was slight, and all vocabulary learning disappeared on the delayed post-test. Brown, Waring and Donkaewbua (2008) studied incidental vocabulary acquisition from storytelling under three different forms of input: reading, reading while listening, and listening alone. Although all three groups demonstrated that they had picked up new words on immediate post-tests, the reading and reading-while-listening groups acquired significantly more words than the listening group alone. However, after three months, few words were

retained by the first two groups, and almost no words were learned by the listening-only group.

In each of the studies discussed above, the participants were exposed to the same situation as everyone else in their group. In other words, captions or subtitles were either placed “on” or “off” for everyone in the group. The present author is not aware of any study that has examined how *learner control* of captions can lead to learning new words. Intuitively, it makes sense to suppose that students will be more likely to learn new words if they face a situation in which their lack of understanding of a particular word or expression impedes comprehension, which brings them to take action to resolve a communication breakdown. Providing learners with control over captions makes this cognitive process possible, and is at the origin of the “ideal” multimedia tool described earlier. In the present study, this hypothesis was tested by investigating the vocabulary acquisition of participants who were given control over captions versus those who were not.

Listening.

The preceding discussion has described evidence suggesting that captioning can lead to improvements in comprehension, reuse of language, word recall, and vocabulary acquisition. Surprisingly, it has been much more difficult for researchers to establish a clear connection between captions and the development of general listening skills. In theory, the idea that captioning may help students improve their listening ability is attractive because of what we know about the challenge of listening. In a survey of factors

causing incomprehension in listening, Goh (1999) identified the problem of not recognizing known words as the second most common cause of failure to understand, after quickly forgetting what was heard. For Goh, “students could not match the sounds they heard with any script in their long-term memory” (Goh, 2000, p 61). The issue can be expressed as one of automatization of sound-to-script relationships. Meskill (1996) argues that multimedia applications that give learners control over textual support help students determine where words begin and end. For Meskill, interactive textual support also allows students to explore the rules and patterns of colloquial speech, setting up a laboratory for problem-solving for the most motivated learners. Captioning is thought to speed up the connections between sound, word and meaning, to help learners separate words and structures they do not know from those that they do, and to help learners identify the aural forms of words and structures that they already know (Field, 2003, van Lommel, 2006).

The benefits mentioned above have not been proven by research, however; they remain largely in the realm of the assumption. The reason is that students watching captioned videos have an automatic tendency to read the script, even when it is not required for understanding. This present thesis studies this problem directly by making captioning only available when needed.

Captioning: An issue of reading?

As mentioned above, the great cloud hanging over captioning in the classroom is the fear that students will develop a dependency on reading, rather than try to improve their

listening skills. Research has led to contrasting findings on this issue. Diao, Chandler, and Sweller (2007) conducted one of the few research projects that attempted to control for the role of reading in using captioning. Diao et al. compared the development of listening skills after participants were exposed to one of three instructional formats: listening with audio material only, listening with a full-screen script and listening with continual captions at the bottom of the screen. After assessing their prior knowledge of the topic and related vocabulary, 159 Chinese learners of English listened under different conditions to a text on women's rights in the workplace. After listening, participants were asked to complete a comprehension and recall test. Participants were then tested in the same way after listening to another text that included the same keywords and expressions, this time without any written textual support. The same experiment was repeated twice using different texts. Results of both experiments confirmed the results of previous research demonstrating the benefit of captioning for comprehension, but suggested that this additional help actually *hindered* the participants' ability to understand the subsequent aural text. The participants who were provided no written textual help in the first task had better recall scores on the second task than their counterparts. No difference was found between the results of the full-text versus the captioning group. The authors concluded that "the verbatim visual texts encourage reading and result in detrimental effects on construction and automation of relevant listening comprehension schemas" (p. 251)⁶. The authors attempt to explain this finding by suggesting that "the use of multimodality presentation ... can impose a heavy cognitive load that interferes with learning" (p. 252. See below for a discussion of Cognitive Load Theory). This statement

⁶ See the section on Cognitive Load Theory, forthcoming, and footnote 9 in particular, for a discussion of whether written textual information can be considered "visual".

appears surprising, considering that participants in both the written text and in the captioning group felt the task was *less* demanding than those in the listening-only group. It is possible that the participants were not overwhelmed by cognitive load – they were simply avoiding learning (that is, they did not develop listening schemas) when it was not required.

Approaching the issue of listening from a slightly different angle, Markham (1999) set out to demonstrate a relationship between the pedagogical use of captions and the ability of second language learners to recognize aural words. Similar to Diao, Chandler and Sweller (2007), Markham used evaluation tools that contained no textual support. However, his results differed from those of Diao et al. In his study, 118 advanced university-level ESL learners, divided into two groups, acted as research subjects. Two video programmes were presented in each group. The listening conditions varied from one group to the next. In one group, captions were presented, while in the other group, they were not. After each viewing, the students were given an exclusively aural-based multiple choice comprehension test. After listening to a sentence, participants were asked to identify which of four words had been used. Both the stem (question) and key (choices) contained vocabulary presented in the videos⁷. Test scores demonstrated that captioning increased the students' performance on the word recognition listening tests for both videos.

⁷ Markham gives the example of a stem, "Expandable throat pleats increase the volume of water", and possible answers, "a. plates; b. pleas; c. pleats; d. plots" (Markham 1999, p. 324)

Although more positive than the findings of Diao et al., Markham's research does not eliminate the concern that learners may substitute reading for listening while using captions. In studying word recognition among advanced learners, Markham's study does not demonstrate an increase in the ability of learners to comprehend an aural message, only to identify spoken words. Participants may have maintained a vocabulary-driven focus throughout the treatment and evaluation, to the detriment of trying to improve general listening skills. Further, students who obtained higher scores on the post-treatment test may have simply been more successful at keeping new aural sounds in their short-term memory. Markham admits that "these preliminary results should not be interpreted as providing a conclusive answer concerning the link between captions and the improvement of second language listening" (Markham 1999, p. 327). However, Markham's research does add some light on an area that has received very little academic attention. The present thesis attempts to further explore the issue raised in this section by examining listening as the ability to understand a message, rather than the more precise task of recognizing words.

Captioning and Motivation

Another major topic related to the pedagogical use of captioning is the issue of motivation. Watching captioned videos is a learning activity that can be completed autonomously, thereby increasing instruction time for motivated learners. Learners who are able to successfully identify their learning needs and act upon them on an individual basis are more likely to become lifelong learners. As Graham and Macaro suggest, "motivation theories suggest that being in control of one's learning and making positive

attributions of success are the states most likely to procedure sustained effort” (Graham and Macaro, 2008, p. 756). Other theories suggest that individuals are more likely to engage in learning when they are confronted with authentic challenges that are based on real-life experiences (Van Merriënboer & Sweller, 2005). Watching a film or television program in the target language may well represent an authentic and motivating challenge for many learners.

Several studies have reported positive attitudes among participants who used captions (Stewart, 2004; Jones, 2003; Danan, 2004). Many researchers and educators have pointed to the sense of achievement that learners espouse after an experience viewing foreign language documents with captions, especially if this is a new experience (Herron, Morris, Secules & Curtis, 1995; Katchen, 1996; King, 2002). In a post-script to his research, Markham (1999) evoked an experience watching a French film:

I came away from this experience convinced that my listening skills in French had improved because I was gradually able to link the challenging oral French film language with the reading captions, and eventually I was able to understand the oral language without glancing at the captions.

This research project is inspired by similar positive experiences by the present author.

Vanderplank (1988) investigated the potential benefits of using captioning on global language acquisition, speaking proficiency as well as motivation. Vanderplank’s research

represents the only published longitudinal study on the topic of captioning that I am aware of. Twenty-two university-level learners of English watched captioned BBC programmes for one hour each week during a period of nine weeks. The students were from European or Arabic-speaking countries. After each classroom viewing session, participants were asked to engage in communicative activities and to write down their reactions. The results of the study indicate that the high-intermediate and advanced learners responded very positively to the use of captions. They demonstrated increased retention and recall of language used in the programmes, and reuse of particular words in a speaking task. The students stated that they felt more confident and relaxed watching television in English, which should increase the likelihood of learning. Although some participants felt guilty or lazy relying on the captions at first, this feeling disappeared over time and students were able to understand longer segments as their ease with using captions increased (their “chunking ability” became more developed). The lower proficiency students whose mother tongue did not have a Roman script found the captions distracting and disturbing. This was explained by the slow reading speeds of these students in English. Most participants indicated that they developed viewing strategies, such as mode switching or simultaneously receiving input from both modes. The researcher describes the processes of using captions as “unlocking” television as a source of input for language learners who require graded practice in listening comprehension. That is, television programs that would normally be too difficult for language learners become accessible when captions are used. This thesis proposes to explore the motivational side of captioning by collecting qualitative data, in the form of a

questionnaire and interview, to determine if the concept of “learner-controlled” captioning is equally well received by language learners as the studies described above.

Captioning and Cognitive Load Theory

Cognitive load theory (CLT) is an influential and growing theory that can shed light on issues surrounding the pedagogical implications of using subtitles and captions. Originally developed in the 1980’s, CLT identifies the role of short-term and long-term memory in human cognition. According to this theory, new information that is briefly stored in short-term memory must be grafted onto pre-existing knowledge schemas found in the long-term memory. The process of learning is negatively affected by high demands on cognitive load (Mayer, 2003).

Research in CLT has identified various principles that can be used as guidelines to shape the design of multimedia environments. However, most CLT research has dealt with learning the content of various subject areas, rather than second language acquisition. Four such principles are the modality effect, the redundancy effect, the split attention effect and the expertise-reversal effect.

The modality effect suggests that information can enter the short-term memory through a combination of verbal or visual channels (Mayer, 2003)⁸. When the spoken or written words enter short-term memory, they may be converted into words or images. As words,

⁸ Other researchers refer to an “auditory” versus “visual” form of input (see Kalyuga et al., 2000).

they enter the working memory via the verbal channel, while as images they take a visual route⁹. This “dual-channel assumption” anticipates that using more than one channel may help acquisition and retention.

According to the redundancy effect principle, simple learning materials that are presented in separate channels (identical words and narration) may needlessly increase cognitive load and may negatively affect learning. In this view, to optimize learning, redundant onscreen texts should be eliminated. However, recent research results have indicated that the addition of “redundant” keyword annotation to a multimedia presentation actually serves to help guide the learners’ concentration, without burdening the learners with excess information (Mayer & Johnson, 2008).

The split attention effect concerns learning content that is difficult to understand. Learners may have to divide their attention between elements. In this case, before understanding is possible, some parts of new information must remain in working memory until it can interact with other elements of the new information. In a situation of complex learning, verbal information can be presented in aural form, allowing it pass through the verbal channel, while other information passes through the visual channel in the form of graphs, illustrations or videos. This reduces the burden on cognitive load (Mayer, 2003). Research has demonstrated that instructional design can reduce the

⁹ In the case of second language learners using captioned video materials, it is open to debate whether the textual information is more likely to be processed in the “verbal” or the “visual” channel. Strong readers may process words in the verbal channel, while auditory learners may store the information visually. For the purpose of consistency and clarity, the addition of captions will be considered adding “visual” information in this thesis.

cognitive load placed on learners by presenting information in visual and verbal (auditory) form simultaneously, rather than consecutively (Moreno & Mayer, 2002; Kalyuga, 2004). This explains the benefit of captioning.

According to CLT, there are three types of cognitive load: intrinsic, extraneous and germane (Pass, 2003). Intrinsic cognitive load refers to the level of difficulty of learning particular material. Information can vary from low to high “element interactivity”. Learning objects with high element interactivity, in which particular parts can make sense only when learned in an integrated manner, are the most difficult to understand. Extraneous cognitive load represents challenges to the learner stemming from the way information is presented (spatial distance of elements, lack of clarity, etc.). Extraneous cognitive load makes the building of schemas more difficult. In contrast, germane cognitive load can enhance learning. It helps the learner build schemas while new information remains in the working memory. Strategies such as activating prior knowledge, adding visual cues, etc., are believed to facilitate learning by increasing germane cognitive load.

CLT traditionally suggests that effective learning materials can be designed to reduce the extraneous cognitive load placed on learners in various ways, while including techniques that enhance germane cognitive load. Recent developments in CLT have also pointed to the way in which intrinsic cognitive load can be influenced by the design of learning materials. The design features that help novice learners do not have the same benefit on more experienced learners. This is called the “expertise reversal effect”: as a learner gains

expertise in a given field of study, his or her instructional needs change. Since the process of schema construction is different from one learner to the next, instructional design should allow educators, or ideally the users themselves, to adjust the material to take personal differences into account.

This research project proposes to apply the concepts of Cognitive Load Theory to the development of listening skills. It is likely that this approach would be greeted positively by CLT theorists. According to Van Merriënboer et al. (2005), “[W]hereas CLT has been able to generate effective instructional methods in relatively well-structured procedural and conceptual domains, its application to the field of complex learning are just beginning” (p. 156). The development of foreign language listening skills quite clearly represents “complex” learning (see Meskill, 1996). Listeners must do many things at once: separate the stream of speech into meaningful chunks of phonemes, associate these sounds with learned words and structures, match these with meanings and then connect separate meanings into a complete message. In the case of advanced listening skills, automation of schemas is clearly necessary. When exposed to native speech, foreign language learners are often unable to cope with the cognitive load placed on their working memories. Speaker variability in the form of pace and accent may make it difficult for learners to build on their limited aural schemas, or representations, even though the written form of a word, phrase or structure has been acquired.

One goal of this thesis was to identify particular elements of instructional design that could be considered germane cognitive load, therefore enhancing learning. Since the

burden placed upon cognitive load is not the same for each learner using the same materials, the research will explore new ways in which instructional design can provide learners with control over their learning environment. In particular, the addition of captions *by the learner* and only *when needed* is a step in this direction. In the present research, germane cognitive will take three forms: the activation of prior knowledge on a topic before viewing, the addition of captions on demand and access to an on-line translation dictionary.

Van Merriënboer and Sweller (2005) state that the measurement of learner expertise and cognitive load represents a major research challenge for future developments in CLT. However, it is the present author's opinion that when introduced to learning situations over which they have control, motivated learners will be able to identify their own needs and make adjustments accordingly. Therefore, the challenge to instructional design may not lie in assessing cognitive load, but in providing a gamut of instructional solutions that users may opt to implement according to how they perceive their own needs.

Learning materials can be presented as a whole or in segmented parts. Part-task sequencing progresses from part-tasks to the whole task, while whole-task sequencing moves from simplified versions to more complex versions of the whole task (Van Merriënboer & Sweller, 2005). Research suggests that materials are better presented as a whole, rather than in parts (Reigeluth, 1999; Van Moerriënboer, 1997). In the proposed research, participants will be exposed to whole-task sequencing: they will view a series of authentic videos produced for native-language speakers. However, this true-to-life

listening task will be simplified by the addition of text and other help features as required by each individual learner. It is likely that without instructional help, these videos would prove to be too difficult for some participants.

Cognitive load theory can also inform instructional design as to the type of help offered during a task. Kester, Kirschner & van Merriënboer (2005) distinguish between “supportive” and “procedural” information. For Kester et al., “supportive” information constitutes complex material with high interactivity between the elements of information, such as summaries, descriptions or hints. In contrast, procedural information, such as step-by-step instructions, is simpler and is characterized by low element interactivity. Research has demonstrated that supportive and procedural information are both useful for learning, but at different times. Supportive information is better provided before instruction, while procedural information is better provided during instruction.

It is now possible to apply these principles to the acquisition of foreign language listening skills. Teachers often help students complete listening tasks by providing supportive information (background information, links with previous knowledge, explanations for important words or concepts, etc.). However, it is difficult for teachers to provide procedural information without interrupting the task, which diminishes its authenticity. The present research will consider how instructional design targeting listening practice can provide supportive information before viewing (background information and activation questions on the video topic), as well as procedural information during viewing

(captions and translations). The research project can be summarized as an attempt to add germane cognitive load to listening environments, while avoiding redundancy.

Captioning and Learner Control

The present author believes firmly that successful language learners are those who are able to accurately identify their learning needs, and access tools or resources that will help them respond to those needs. Advances in technology now allow learners to control their learning environment in new ways. This thesis follows the example of research in the field of educational technology that has started to look at issues related to learner control and individual differences. Plass (2003) studied the effect of adding verbal and visual annotations to a reading exercise completed by 152 German as a foreign language students. Students were assessed as “high” or “low” on two dichotomies: verbal and spatial ability. As well as confirming previous work using cognitive load theory, this research points to major differences among students as to which kinds of annotation were beneficial or problematic to learning. The addition of visual information, which imposed a high cognitive load, was detrimental to the learning of some students who would probably have learned more if they had had the option to remove it. The authors concluded by stating that “learners should have options for using study material in both a visual mode and a verbal mode, but should not be forced to select and process both types of information” (Plass, 2003, p. 239).

Kalyuga, Chandler and Sweller (2000) studied the effect of learner experience within a multimedia environment. Participants followed a training course using four formats:

diagram with visual text, diagram with audio text, diagram with visual plus audio text, and diagram only. Their findings suggest that inexperienced learners profited from visual information presented simultaneously with an auditory narration. However, the benefit of the aural track disappeared as learners became more proficient. Kalyuga and his colleagues conclude that “differing levels of learner experience should be taken into account when selecting a proper user-adapted instructional design... [W]hen presented in auditory form, textual materials should be able to be easily turned off” (p. 135). The proposed research will explore how learners can take advantage of help functions over which they have been given control. Following this recommendation, the participants in the proposed research will be allowed to choose the specific times when they would like to add the written textual information (captions).

Jones (2003) studied keyword learning among English-speaking college students of French, some of whom were given a choice of help features. In Jones’ study, participants scrolled through five different pages as they listened to a 2 minute 20 second passage in French. 27 keywords and short expressions were placed throughout these pages. The participants were placed in one of four listening conditions: no annotations, only verbal annotations, only visual annotations, and both visual and verbal annotations. Students listened to a short aural passage concerning a historical topic in French, and had control over whether or not they used the annotations that were provided. The verbal annotations were text translations, and visual clues were images representing the keyword. As hypothesized, students who were provided both verbal and visual annotations were more successful at remembering words and at completing a recall test. Participants who were

given the most choice also had the highest opinion of the activity. They felt the help options “created a more individualized, balanced and interactive approach”. Jones concluded that “[s]tudents should be provided with the option to select from and process visual and verbal annotations... Such a strategy would address students’ needs and would permit them to use their own self-directed style of accessing and processing information” (Jones, 2003, p. 59).

Another window of research in the area of subtitling and captioning has developed around issues related to viewing behaviour. Grgurovic and Hegelheimer (2007) studied second language students’ use of help options in a multimedia environment. These authors set out to determine whether students preferred to add captions to an on-going video, to view the full-text transcripts onscreen or to consult an online English dictionary when faced with difficulty, which the authors call “communication breakdown”. This concept was operationalized by the incidence of incorrect answers to questions that appeared onscreen after participants had viewed one of several segments of a video. Students were offered help only after making an incorrect answer. The video consisted of an 11 minute academic lecture on astronomy. The study also addressed the effect of captioning and transcripts on comprehension by using a post-viewing questionnaire and recall test, but did not look at the development of listening skills which would have required a longitudinal project. Student behaviour was assessed by counting the number of requests for help and by timing the length of each onscreen “intervention” (request for help). The results demonstrated that the captioning option was chosen much more often and more time was spent on this feature than the full transcript, while the dictionary was never

consulted. Participants who chose to consult captions had better results on a post-viewing recall test than those who chose to consult the transcript or those who chose both. More proficient students spent much more time interacting with help options than lower level students. In fact, of the participants who opted to use no or very few options, or who used them for an insignificant amount of time, all had been previously assessed as low-proficiency learners. The authors recognize that the issue of motivation may have been a factor affecting the non-use of help options, considering that the chosen video was an academic lecture on a topic that was not part of the students' normal curriculum. In contrast, one of the goals in the present research project is to engage participants in listening to interesting videos using a modern and popular medium, YouTube.

Grgurovic and Hegelheimer hoped to assess students' attitudes and experiences with the help options through interviews, but only three participants agreed to participate in this part of the study. The authors concluded by restating the issue in terms of the "use" versus "non-use" of help features. How can multimedia designers encourage the use of help options among those who most need it? The authors end by calling for the development of multimedia environments that give more control to the learner, in order to respect different learning styles and proficiency levels.

Interestingly, the participants in Grgurovic and Hegelheimer's study expressed a complete lack of interest in the electronic English dictionary, a finding that parallels this author's pilot study (Gibbs, 2006). It is possible that the participants in both studies did not feel that the dictionary represented an efficient means of obtaining information that

would make a difference to their understanding. Many participants may have been lost in a stream of incomprehension, while others may have seen individual words as irrelevant to their overall understanding. Based on previous negative experiences, students may have felt that consulting any kind of dictionary would be odious and time-consuming. Although dictionary use has been shown to be widely popular as a reading and classroom strategy (D'Onofrio, 2009), it is apparently not considered an effective listening strategy.

With regards to the present research, Grgurovic and Hegelheimer' work is important for several reasons. While the study confirmed the findings of previous research on the benefit to viewer comprehension of adding captioning, they did so from the perspective of communication breakdown. In their study, captions were not available at all times. Their finding demonstrates that captions can be beneficial without encouraging dependency on reading. The present research attempted to demonstrate that the full benefit of captioning can be gained even when the words are not visible at all times. The research design attempted to address some of the problems of Grgurovic and Hegelheimer's study by using more relevant and interesting video products, by measuring the development of long-term listening skills rather than immediate comprehension, and by placing greater emphasis on post-viewing interviews to address attitudes.

Research questions and hypotheses

As the preceding literature review has demonstrated, previous studies on captioning have come to a few definitive conclusions. For example, it is clear that watching captioned video helps learners with comprehension. The research by Garza (1991) and Danan

(1992) were pioneer studies that have since been supported by many others. For this reason, it was considered unnecessary to create a “no caption” group: it would not be surprising to find that the participants who were provided captioning could understand better than those who were not.

The present thesis will go beyond previous work by examining the issue of captioning from the perspective of giving learners control over their learning environment. Of interest is whether learners who have to manipulate captioning are able to understand the video as well as those who are provided continual captioning. For this reason, only two groups were created: “learner-controlled captioning” (LC) and “continual captioning” (CC).

The following research questions were used in this thesis:

1. Do participants who are given control over captions comprehend the material they are watching as well as participants who are exposed to continuous captions?
2. Do participants who are given control over captions develop transferable listening skills over a period of time more than the participants who are provided continual captions? In other words, after using this type of captioning, are these participants able to understand videos that have no textual support better than they could before? How does this improvement, if any, compare to their counterparts who used traditional captioning?
3. Do students who are given control over captions learn new vocabulary as well as students who are provided continuous captions?

Based on the literature review and theory described above, it is expected that the participants in the learner-controlled captioning group will demonstrate equal comprehension of the videos (Hypothesis 1) compared to the continual captioning group. For research question #2, given this reduced dependency on reading, it is expected that the learner-controlled captioning group will develop transferable listening skills more than the other group. In other words, they will demonstrate greater improvement in comprehension when faced with a listening task that has no textual support (Hypothesis 2). In relation to research question #3, it is expected that the learner-controlled captioning group will learn new vocabulary to an equal extent as the continual captioning group (Hypothesis 3). The concept of “learning vocabulary” will be operationalized as any improvement on the vocabulary test before and after listening to the video. Based on the previous research of Diao et al. (2007), among others, it is hypothesized that personal variables such as native language, age and gender will have little or no bearing on the usefulness of captioning. However, previous use and familiarity with captioning may play a role. I will now turn to the method used to collect data.

CHAPTER THREE

Method

Forty-five adult learners were invited to participate in this research project. The subjects were students enrolled in English as a second language classes in a Montréal adult high school, the Centre Ste-Croix. The ESL classes are a requirement for obtaining a high school diploma in Québec, Canada.

Typically, adult students in Montréal come from a great variety of ethnic backgrounds. The participants' first language ranged from French, Creole to Vietnamese, Arabic and various African languages. Although the ages ranged from 18 to 52, the majority were aged from 20 to 30. In order to obtain a sizable number of participants, all students enrolled in one of two different levels, *Secondaire IV* and *Secondaire V* (the equivalent of grades 10 and 11 in North American schools outside of Québec) were invited to participate in the project. 48 participants agreed to participate, of which 31 successfully completed the minimum requirements¹⁰. Of the 17 participants who failed to complete the project, absenteeism caused by work or family responsibilities was the primary explanation. A small number of participants cited lack of interest (4) and discomfort in using the headsets (2).

¹⁰ Minimum requirements were as follows: complete the initial and final listening comprehension tests, the initial and final vocabulary tests, and answer the comprehension test associated with at least four of the six treatment videos.

Using a questionnaire, the following information concerning personal variables was obtained: age, first language, language used at home, previous experience watching television and videos in English, previous experience using subtitles or captions, and exposure to English speaking people (see Appendix A for the questionnaire). These variables contributed to the qualitative analysis of the data.

The preceding literature review argued that captioning has been proven to lead to gains in three key areas: comprehension, vocabulary acquisition and motivation. One of the research goals in the present thesis was to determine if the concept of “learner-controlled” captioning was equally effective as traditional captioning in these areas. For this reason, participants were asked to complete a multiple-choice vocabulary test on the computer to establish pre-treatment vocabulary knowledge (see Figure 4). The purpose of the test was to determine which key words from the video were previously known to each student. 25 words were chosen for the test. The words were chosen from the 2000-3000 range of most commonly used English words and were used three to five times each during the series of videos. For each English word, participants were asked to select the correct French translation from four possible options¹¹. The three incorrect options were actual French words chosen from the same part of speech as the correct answer. To discourage guessing, a fifth option, “je ne sais pas”, was always available. For example, the English word “to solve” being a verb, students were given the following French verbs as possible

¹¹ Despite the diversity of first languages, it can be assumed that all participants had a sufficient level of French in order to complete this task, since they were enrolled in Secondaire III to V in French, first language, classes.

answers: (a) sauver; (b) vendre; (c) solidifier (d) résoudre; (e) je ne sais pas (see Appendix B for the full vocabulary test).

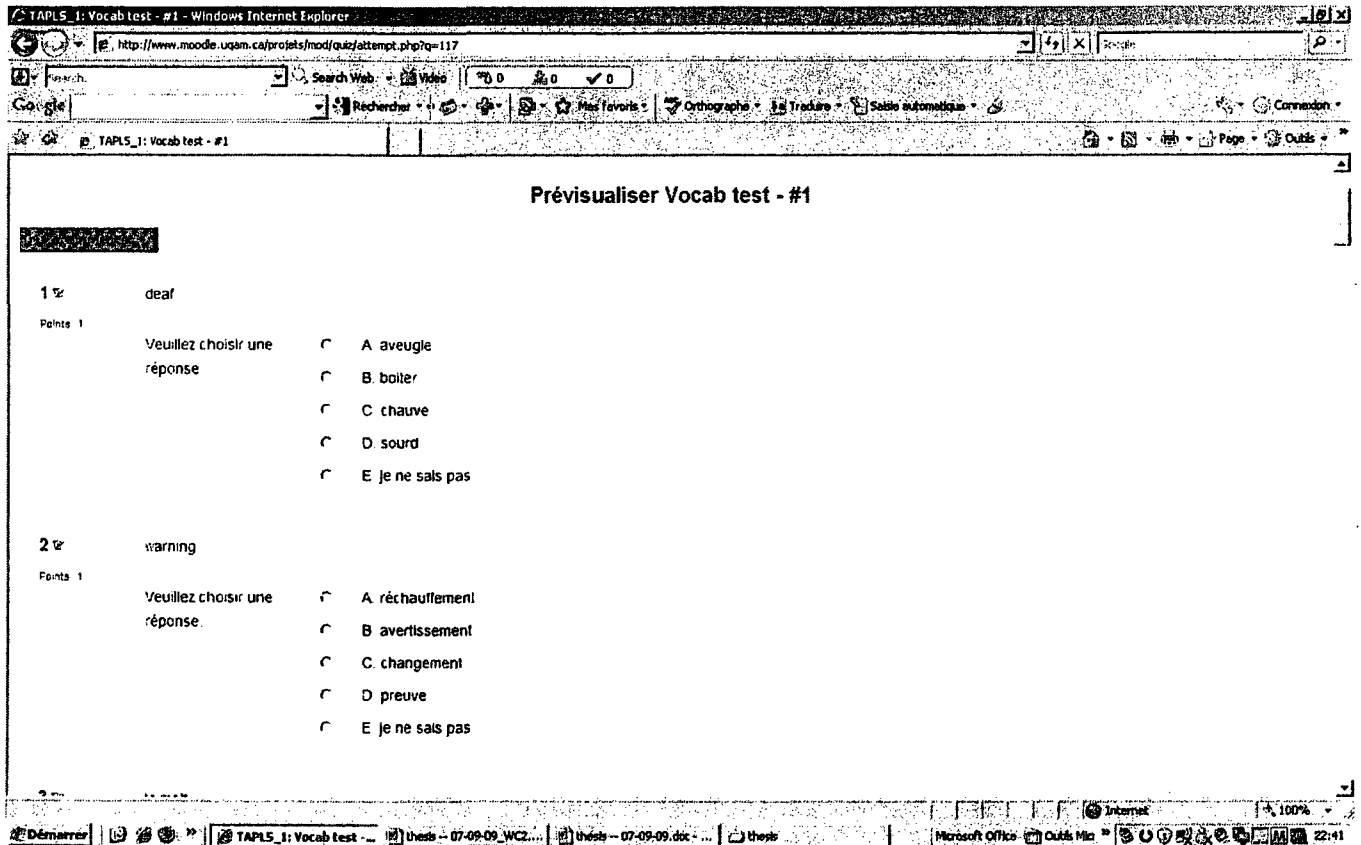


Figure 4. Moodle Interface for the Vocabulary Tests

The participants were then equally and randomly divided into two groups according to one of two listening conditions: “learner-controlled captioning” and “continual captioning”. One participant felt strongly about not using captions at all. He was permitted to do so, but was not placed in either group (see Table 1).

The two groups proved to be very equally matched on two measures: the initial vocabulary test and the initial listening test. The mean score on the initial listening test for

the learner-controlled group was 51.8% versus 46.5% for the continuous captioning group ($SDs = 18.4$ and 22.2 , respectively). An independent samples t -test showed no significant difference between the two groups at the outset, $t(28) = .705$, $p = .49$. Similarly, on the vocabulary test, the mean score of the learner-controlled group was 50.6%, versus 49.8% for the continual captioning group ($SDs = 11.72$ and 18.1 , respectively). Again, an independent samples t -test showed no significant difference, $t(28) = .15$, $p = .89$. This demonstrates that the two groups were very equally divided at the outset.

Table 1

Summary of the listening conditions

Listening condition:	Participants:
1. "Learner-controlled" captions	14
2. Continual captions	16
No captions	1

At the start of the experiment, all participants were given an individual username and password with which they were able to log onto the Moodle course platform. As they completed the various tasks, test scores were recorded using these usernames. Listening sessions took place during English class time, scheduled at various times of the day or evening. The researcher remained present in the computer lab while the participants completed their assignment on an individual basis, using headphones.

Like all of the listening sessions, the first session took approximately one hour to complete. In order to familiarize the participants with the technology, the students were first asked to engage in a “practice” listening session. Since exposure to background knowledge and the activation of prior knowledge is known to facilitate listening (Chung, 1999; Graham & Maraco, 2008), students began each listening session by completing an exercise designed to activate prior knowledge. This exercise consisted of two short-answer and one multiple-choice question about the topic. Figure 5 is an example of the Moodle interface that participants used during an activation exercise. Students completed the exercise onscreen and submitted their answers into Moodle. This activation exercise was not graded.

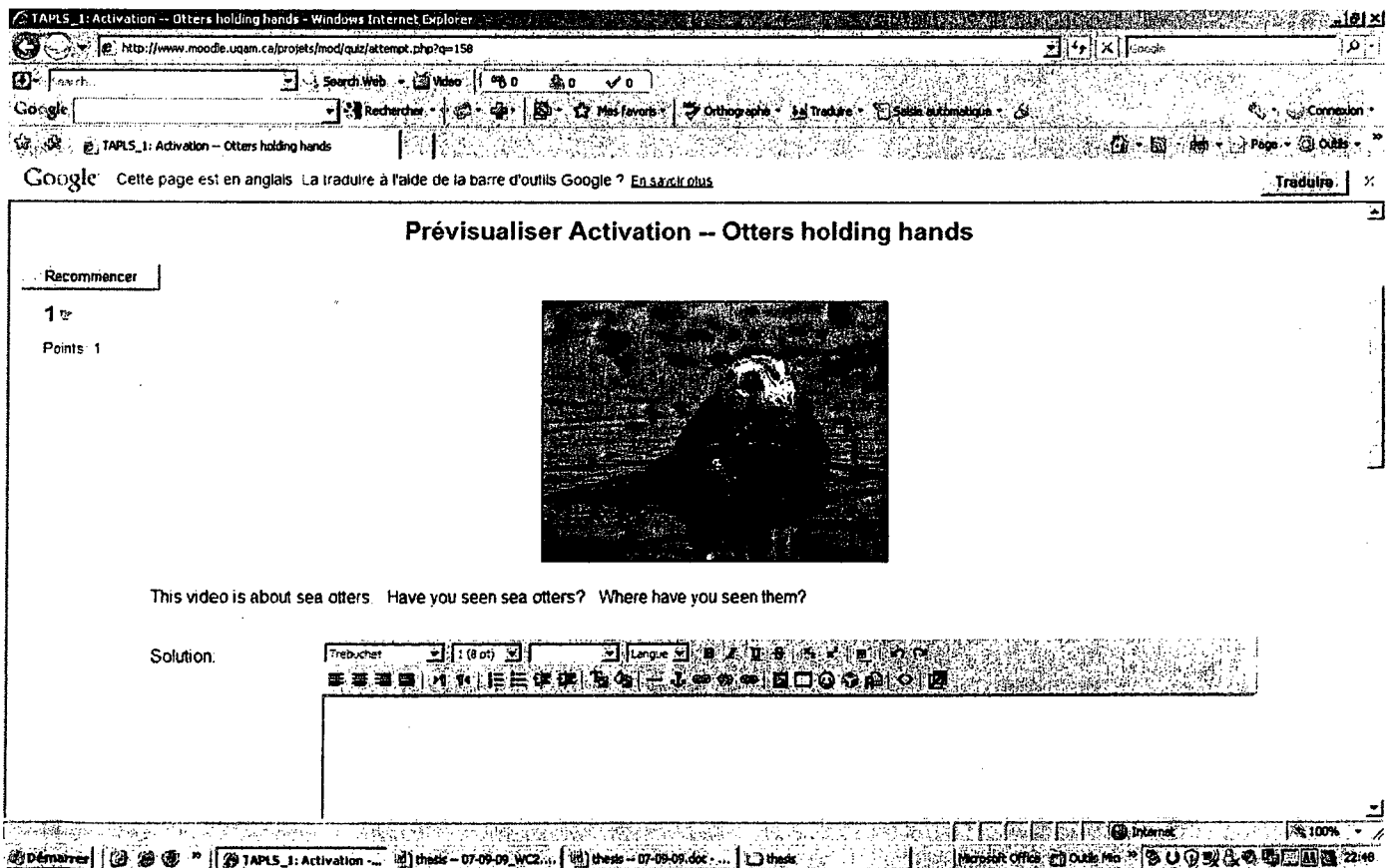


Figure 5. Example of the Interface of an “Activation” Exercise

After completing the activation exercise, students listened to the video “Retrobites: Leonard Cohen”, a 49 second historic interview from CBC archives. The participants used the computer in split-screen format. The videos, embedded in the Moodle software, appeared in the top left of the screen. The on-line English to French translation dictionary appeared on the bottom section of the screen (see Figures 1 to 3 in chapter 1). Captions were not available on this video. Students completed the practice listening session by answering the comprehension questions on paper.

Next, participants completed a listening pre-test to evaluate their listening skills before the experiment. This initial evaluation was used as a benchmark to assess improvement over time. First, participants completed an activation exercise on the topic of sea otters. Then, they listened to a 3-minute CBC news report about sea otters, and then answered multiple-choice and short-answer comprehension questions, similar to Garza’s (1991) test of comprehension (Appendix C for the comprehension test questions). The test was conducted on paper to minimize differences between participants based on ease with technology. Since the goal of the listening test was to measure the participants’ ability to understand the video, rather than to recall or reuse specific language, answers were accepted in either English or French. For this pre-test, all participants had the same treatment: no subtitles were available, but they were asked preparatory questions to activate prior knowledge, they were given access to the questions prior to listening, and they had access to the electronic translation dictionary.

On the second day, participants were ready for the first treatment session (see Table 2, summary of the procedures used). Students completed an activation exercise on the topic of the first treatment video, outer space. After completing this exercise, each student was provided appropriate instruction on an individual basis by the researcher, so that he or she understood how to control his or her listening condition (learner-controlled captioning or continual captioning). The participants then proceeded to listen to the first treatment video and answer the comprehension questions on paper.

Over the course of the following two weeks, participants repeated this procedure as they watched up to five more treatment videos and answered comprehension questions on paper for each one. A link to the captioned videos, found on the website YouTube, had been embedded in the Internet-based platform Moodle (see Appendix D for a summary of the videos and Appendix E for the video transcripts). The videos ranged in length from 3 to 8 minutes and were sequenced in general from shorter and easier (example: RetroBites with Leonard Cohen) to longer and more difficult (example: On Living Longer). It was assumed that this order of increasing difficulty would give students an advantage when listening to harder videos, after having gained experience listening to the easier videos.

Table 2

Summary of the procedure used during each experimental listening session

1. Participants completed activation questions on the computer
3. The test of general comprehension was distributed (paper) - Appendix C
4. Participants watched the video on Moodle (with access to the translation dictionary and captioning options)
5. Participants completed the test of general comprehension (on paper) - Appendix C

Over all, participants engaged in four to six separate viewing sessions in a computer lab over a two-week period. The videos, from a variety of genres, were chosen for their general interest, clarity of speech and intermediate level of difficulty. In order to assess the linguistic difficulty of the two evaluation and six treatment videos, an analysis of the lexical content for each video was calculated using the BNC version of Vocabprofile¹². The text of each video was submitted separately into Lextutor's vocabulary profile application. For comparative purposes, Table 3 indicates the results of this procedure. This analysis shows that the videos were relatively similar in lexical profile.

¹² The website <http://www.lexutor.ca/vp/bnc/> was used for this procedure.

Table 3

Analysis of Vocabulary Content of the Videos (in percentage of words)

Video:	Total # of words	0-1K	1-2K	2-3K	3-4K	5-15K	Off- list
1. Retrobites with Leonard Cohen (practice video)	97	86.73%	7.14%	---	---	1.02%	4.08%
2. Sea Otters Holding Hands (1 st evaluation video)	364	78.91%	5.99%	2.34%	1.81%	5.72%	5.21%
3. Space with Sam Neill	208	77.89%	12.06 %	2.51%	3.52%	3.01%	1.01%
4. Can You Feel the Love?	212	90.58%	3.14%	2.24%	.45	3.15	.45
5. Yuda Station	834	83.39%	7.37%	3.27%	1.87%	2.8%	2.69%
6. BYU Gymnast	916	87.47%	4.59%	2.4%	0.77%	1.66%	2.71%
7. Historian Karen Wilson	928	86.44%	6.52%	1.86%	0.72%	1.56%	2.9%
8. On Living Longer	1003	81.47%	6.56%	2.8%	1.74%	2.61%	4.83%
9. Backpackers Inn (2 nd evaluation video)	527	82.7%	4.01%	2.55%	0.18%	4.18%	6.38%

On a technical level, the computer environment was the same for each group (that is, the same videos, whether captioned or not, were used by all participants, and the same tests were applied to each group). The two groups were instructed on how to play, pause and

rewind the videos, and on how to use the translation dictionary. In the “learner-controlled” condition, students were taught how they could add captioning as needed, after pausing the video. When they were ready to continue the video, the captions had to be removed¹³. In the “continual captioning” condition, the videos were run with the captioning turned on. The participants were prevented from turning them off. Participants were allowed to repeat viewing as often as desired, within the one-hour time limit of the session.

To evaluate each participant’s post-treatment listening skills, the students watched a different video from the initial evaluation, a 3-minute CBC news report, and then completed a multiple-choice and short-answer comprehension test on paper (Appendix C for the test questions). Again, participants were given the same treatment condition (no subtitles; access to the activation questions and translation dictionary; possibility of pausing and repeating as needed). The comprehension test was marked by the researcher and was scored out of 10. A different video was shown for the final evaluation because of the likelihood of remembering the video’s content, and the possibility that participants would have discussed it together. Table 2 demonstrates that the two videos had roughly equal percentages of words in the 0-1000, 1000-2000 and academic ranges in the English lexicon. Questions of equal difficulty were selected to measure comprehension of each video. Therefore, it is reasonable to assume that the first and the last evaluation tests

¹³ The participants in the learner-controlled group had to remove the captions manually. Generally, after one or two reminders of this rule, the participants followed the instruction without further intervention. However, the researcher was constantly attentive to enforce this aspect of the project.

represented similar listening challenges, and that any increase in performance was due to better listening skills.

To measure vocabulary acquisition during the treatment sessions, participants also completed the same 25-point vocabulary test as they had done at the beginning, although the questions were in a different order. This test was completed on the computer. The same test was used in order to avoid the difficulty of verifying that the initial and final evaluations were of equivalent levels of difficulty. One limitation of using the same test two times is the possibility that the participants could be primed by the first vocabulary test. Increases in test scores from the first to the second vocabulary test may, in part, come from a test effect rather than incidental vocabulary learning.

To complete the experiment, supplementary qualitative data were collected. All participants accepted to complete a questionnaire on their opinions about the experiment, their previous experience using subtitles, their viewing strategies and their impression about learning outcomes (see Appendix A for the questionnaire). Also, interviews were conducted with a random sampling of thirteen participants from both groups, to determine how attitudes, motivational factors, personal traits and viewing strategies played out during the experiment (see Appendix F for the interview questions). The interviews were conducted in French.

Two Paired Samples *t*-tests were used to measure within-group improvement in general comprehension and vocabulary acquisition for each of the two groups. To determine if the

listening condition lead to an interaction effect over time, the mean test scores of the listening scores of the two groups were compared (first to last evaluations) using a mixed between-within ANOVA. The same procedure was used to measure vocabulary acquisition. Personal characteristics (age, level of study, native language, language used at home, gender and previous experience with subtitles or captions) were collected and treated in qualitative analyses. Details of the statistical analyses will be presented in the following chapter, using an alpha level of .05. Levene's tests of equality of variance were not significant for any set of comparisons.

CHAPTER 4

Results and Discussion

Quantitative results

Comprehension.

As mentioned in the literature review, captioning is known to offer the advantage of helping second language students to better comprehend videos, films and television programmes. If learners are to control their listening environment, as suggested in this thesis, it is first necessary to ascertain that they are able to understand the material as well as students who are given continual access to captions. That is, no known advantage of captioning should be “lost” in the process of manipulating captions. To this end, the first research question asked whether participants in the learner-controlled captioning (LC) group would understand the videos as well as those in the continual captioning (CC) group.

The initial results show that the mean scores on the comprehension tests were quite low for both groups, ranging from 45.9% to 58%. The difference between the two groups ranged between 1% and 11%, in favour of the learner-controlled group three times out of four. Due to absenteeism, data from videos five and six are incomplete and were not counted¹⁴. These results suggest that no one group had an advantage over the other. Table 4 is a summary of the mean scores of the first four videos.

¹⁴ Results from all 30 participants having completed at least four listening sessions, in addition to the first and last evaluation session and the two vocabulary tests, were included in the data set.

Table 4

Summary of the mean scores per video, per group

Video	Mean score	Standard Deviation	N (total)
1. Space with Sam Neill	LC: 50%	28.9	14
	CC: 55%	17.1	16
			(30)
2. Can You Feel the Love?	LC: 50.7%	27.5	12
	CC: 49.3%	32	14
			(26)
3. BYU Gymnast	LC: 57%	29	8
	CC: 45.9%	40	6
			(14)
4. Yuda Station	LC: 58%	51.2	11
	CC: 56.7%	69.8	12
			(23)

In response to research question #1, then, it would appear that the learner-controlled captioning group did not underperform the captioning group. In fact, the learner-controlled group, who was asked to remove captions after use, had slightly *higher* scores than the group that was not asked to remove them three times out of four (but this result is not statistically significant). The fact that virtually no difference was found between the two groups is an important finding that helps validate the idea that learners can profit from textual support added to videos without depending on the captions all the time. As discussed in the literature review, the addition of captions is known to help comprehension (Garza 1991, Danan 1992). The present research suggests that captions that are available on demand provide the same degree of assistance as captions that are continually present on the screen. The benefit of captioning for comprehension is not “lost” if the captions are not present at all times.

Although, to my knowledge, the concept of “learner-controlled captioning” has not been studied before, it is possible to parallel these findings with research that has some similarities. For example, Grgurovic and Hegelheimer (2007) found that students who chose to use captions in moments of communication breakdown were more successful in understanding the material than those who chose to consult the verbatim script, and both were more successful than those who did not request help at all. In their study, students could consult different help options only after providing incorrect answers to comprehension questions. In the present study, the participants did not need to “prove” that they were in difficulty by answering a test question incorrectly; they could make this decision on their own. Although the benefit for learning may be similar in both environments, the concept of “learner-controlled captioning” would appear significantly more motivating for autonomous learners. It is not likely that many adult second language learners would tolerate having to answer a comprehension question every thirty seconds or so before they were allowed to proceed watching a DVD or television programme.

Another example of research with similarities to learner-controlled captioning is that of Guillory (1998), who studied the effect of keyword captioning on comprehension. Guillory found that the students who used complete captioning outperformed those who were exposed to keyword captioning on comprehension tests. It is interesting to note that Guillory’s findings, while not statistically significant, may tell us something about the power of learner control. When exposed to keyword captioning without needing them, learners may have found the captions distracting. Some participants may have required a different kind of help than particular words. For example, they may have preferred to use

captions to help them separating the stream of a fast-spoken chunk into separate words. Or, participants may have needed help with words that were not considered “keyword”. In her study, keywords were content words or expressions representing 14% of the words from the script. Although the keywords used were chosen by a team of educators, individual learners may have had different needs, based on their own unique background. Finally, keyword captioning may have discouraged participants from adopting a meaning-based focus, since they were constantly reminded that the script was made up of a series of keywords that should be understood. Participants may have felt pressure to concentrate on the keywords instead of on general meaning.

Learner-controlled captioning, which delivers control of help features over to the learner, prove to be a more promising path for instructional design than help features that are restricted to situations of communication breakdown, or continuous keyword captioning. However, the results presented here have very large standard deviations, due to the small sample size and the wide range of scores on the comprehension tests. Future research with a larger sample size is required before definitive conclusions on the value of learner-controlled captioning can be made.

Listening skills.

The mean scores of both the learner-controlled and the continual captioning groups improved from the first to the final video evaluation, suggesting that both groups developed better listening skills during the project. In response to research question #2,

the results show that the mean scores of the learner-controlled captioning group increased more than those of the continual subtitling group. As shown in Figure 6, the mean scores of the learner-controlled captioning group improved from 51.8% to 73.6% from the initial to the final evaluation task ($SDs = 18.4$ and 15.5 , respectively), a difference of over 20%. The mean scores of the continual captioning group went from 46.5% to 55% ($SDs = 22.2$ and 26.8 , respectively), a difference of less than 9%. A mixed between-within ANOVA shows a main effect for improvement in listening scores over time for the two groups conflated, $F(1, 28) = 12.81, p < .05$. However, no main effect for group was found, $F(1, 28) = 3.27, p = .08$, and there was no group by time interaction $F(1, 28) = 2.46, p = .13$. Therefore, we can say that the use of captioning in both forms was a factor leading to improved listening skills. These results also point in the direction of learner-controlled captioning as a means to develop listening skills. However, the distinction between the two types of captioning is not statistically significant in this data.

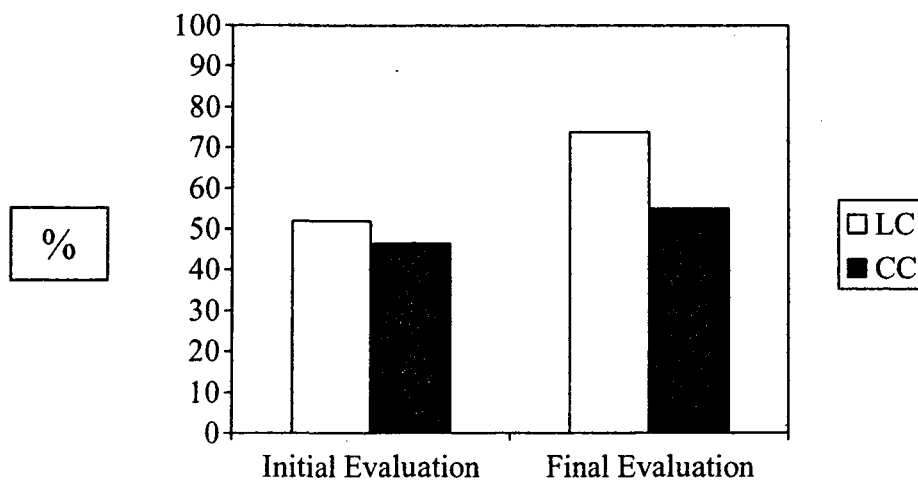


Figure 6. Mean scores (%) for the initial and final comprehension tests, per group

As was mentioned in the literature review, Markham (1999) concluded that the use of captioning facilitated the aural recognition of new words. The findings in this thesis suggest that captioning may also lead to the development of more general listening skills. Although the two studies point in the same direction, they are really looking at listening from very different angles. In Markham's study, students were tested on their ability to aurally recognize the same words that they heard during the videos. In the present study, no direct association was made between the words in the video that was used in the initial or final evaluation with the words that were used throughout the six treatment videos. Therefore, the improved listening skills that were documented in the present study do not necessarily come from recognizing new words. They come from something else: for example, an increased ability to separate known words in a stream, the capacity to link words with meaning, improved listening strategies, better "top-down" listening skills, or increased self-confidence.

As mentioned in chapter 2, the findings of Markham contrast with the research of Diao, Chandler and Sweller (2007), who found that captioning hindered listening development. The results in this thesis may be more encouraging for captioning due to the fact that the participants watched several videos over a two week period. In the study of Diao, et al., the participants watched only two captioned videos. Still, it is very possible that the beneficial effects of captioning wear off, and may even hinder listening skills, when they are used over a long period of time. Anecdotal evidence observed by the present researcher supports this claim. A future research agenda could explore the effects of captioning on listening with a much greater longitudinal perspective.

There are some limitations on the procedure used to measure the development of listening that warrant discussion. In this study, two different tests were used to measure the development of listening from the start to the end of the treatment. Despite the effort made, it is possible that the two tests were not of equivalent difficulty, or that the questions were less difficult for the second test. Future research attempting to establish a relationship between the use of captions and listening could conduct a pilot study in which the scores on two different evaluation tests are compared from two different randomized groups of learners. It is also possible that students adopted better “test-taking” strategies during the treatment sessions. Examples could be making sure they understood the question, or identifying and concentration on the part of a video where an answer is likely to be found. A similar problem is faced by all researchers studying the complex skill of listening, which can be measured only indirectly, through participant behaviour.

Vocabulary acquisition.

Research question #3 asked if participants who were given control over captions would learn new vocabulary as well as students who were provided continuous captions. As Figure 7 shows, the two mean scores of both groups improved in the area of vocabulary acquisition just as they did in listening comprehension. However, the increases are more modest than for the comprehension tests. From the first to the final vocabulary test, the two groups improved to approximately the same degree. The learner-controlled captioning group increased from 50.6% to 56.6% (*SDs* = 11.7 and 12, respectively), while

the continual captioning group went from 49.8% to 59% ($SDs = 18.1$ and 18.7 , respectively). The learner-controlled group improved by 6% while the continual captioning group made gains of close to 9%. As with the listening comprehension tests, a mixed between-within ANOVA indicates that the main effect of time for vocabulary acquisition was significant, $F(1, 28) = 10.74, p < .05$. Again, there was no main effect for group, $F(1, 28) = 0.02, p = .88$, nor an interaction between group and time, $F(1, 28) = .49, p = .49$. An insufficient number of participants and a large range of scores, creating high standard deviations, is a likely explanation for the fact that no group or interaction effect was found.

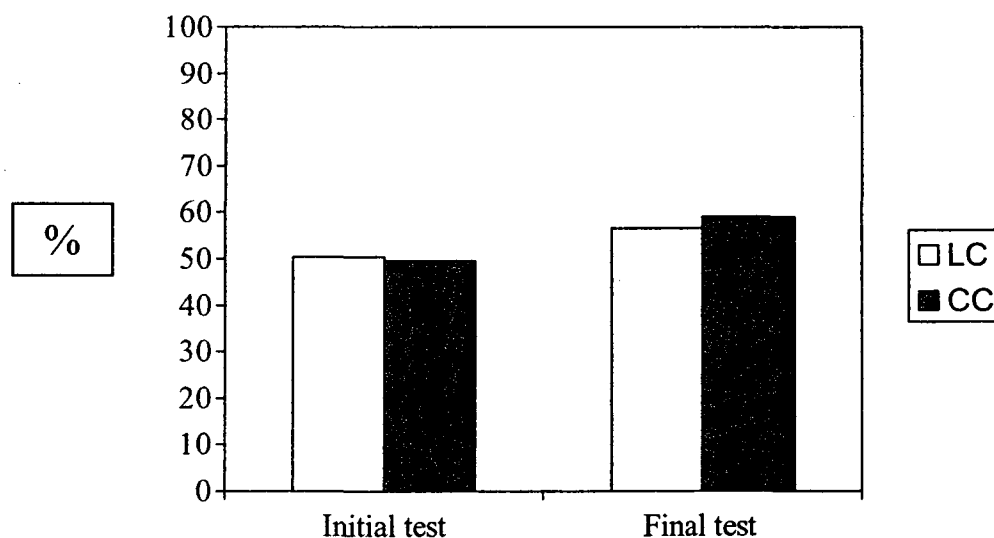


Figure 7. Mean scores (%) for the initial and final vocabulary tests, per group

In sum, incidental vocabulary learning by both groups was relatively modest. Considering the fact that both groups learned some new words and that the difference between the two groups is slight (2.4%), these findings tend to uphold the hypothesis that the action of controlling captions makes no difference for learning new words, compared

to when the captions are continually present. As with research described in the literature review (Stewart & Pertusa, 2004; Brown et al., 2008), this study would appear to confirm the finding that aural input, even when textual help is available, is not an ideal way of teaching vocabulary. There may be an important age-effect for learning vocabulary through sources of aural input such as television, since some studies have shown that children can learn language from captioned television (Koolstra & Beentjes, 1999). The participants in this study were not only adults, but many were poor language learners. It is likely that these learners were not “wired” to learn vocabulary in the same way children are.

We cannot say that minimizing access to textual support promotes vocabulary learning in the same way that it may profit the development of listening skills. Since their task was to demonstrate global understanding of the videos by answering comprehension questions, the participants in this study probably adopted a meaning-focused strategy while listening. This approach may have led them to avoid noticing new vocabulary or grammatical structures. I will return to the pedagogical implications of these findings in chapter 5.

Weaker versus stronger listeners

To better understand why there was no significant difference when the two groups were considered distinctly, the data were analyzed using a different grouping variable. This procedure had not been anticipated in the original research design. Participants who were

considered “weak” listeners (those who obtained less than 50% on the initial listening test) were placed in one group, while the “strong” listeners (those who had obtained 50% or more on the initial listening test) were placed in a second group. Using this new grouping, 17 participants were placed in the first group, while 13 were placed in the second. Among the weaker listeners, 8 had come from the learner-controlled group, while 9 had been placed in the continual captioning group. For the stronger listeners, 7 came from the learner-controlled group and 6 were from the continuous captioning group (see Table 5). Therefore, we can once again affirm that the learner-controlled group and the continual captioning group had been formed with a relatively equal number of strong and weak listeners.

Table 5

Repertition of the grouping variable weak / strong compared to the LC / CC groups

	Learner-controlled (LC) group	Continual captioning (CC) group	Total:
Weaker listeners	8	9	17
Stronger listeners	6	7	13
Total:	14	16	30

Not surprisingly, the participants who underperformed on the initial listening tests had lower scores on the final listening test as well. However, this group of weaker listeners made greater improvements during the two weeks than their colleagues. As Figure 8 shows, the mean scores of the weaker students went from 38.9% to 54.7% from the first to the last listening test, a gain of 15.8%, while those of the stronger students increased

more modestly, from 67.3% to 75.4%, a difference of only 8.1%. Paired samples *t*-tests indicate that the results of the weak group are statistically significant, $t(16) = -3.29, p < .05$, but those of the strong group are not, $t(12) = -1.37, p = .2$.

These findings underpin the fact that it is easier for weaker students to make progress than stronger students, because there is more room for improvement. In addition, many residents of Montréal have very little contact with English in their daily lives. It is possible that these weaker students simply benefited from receiving a large amount of non-threatening aural input, which was different from their regular classroom or home experience. The stronger students also benefited from the experience, but less so, because the experience may have been less unique. In response to the discussion in Chapter 2 on the danger of learners using captions to read rather than to help them develop listening skills, these tentative results would suggest that this fear may not be warranted for weaker learners.

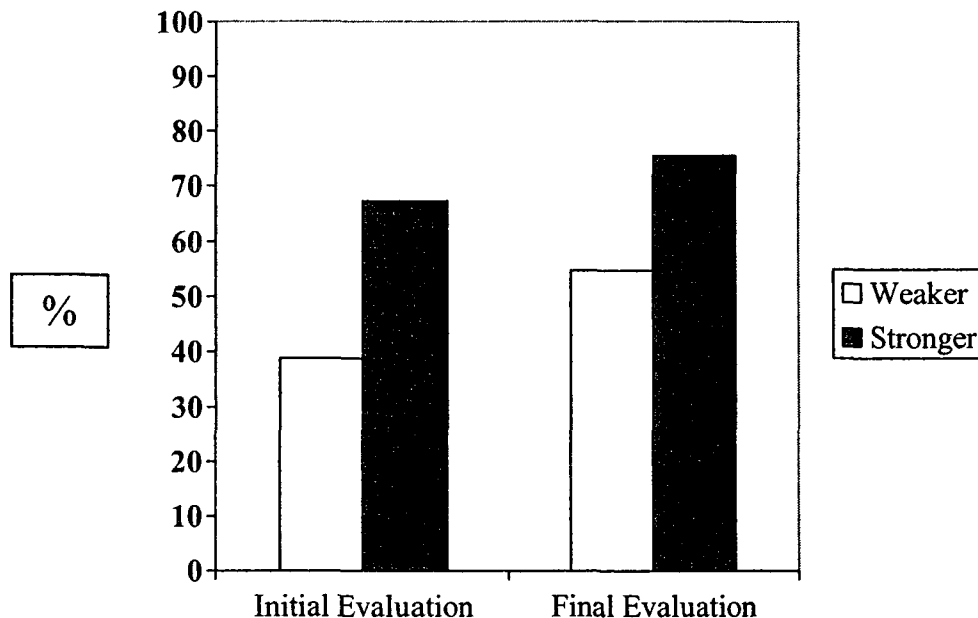


Figure 8. Mean scores (%) for the initial and final comprehension tests for weaker versus stronger participants (based on initial listening comprehension), LC and CC groups conflated.

Turning now to vocabulary acquisition, as demonstrated in Figure 9, the mean scores on the vocabulary tests of the weaker students increased modestly, from 45.9% to 51.1%, while the scores of the stronger students went from 55.7% to 67.1%. Conversely to the listening scores, Paired samples *t*-tests for vocabulary acquisition show that the results of the strong group is significant, $t(12) = -3.98, p < .05$, but those of the weak group is not, $t(16) = -1.48, p = .16$. It is interesting to note that vocabulary learning had the opposite relationship than listening development: the stronger students are the ones who made marked gains, while the weaker students acquired fewer new words. There may be some overlap between the classification of “weaker” versus “stronger” listeners with the concept of learning styles. Weaker listeners may have had a more visual learning style

and benefited from the captions greatly, while stronger listeners, in general, may have had a more auditory style, profiting from the captions less than their counterparts.

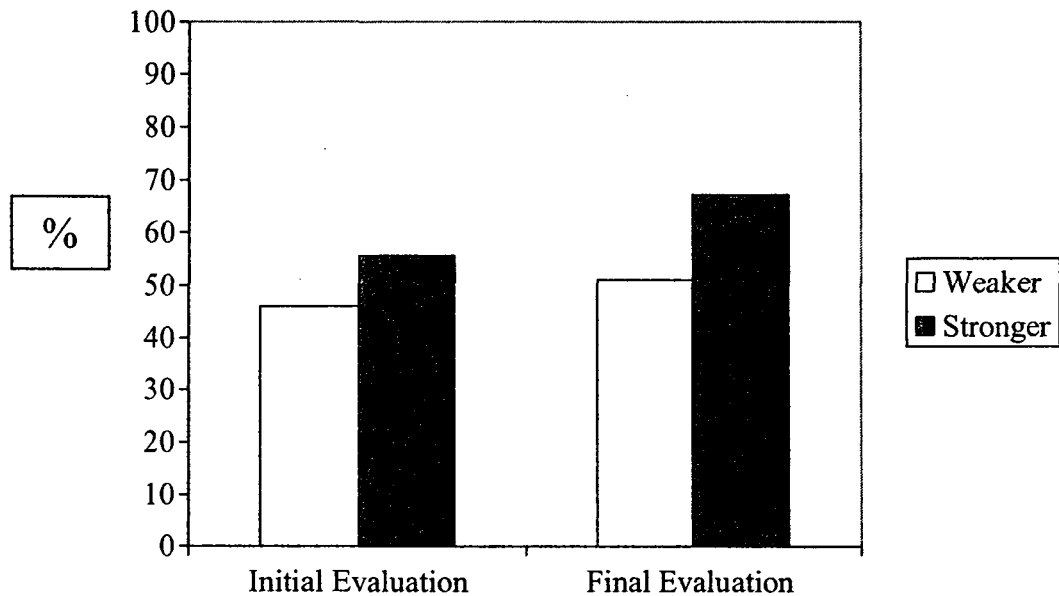


Figure 9. Mean scores (%) for the initial and final vocabulary tests for weaker versus stronger students (based on initial comprehension test).

Therefore, students in both the learner-controlled and the continual captioning groups learned new words, although the latter group learned slightly more new words. Laufer and Hulstijn's (2001) involvement load hypothesis may explain why incidental vocabulary learning was present, but was not significant in this experiment. According to Laufer and Hulstijn, vocabulary learning becomes more likely when students establish a certain level of involvement with the vocabulary. "Involvement" can take the form of the need to understand a word, the search for its meaning and the evaluation of the results of this search. In the study, the participants may have reached a level of involvement with only a few of the 25 words that were chosen for the vocabulary test. They may not have

felt the need to understand most of the words, or did not go through the process of searching for meaning and then evaluating the outcome. Since the 25 words were chosen for frequency within the videos and not for semantic reasons, the participants may have felt the need to understand only a few of them. Likely, this failure to learn more new words is partially a result of the communication task the participants were given. Students were asked to demonstrate their understanding of the videos, not to retain or reuse specific words.

The meaning-focus of the task within this research project may have gone against incidental vocabulary learning in another way. In this experiment, no specific words were highlighted; the captions provided onscreen were a verbatim presentation of the script. Nor was there a distinction made between content or function words. Conversely, in Jones' (2003) research on help features, specific keywords had been highlighted within the multimedia environment. Students could only access help features based on the keywords that were on screen. Similarly, Guillory's (1998) study on keyword captioning also highlighted particular words. In the present study, all the words used in the videos were given equal weight. Additionally, in the study of Jones (2003), the dictionary help feature could be used for only a small number of previously selected words and expressions. In this research, the online English-French dictionary could translate any word or expression the student requested. These features of the present study may have reduced the chance of students noticing particular words, and therefore diminished incidental word learning.

In terms of our discussion in Chapter 2 on Cognitive Load Theory, it would appear that only stronger listeners had the available cognitive resources to pay attention to new vocabulary as they listened to the videos. The weaker students were too overwhelmed by the meaning-based task to profit from the input of new vocabulary.

In summary, the results demonstrate that the two groups understood the videos to an equal extent, as predicted by Hypothesis 1. Mean scores show that the learner-controlled group improved their listening skills to a greater extent than the continual captioning group (Hypothesis 2), although this finding was not statistically significant. The near equality in the acquisition of vocabulary between the two groups shows that the learner-controlled group learned new words as well as the others, as predicted by Hypothesis 3. However, the listening condition (learner-controlled or continual captioning) did not influence outcomes as much as a different grouping variable: the level of student listening ability before the experiment. When grouped according to initial proficiency in listening, it was found that the weaker students had developed listening skills to a greater extent, while the stronger listeners acquired new words during the treatment. These results are both statistically significant.

The concern that students will develop a dependency on reading, which could negatively affect their listening skills, remains a real possibility, especially for stronger students. The participants in this research project viewed captioned videos over two weeks. It remains to be seen if, over a longer period (say, six months to a year), captioning continues to help develop listening skills, or if a tendency to rely on the written word reduces this benefit.

This question is key for independent language learners who want to achieve an advanced level of English. I will return to this issue in chapter 5.

Understanding General versus Specific Information

It was mentioned in chapter 2 that for descriptive purposes, the construct of listening can be divided into comprehending the main or general ideas versus understanding specific information or details. Although this was not a research question, an analysis of comprehension test scores was conducted on a subset of 14 participants¹⁵. Questions from the six treatment videos and the first evaluation video¹⁶ were classified as eliciting general or specific information (see Appendix C for the complete list of questions). Questions that could be answered with one particular word or expression mentioned in the video were considered “specific”. Questions that could not be answered with one particular word or expression were considered “general”. The total number of correct and incorrect answers was tallied for each participant, for each type of question (all videos combined). Table 6 provides the results of this data subset¹⁷.

¹⁵ Due to technical difficulties, the data required for this secondary analysis were not saved on the Moodle platform for all of the participants. Therefore, only the data from a selection of 14 participants could be analyzed.

¹⁶ For technical reasons, it was not possible to include the final evaluation video in this analysis.

¹⁷ The total number of questions varies per participant due to unequal completion of the six treatment videos.

Table 6

Percentages correct on specific and general questions, per participant

Participant	Specific questions (% total correct / total possible)	General questions (% total correct / total possible)
1	12/17 (70.5%)	5.5/10 (55%)
2	10/22 (45%)	4.5/12 (37.5%)
3	12/16 (75%)	8/11 (72.7%)
4	15/33 (45%)	4.5/17 (26%)
5	22.5/33 (68%)	10/16 (62.5%)
6	22/28 (79%)	9/14 (64%)
7	16.5/27 (61%)	11/19 (58%)
8	18.5/27 (68.5%)	7.5/15 (50%)
9	16/22 (72.7%)	8.5/12 (70.8%)
10 (Xan)	20/33 (60.6%)	12/18 (67%)
11 (strongest)	27/33 (82%)	15/17 (88%)
12	9.5/22 (43%)	2.5/12 (20.8%)
13	16/22 (72.7%)	9/12 (75%)
14	5/10 (50%)	3/8 (37.5%)

Table 6 indicates that for most of the participants, general understanding questions proved to be more difficult than specific information questions. This finding is most noteworthy in the case of the weaker listeners (participants 1, 2, 3, 8, 12 and 14). These observations parallel informal teacher accounts that have been recorded in the literature on listening. Students may understand some or several details in a text, without grasping the main idea

(Song, 2008). Observations by the researcher suggest that many of the weaker listeners adopted a poor strategy of searching for specific information instead of striving to understand a larger meaning. They often tried to use the dictionary to understand whole sentences, and provided answers that were copied directly from the video's content. The tendency in favour of specific information questions is much weaker for the stronger listeners, and does not apply in two cases: participant #11 (the strongest participant) and participant #10, Xan, who used no captions. The case of Xan will be discussed below.

Qualitative results

Other issues raised in this research project were addressed by analyzing qualitative data. First, students' opinions on their experience were collected using a questionnaire. As predicted, a sizable majority (25 out of 30) of the participants were somewhat or very interested in the project, and felt somewhat or very motivated by the approach of using Internet videos combined with subtitles. A full 18 of these said they were very interested and motivated by the approach. Approximately the same number of participants in the learner-controlled group and the continual captioning group had favourable opinions about the approach used. This suggests that the instructions given to the learner-controlled group (i.e., the requirement to remove subtitles after consultation), did not negatively affect the attitudes of the participants in that group. Almost all participants were anxious to know their individual scores, and were pleased to learn they had improved.

A series of oral interviews were conducted with 13 participants after the experiment. 7 of these interviews were with participants from the learner-controlled group, and 5 were from the continual captioning group. An interview was also conducted with Xan, the participant who did not use captions. All of the interviewees said they enjoyed and learned from the experience, and all but one said they would like to repeat it. One person said he learned more from the videos than in the classroom. Another said she would like to continue the experience from home. Four participants said they were pleasantly surprised to learn that YouTube videos are sometimes subtitled, and they planned to look for more videos on their own. One participant from the continual captioning group said he tried not to “cheat” by reading the captions. Another from this group said that she was happy to have the captions because she understands written words better than aural. In sum, the participants enjoyed their experience, and the presence of captions made the task of listening to authentic videos more accessible.

During the interviews, very few comments dealt with the inconvenience of adding or removing subtitles. After one or two reminders, all participants in the learner-controlled group followed the instructions that were given. The only negative comment about this type of captioning came from one participant who felt that the instructions to remove captions were “*un peu fatigant*” (a bit tiresome), although she obtained the second highest scores on the final evaluation. This participant was used to using translated subtitles when listening to English movies. While the interviewees did not complain about having to remove the captions, they probably did not fully appreciate the reason for doing so.

The following is a summary of the encouraging comments that the participants provided during the oral interview:

- It is not stressful to use the videos, unlike speaking to someone in person or doing a classroom listening activity.
- The videos were very interesting. We listened to many human life stories or real news reports. (This comment is supported by the fact that when the participants were asked which video was their favourite, all of the videos were mentioned at least once).
- The project was fun and enjoyable.
- I learned new things (about the videos' content).
- The language in the videos was "real life". The subtitles helped us learn specific vocabulary or expressions that we would not have learned in the classroom.
- The questions forced us to remain focused and attentive to details.
- I feel more confident listening now.
- The continual evaluation helps us track our progress.
- I liked having the ability to stop and repeat as needed.

When presented with the task, participants adopted strategies that were both common and unique. All of the participants profited from the opportunity to listen repeatedly to the video and to familiarize themselves with the questions before listening. Most decided to listen to the video for general meaning the first time before listening again for detail. Some tried to answer the easiest questions after the first time through, while others

listened for specific answers one at a time. Some participants used very efficient listening strategies: trying to correlate the video image with the words, observing gestures, concentrating, avoiding full-sentence translation, avoiding use of the captions when not needed, using the dictionary only occasionally and only for single words or expressions. Other participants used less effective strategies: a desire to understand every word, excessive use of the dictionary (used very often or for full sentences), continual reading of the captions. One may hypothesize that stronger listeners used more effective strategies. This corresponds to previous research in the field of listening strategies that has established a strong link between use of strategies and learning outcomes (Grgurovic & Hegelheimer, 2007; Chang, 2008). Most participants said that they adopted different (and better) strategies during the course of the experiment. In summary, qualitative data suggest that the approach of using subtitled Internet videos for listening practice strikes a chord with many, but not all language learners.

A particular case: Xan

As previously mentioned, one participant preferred not to use subtitles at all, and accordingly, the data from his tests were not included in the above analyses. This male 25-year old Vietnamese participant, who we will call Xan, represents a very interesting case and warrants individual attention.

Xan's decision not to use the captions may have prevented him from understanding the videos at first, since his scores are considerably lower than the other two groups on the

first two treatment videos, *Space with Sam Neill* and *Can You Feel the Love?* (see Table 7). However, for the videos *Yuda Station* and *BYU Gymnast*, Xan's scores show that he understood as well, if not better, than the other two groups. Xan completed two other videos, scoring very highly on the comprehension tests. These comparisons are not included in the Table 6 due to insufficient numbers among participants in the LC and CC groups. Therefore, it would seem that Xan was able to develop transferable listening skills during the project, like his classmates in the learner-controlled group.

Table 7

Results of Xan's scores on video comprehension tests (in comparison to the mean scores per group, per video)

Video:	Xan's scores	Mean score (LC group)	Mean score (CC group)
Sea otters*	50%	51.8%	46.5%
Space with Sam Neill	40%	50%	50.25%
Can you feel the love?	33%	50%	49%
Yuda Station	75%	72.5%	71%
BYU gymnast	100%	65%	52.4%
Backpackers Inn*	70%	73.6%	55%

*evaluation video (no captions)

Xan was unique among the research subjects in having Vietnamese as a first language. His accented speech in French suggests that his exposure to French is more recent than the other participants, whose first language, if not French, was either close to French (Creole), or was from a country with historical contact with French (Arabic or African

languages). Although many Vietnamese people living in Montréal had early access to French in their lives, this was not the case for this participant. It would appear that this distance between Xan's first language and both English and French may partly explain his lack of interest in using captions. The Arabic speakers in Vanderplank's (1988) study were equally distracted by subtitles. However, the fact that Vietnamese is a language with a Roman script, unlike Arabic, suggests that the form of the letters may not be the main issue at stake. Rather, the likelihood (or not) of discovering similarity between the target language and one's mother tongue may be a greater consideration. In other words, even though Xan could easily recognize the letters onscreen, he could not benefit from the presence of cognates to help him process the language more quickly.

When asked why he chose not to use subtitles, Xan affirmed that the written word would only confuse him. He was certain of knowing every word orally that he knew in written form. He made the surprising comment: "*Si je lis, je ne comprendrai pas plus*" ("*If I read, I will not understand more*"). He understood his learning style to be of an oral nature: he would listen, guess the meaning of a new word from the context, ask the meaning if necessary, and practice using it, without making any connection with the written form. In daily life, when he needs to write a word, he guesses the spelling phonetically and then looks up the possible meaning in a dictionary. This is how he used the electronic translation dictionary during the project. He also used the translation dictionary from French to English to write his answers correctly.

Xan enjoyed participating in the research project and felt that he learned a good deal. What Xan appreciated most was the fact that he could listen to the videos repeatedly, at his own pace. He listened for the general meaning as well as new words. He did not seem troubled by the difficulty of recognizing where words began and ended. In part, this can be explained by his interest in finding new word chunks, not just new words.

Xan is a very motivated learner. Without participating on any formal exchange programme, he spent one month living with an English-speaking family in New Brunswick. Although the first two weeks were difficult, he later gained confidence speaking with the family. He says that he often listens to television in English, but he never adds subtitles. He practices English with some Anglophone friends. He says that he feels anxious occasionally when listening to people, but he did not feel this stress when watching the videos.

In the context of the present research project, Xan's case suggests that the opportunity to control captioning does not interest everyone. Xan's auditory learning style, the dissimilarity between his first language and French, and his motivation to learn (that is, his willingness to use the strategy of repetition) are factors that may explain his disinterest in captions. As mentioned above, Xan was one of only two participants who did not answer general understanding questions less successfully than specific information questions. This suggests that Xan adopted a strategy of understanding the main idea of the videos before worrying about specific details.

Having described and analyzed the quantitative and qualitative data, I will now turn to a discussion of pedagogical implications and concluding remarks in chapter 5.

Chapter 5

Conclusions and Pedagogical Implications

This research project investigated how giving second language learners control over their listening environment affects their comprehension, vocabulary acquisition and listening development. During the project, participants were presented with various tools, such as target language captioning and an electronic translation dictionary, to help them complete a series of listening tasks. Before listening, participants were also given preparation in the form of activation questions, and they were permitted to pause and repeat the audio material as often as required.

Although it was not a primary research question, the pedagogical value of captioning in general is reaffirmed in this study. Both learner-controlled and continual captioning helped the participants understand the materials. Both groups made considerable improvement in their ability to understand non-captioned videos at the end of the study. When students were divided by ability rather than listening condition, the results spoke strongly in favour of captioning as a tool to assist weaker learners develop listening skills.

The positive relationship between captioning and the development of listening skills found in this research goes beyond Markham's (1999) conclusion that captioning can benefit aural word recognition, and includes the comprehension of meaning within the definition of "listening". These results go against the findings of Diao, Chandler, and Sweller (2007), who found that captioning hindered the development of listening skills.

One reason for these contrasting results may be found in the longitudinal nature of the present thesis. The participants in this research were exposed to captioned videos over a much longer time period than in the research of Diao et al.. Students may not only have developed the ability to recognize new words and to separate known words within the flow of speech, but they may have become more accustomed to listening to native speakers of English, gained confidence in their ability to understand, and adopted better listening strategies. Also, the topics of the videos and the fact that they were Internet-based may have interested the participants in this study more than in previous research, leading them to be more attentive to the content, thereby profiting from the experience to develop listening skills.

The results of this research are encouraging for the “new frontier” that I call “learner-controlled captioning”. Language students who were taught to use captions selectively and strategically understood the material as much as their colleagues who used continuous captioning – nothing was “lost” in this process. Furthermore, there is reason to believe that these students developed listening skills to a greater degree than their colleagues. The learner-controlled group improved by over 20%, while the continual captioning group increased by less than 9%. Rather than relying on the written word, the students in the learner-controlled group were forced to first try to understand the material on their own. The difficulties with which they were faced during this task brought the participants to recognize their learning needs, be it the necessity of learning a new word, or of confirming that an unrecognized word is a known word, by consulting its written form. This cognitive process may well have further contributed to the development of

listening skills. Since the difference between the two groups was not statistically significant, it is not possible to conclude at this point that “learner-controlled captioning” is a better way to develop listening skills. However, the concept should be revisited in future longitudinal research.

The ability to add captions and to use a translation dictionary were two aspects of “learner control” studied in this thesis. In previous research, visual information in the form of images has also been studied as a help option (Jones, 2003; Plass, 2003). Considering the positive impact of learner control in all of these studies, instructional designers would do well to include other types of help options associated with second language instruction. For example, learners could choose what type of captioning (keyword or verbatim) they may need at a particular time. They could select to see only colloquial expressions. Captions could be colour-coded to distinguish verbs, nouns and pronouns, for example. Learners could also access grammatical explanations, synonyms or antonyms. Visual help could be more than images: it could include simple animations, graphs, etc. Help features could include useful background information relating to a character, a situation or a preceding event. Some learners may want to be “tested” on their understanding; they could try their hand at short comprehension questions as the video proceeds. However, it would be important to maintain the optional aspects of all of these features, and not oblige learners to demonstrate their understanding, such as was done in the research of Grgurovic and Hegelheimer (2007). With all of these tools available responding to their individual needs, even weaker second language learners may come to profit from the use of help features.

This study has demonstrated that individual students do indeed have different learning needs. Not all students want to use captions. Vanderplank (1988) found that learners who have a mother tongue that does not use a Roman script were much less interested in using captions. The present research suggests that this may be the case also for learners whose mother tongue does use a Roman script, but has no connection with the target language (such as Vietnamese versus English). However, this study suggests that learners can make links to any language they know, not just their mother tongue. The participants whose mother tongue was Arabic but who also spoke French were equally interested in using captions as the native French and Créole speakers. This would suggest that if learners are presented with a wide-ranging gamut of help options, their mother tongue and previous language learning may determine if they use language-oriented help features (captions, dictionary) or image-animation type resources. It also suggests that captioning of English documents may be used more effectively as a learning strategy in some parts of the world (Latin America, Europe) than in others (Asia).

In this research project, it was not possible to investigate directly the issue of dependency on reading while using subtitles. This is an interesting area of research that falls outside of the scope of the present thesis. However, the findings clearly show that the fear of developing a dependency on reading should not lead teachers or students to avoid the use of captions or subtitles altogether. There seems to be little danger to introducing students to the benefit of using captions. For beginner or low-intermediate students, teachers could adopt a classroom environment in which captioning was used to build vocabulary, promote interest in the language, develop confidence, and accustom students to natural

input. Once they have obtained a minimal level of competency, students should experiment using listening materials that give them control over help options, and instruction on how best to use the available tools.

In the present thesis, participants who were given control over captioning were asked to consult the written words while the video was paused. To continue, they were asked to remove the captions. Therefore, participants in this group could not see the words at exactly the same time as they heard them. A multimedia environment could be designed that would allow participants to listen to short excerpts of the video using captions, only to see them disappear after a few seconds. It would be very interesting for future research to determine if this type of instruction design would be even more beneficial.

Turning now to vocabulary acquisition, this thesis examined incidental learning of new words through listening tasks within a multimedia environment. In this study, the vocabulary learning was “incidental” because students knew that they were not tested on their knowledge of particular words from the video (in fact, answers to the comprehension tests were accepted in French). Nonetheless, limited vocabulary acquisition did take place during the treatment. Students who began the project with stronger listening skills (that is, those who obtained a score of more than 50% on the initial listening test) learned more new words than the others. Weaker students were probably overwhelmed by the challenge of understanding the video in order for them to divert attention to new words. Therefore, weaker and stronger listeners both benefited from the listening sessions, but in different ways. While the participants in both groups

improved their listening skills, the weaker listeners improved more than the stronger ones by a significant margin. This concurs with research indicating that captioning can be used for vocabulary learning, but it may not benefit every type of learner. Neuman & Koskinen (1992), for example, established a relationship between watching captioned television and vocabulary learning among bilingual children, while in the research of Stewart & Pertusa (2004), intermediate adult students of Spanish who watched captioned DVDs did not learn new words. Therefore, teachers should recognize that listening to videos is not an activity that strongly supports vocabulary learning among weaker students, but it could be an interesting choice for stronger ones.

Returning to the discussion on Cognitive Load Theory, the results of this thesis uphold the “dual channel assumption”: information can be processed through aural and visual channels simultaneously. The qualitative data suggest that learners felt that using captions helped them understand the videos, and that they were not distracted by them. Therefore, it can be said that the selective use of captions adds germane cognitive load to second language listening tasks. However, since the participants had difficulty understanding the videos overall, the activation exercise may not have been a sufficient tool to prepare the students. Therefore, the background information that was provided before each video may not have been sufficient to be considered “germane”. The research also points strongly towards the “expertise reversal effect”. In this experiment, weaker and stronger listeners had different learning needs, and they profited from the treatment differently. Weaker listeners concentrated on understanding the basic meaning of the videos, while the stronger listeners were able to profit from the comprehensible language input to learn

more new words. Many participants were able to make judicious decisions about the viewing strategies that were most useful for them. These results encourage future research that gives learners more control over their environment.

Qualitative data suggest that most motivated learners appreciated using target-language captions to help them understand the videos. Although comprehension test results were often low, the students ended each listening session anxious to find the answers to missing questions, and enthusiastic about discussing the video's content. These positive feelings are similar to previous research on the motivational aspect of captioning (Stewart, 2004; Jones, 2003; Danan, 2004). The participants felt they had improved in many aspects of language learning (comprehension, listening development and word acquisition). These comments parallel the research linking motivation with the importance of feelings of accomplishment and learning (Graham & Macaro, 2008), and with the completion of authentic challenges (Van Merriënboer & Sweller, 2005). Further, students in the learner-controlled group appeared equally comfortable with captions, compared to the students who were provided captions continuously. This finding concurs with other research which suggests that giving control over multimedia tools has a positive affect on learning (Jones, 2003; Grgurovic & Hegelheimer, 2007). However, learners may not realize the importance of using captions selectively, and they may not place the same limits on themselves when they are alone. This is a rich area for future research on the viewing strategies of autonomous learners.

There is reason to believe that during this experiment, the participants reached a level of concentration that goes beyond that of their traditional classroom experience. The students were very engrossed in their listening tasks. During the sessions, the laboratory was very quiet because the students were very concentrated on their task. Several students felt surprised and proud about their accomplishments. The students often discussed the videos together, after the session. Absalom & Rizzi (2008), in comparing student responses to online versus text-based tasks, found that online listening was more likely to lead to “deep” learning because students activated more resources and adopted an integrative approach to learning. It is possible that the students in this research project, who were asked to perform a variety of tasks requiring different skills, also adopted an integrative approach.

Despite these encouraging comments, it would be inaccurate to suggest that the approach to listening used in this research project suited every participant’s style of learning. The opinions of the participants did not appear to significantly differ according to age (that is, the older participants were not less interested than the younger ones). Although there were fewer negative comments than positive ones, the researcher’s observations lead to the following conclusions: (1) Not all students felt comfortable using technology. Some students needed virtually constant help in order to solve navigation problems. (2) The headsets did not feel comfortable and were a source of distraction for a few participants. (3) 17 participants started but did not complete the project. This sizable rate of attrition suggests that the approach may not have interested some people. However, it is likely that a lack interest in the project is not the only explanatory factor. Family obligations, work,

illness and other personal problems are common causes of absenteeism in the adult education sector. Finally, (4) not all participants appeared truly interested in learning English, which is somewhat typical in adult education centres in Montréal.

Gardner's (1983) theory of multiple intelligence may shed light on why the approach was useful for some, but not for everyone. According to Gardner's theory, learners have strengths in particular areas that may vary from one individual to another. These areas of strength can be used to facilitate learning. Some learners being more auditory, the captions may have been an unnecessary distraction, while others who rely on visual information to take in new information may have appreciated this feature more than others (of course, the voices of the students who left the project or who did not choose to join are absent from the qualitative data). Further, the research project required students to manipulate the computer environment, which required tactile / kinesthetic abilities that were clearly not the strength of some participants. However, learners whose strengths lie in the visual or tactile realms probably appreciated the chance to use the resources at their disposal to overcome any particular difficulties they may have had.

Using captioning and other self-help tools, it is expected that students will become more autonomous learners, and will feel more confident facing real-life challenges such as listening to television or films in the target language. In the classroom, this approach can help teachers design "learner-centered" environments that do not require the constant attention of the teacher. An approach that emphasizes learner-control within autonomous listening tasks, such as those presented in this research, allow teachers to implement some

of Gardner's ideas. In using this type of listening environment in the classroom, teachers can give students challenges that go beyond the task of understanding captioned videos, such as creating a poster or making a presentation that summarizes or criticizes the video's content. This active, "learner-centered" pedagogy is known to promote language learning and vocabulary acquisition (Oxford, 1990).

There are other advantages to using web-based captioned videos in the classroom. It is beneficial for language learners to hear a variety of types of accented speech, since they may encounter native speakers from various parts of the world. Since the videos are from the Internet and therefore may be posted from anyone around the world, there are great possibilities for building cultural awareness of English speakers in other countries. Considering the motivational aspect of using web-based videos that was demonstrated in this thesis, it is hoped that students will find the activities interesting, relevant and up to date. Further, the gains students make while listening to recorded materials may lead them to enter into communication with native speakers more often, and with more confidence. For the teacher, the platform Moodle and the website YouTube are widely accessible and free of charge. Other Internet resources could easily replace those that were used in this project, although the advantage of YouTube is the facility in adding and removing captions. Of course, these Internet resources are available on a 24-hour basis. The Internet is waiting to be listened to.

As technology allows instructional designers to create a greater and greater variety of multimedia environments, students will have to become more attuned to their learning

needs and styles. Some of the participants in this project, and Xan in particular, demonstrated great maturity in their assessment of their learning styles. However, as discussed, viewing strategies varied greatly.

Viewing strategies related to using the translation dictionary are a case in point. Almost all participants used the dictionary at one point or another. Some participants used the dictionary very effectively, looking up individual words from the video only when needed. Other participants used less effective strategies: trying to obtain a translation of whole sentences¹⁸, or only looking up words from the question sheets, rather than from the videos. Still, the translation dictionary was used more than expected at the outset of the research, based on a previous pilot study by this author (Gibbs, 2006) and other research (Grgurovic & Hegelheimer, 2007). This widespread use of the dictionary may be explained by several factors. The fact that the participants were provided instruction on how to use the dictionary may have given participants confidence in using this tool. The fact that the dictionary was visible at all times at the bottom of the screen may have served to continually remind the participants of its presence. In Grgurovic and Hegelheimer's study, participants needed to click on an icon to access the dictionary. The website that was chosen for this research, the Google translator website, may have been a well known and trusted tool for the participants. Their familiarity with Google may have led them to use this resource more than one that was unknown. Finally, the participants'

¹⁸Google translator is more than a dictionary; it offers the possibility to translate complete sentences. Although interesting from a linguistic perspective, students need to be sensitized to the fact that these attempts to use technology for translation purposes may lead to many errors, and may not represent an effective learning strategy.

great willingness to complete the listening task and to provide correct answers may explain the widespread use of the dictionary.

To excel as language learners, students will have to test their present abilities, and seek help only when needed. According to Danan (2004), “learners often need to be trained to develop active viewing strategies for an efficient use of captioned and subtitled material. Multimedia can offer an even wider range of strategies to learners, who can control access to either captions or subtitles (Danan, 2004, p. 67).

There is also reason to believe that removing captions voluntarily may be something like eating vegetables: you know that it is good for you, but you need to be forced. The participants of this research project obeyed the instructions, but they probably did not appreciate the purpose of limiting their use of captions. Further research could explore how individual learners view their learning needs, and how they adopt strategies to meet them. Even if “learner-controlled captioning” were possible at the present time, it is not clear if learners would willingly remove captions. In the short run, teachers need to sensitize their students about the dangers of overusing captions, and to the importance of eating their vegetables.

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Appendix A Questionnaire

Merci de votre participation à ce projet de recherche.

Veillez compléter ce questionnaire avec des informations personnelles qui seront utilisées uniquement pour des raisons de statistiques. Les informations que vous fournissez demeureront confidentielles. De plus, les résultats de vos tests durant la recherche seront recueillis de manière anonyme.

1. Nom : _____ Prénom : _____

2. Âge : _____

3. Sexe : H / F

4. Classement en anglais (veuillez encercler): Secondaire IV Secondaire V

5. Langue maternelle : _____

6. Langue utilisée le plus souvent à la maison : _____

7. Comment avez-vous trouvé l'expérience d'écouter les vidéos sur Internet?

_____ J'ai beaucoup aimé _____ J'ai aimé un peu _____ Je n'ai pas aimé

8. Est-ce que selon vous, il s'agit d'une approche intéressante ou motivante pour apprendre l'anglais?

_____ Oui, beaucoup _____ Oui, un peu _____ Non, pas vraiment

9. Est-ce que vous écoutez la télévision, les films ou les vidéos en anglais? Veuillez mettre un X :

_____ Oui, souvent _____ Oui, mais c'est rare _____ Non

10. Lorsque vous écoutez la télévision, les films ou les vidéos en anglais, est-ce que vous utilisez des sous-titres pour mieux comprendre?

_____ Oui, souvent _____ Oui, mais c'est rare _____ Non

11. Si vous utilisez des sous-titres pour comprendre un film en anglais, est-ce que vous mettez les sous-titres en anglais ou en français?

_____ Anglais _____ Français _____ Ça dépend

Appendix B
Vocabulary Test

Correct answers appear in bold

1. warning
 - a. réchauffement
 - b. avertissement**
 - c. changement
 - d. preuve
 - e. je ne sais pas
2. to melt
 - a. disparaître
 - b. se disperser
 - c. fondre**
 - d. brûler
 - e. je ne sais pas
3. stink
 - a. couler
 - b. sauter
 - c. puer**
 - d. goûter
 - e. je ne sais pas
4. bottom line
 - a. le résultat**
 - b. un mensonge
 - c. une exagération
 - d. en-dessous de la pile
 - e. je ne sais pas
5. to hold back
 - a. tourner le dos
 - b. encourager
 - c. tenir pour acquis
 - d. hésiter**
 - e. je ne sais pas
6. doomed
 - a. épeuré
 - b. fous
 - c. évité
 - d. condamné**
 - e. je ne sais pas
7. hot springs
 - a. des ressorts
 - b. le printemps
 - c. un ruisseau
 - d. sources d'eau chaude**
 - e. je ne sais pas
8. cheap
 - a. peu cher**
 - b. très cher
 - c. peu intéressant
 - d. très intéressant
 - e. je ne sais pas
9. to commute
 - a. faire la navette**
 - b. faire un tour
 - c. raconter une histoire
 - d. se démarquer
 - e. je ne sais pas
10. deaf
 - a. aveugle
 - b. boiter
 - c. chauve
 - d. sourd**
 - e. je ne sais pas
11. old age
 - a. ancien
 - b. la vieillesse**
 - c. désuet
 - d. historique
 - e. je ne sais pas
12. vegetable
 - a. fruit
 - b. légume**
 - c. légumineux
 - d. céréale
 - e. je ne sais pas
13. rainbow

- a. une cravate
 - b. un parapluie
 - c. **un arc-en-ciel**
 - d. un papillon
 - e. je ne sais pas
14. habit
- a. **une habitude**
 - b. un habillement
 - c. un trait
 - d. la personnalité
 - e. je ne sais pas
15. amazing
- a. impossible
 - b. ennuyant
 - c. **étonnant**
 - d. intéressant
 - e. je ne sais pas
16. pepper
- a. un poire
 - b. un avocat
 - c. **un poivron**
 - d. un melon
 - e. je ne sais pas
17. to solve
- a. sauver
 - b. vendre
 - c. solidifier
 - d. **résoudre**
 - e. je ne sais pas
18. suddenly
- a. probablement
 - b. étonnement
 - c. **soudainement**
 - d. inévitablement
 - e. je ne sais pas
19. lifespan
- a. **durée de vie**
 - b. la vieillesse
 - c. la naissance
 - d. la fécondité
- e. je ne sais pas
20. blind
- a. désuet
 - b. chauve
 - c. **aveugle**
 - d. muet
 - e. je ne sais pas
21. disease
- a. être étourdi
 - b. **une maladie**
 - c. un décès
 - d. dormir
 - e. je ne sais pas
22. healthy
- a. **sain**
 - b. inquiet
 - c. heureux
 - d. distrait
 - e. je ne sais pas
23. hole
- a. un indice
 - b. vieux
 - c. **un trou**
 - d. un pole
 - e. je ne sais pas
24. map
- a. un balai
 - b. un tapis
 - c. **un plan**
 - d. un gant
 - e. je ne sais pas
25. shop
- a. **un magasin**
 - b. un voisin
 - c. un bâtiment
 - d. une affiche
 - e. je ne sais pas

Appendix C

Comprehension Questions

(*general* = general understanding question; *specific* = specific information question)

1. RetroBites: Leonard Cohen (practice video)

1. Did Leonard Cohen change his name? Yes No Not sure
2. What name did he want to use (first + last name)? _____
3. Why did Leonard Cohen want to change his name?
 - a. He didn't like his name
 - b. He felt new things were beginning for him
 - c. His name was too standard
 - d. His friends wanted him to do it
4. M. Cohen wanted to change his name and: _____

2. Sea Otters holding hands (first evaluation video)

1. Where do the sea otters live? (place + city) (*specific*)
2. Why are the sea otters famous? (*general*)
3. How many people have seen the video? (*specific*)
4. What do the sea otters eat? (*specific*)
5. Why are the otters holding hands? (*specific*)
6. When was the video filmed? (*specific*)
7. What happened to the sea otter Niac before arriving in this place? (*specific*)
8. What message does this news report want us to know? (*general*)

3. Space with Sam Neill

1. This video is about what situation? (*general*)
2. According to the video, what is the first sign of this situation?
 - a. comets hit the Earth
 - b. A cloud of comets surrounds the Earth
 - c. You can see it in the sky
 - d. You can see Jupiter
 - e. I don't know (*specific*)
3. Which is the first planet to be affected? (*specific*)
4. Is the black hole bigger or smaller than the Sun?
 - a. Bigger

- b. Smaller
 - c. it doesn't say
 - d. I don't know *(specific)*
5. What happens to the Earth during this time?
- a. It gets very windy
 - b. It moves away from the Sun
 - c. It gets closer to the Sun
 - d. Most life ceases to exist
 - e. I don't know *(specific)*

4. Can you see the love tonight?

- 1. Why does the big animal say "I'm sorry"? *(specific)*
- 2. What does the small animal think is happening? *(general)*
- 3. Why is the small animal upset? *(general)*
- 4. What is the male lion thinking?
 - a. She may not like him.
 - b. She won't accept him.
 - c. She is hiding something.
 - d. They are very different.
 - e. I don't know *(general)*
- 5. What is the female lion thinking?
 - a. He may not like her.
 - b. He won't accept her.
 - c. He is hiding something.
 - d. They are very different.
 - e. I don't know *(general)*
- 6. Why does the small animal say "our pal is doomed"? *(general)*

5. Yuda Station

- 1. Is Yuda Station a bus station, train station or a subway? *(specific)*
- 2. Yuda Station is in what country? *(specific)*
- 3. What are 5 things located near the station? *(general / 2)*
- 4. Are the taxi drivers busy?
 - a. Yes
 - b. No
 - c. Sometimes
 - d. I don't know *(specific)*
- 5. Why is it difficult to make your way around in this city? *(specific)*
- 6. How much does a Bridgetone cost? *(specific)*
- 7. Who uses the station? *(specific)*

6. BYU Gymnast

1. Where does Aimee live? *(specific)*
2. What is special about Aimee? *(general)*
3. When Aimee first asked to take gymnastics lessons, what happened?
 - a. Her mother refused.
 - b. The teacher refused.
 - c. Her cousin refused.
 - d. It was too difficult.
 - e. I don't know *(specific)*
4. What did her mother do differently the second time? *(specific)*
5. What did the second teacher say? *(specific)*
6. What happened to Aimee this season?
 - a. She had two knee operations
 - b. She got married
 - c. She met Derek Pond
 - d. She had a back injury
 - e. I don't know *(specific)*
7. What does Aimee want to show people? *(general)*

7. Historian Karen Wilson on Storytelling

1. How does Karen Wilson describe herself? *(specific)*
2. Ms. Wilson studies the storytelling of what groups of people? *(specific)*
3. Ms. Wilson's story, what is the problem? *(general)*
4. What does Ms. Wilson think about stories?
 - a. Stories are like relationships.
 - b. Stories can have many layers.
 - c. Stories can solve many problems.
 - d. All of the above
 - e. I don't know *(specific)*
5. Ms. Wilson thinks that songs can be compared to: _____
(specific)
6. In Ms. Wilson's story, how did Anasi go up to the Sky-God's kingdom?
 - a. He went up stairs.
 - b. He wove a ladder.
 - c. He climbed up a mountain
 - d. He flew with a bird
 - e. I don't know *(specific)*
7. In Ms. Wilson's story, what was the last thing Anasi offered the Sky-God?
(specific)
8. For Ms. Wilson, what are some good things about stories? *(general)*

8. On Living Longer

1. Who are the scientists studying?
 - a. People from China
 - b. People from Taiwan
 - c. People from Japan
 - d. People from Korea
 - e. I don't know *(specific)*
2. What is particular (different) about these people? *(general)*
3. These people have the lowest rates of _____ in the world.
(specific)
4. What is a secret about their diet? *(specific)*
5. What foods do they eat that have protein? *(specific)*
6. What is caloric restriction?
 - a. You only eat things with low calories.
 - b. You eat more than you need to.
 - c. You stop eating before you feel full.
 - d. You measure the calories in the food you eat.
 - e. I don't know *(general)*
7. What does caloric restriction signal to the body? *(specific)*
8. What is the problem with "all-you-can-eat" restaurants?
(general)

9. CBC News Report: Backpackers Inn (final evaluation video)

1. What is the complete name of the hostel?
2. How did the hostel get a good reputation?
3. The hostel is in what city?
4. What theme was used to decorate the hostel?
5. What is close to the hostel?
6. When did the hostel open for the first time?
7. How much does it cost to stay in the hostel?
8. What do the travelers like about the **city**?
9. What do the travelers like about the **hostel**?
10. What happened at the hostel that Chris Morgan is proud of?

Appendix D

Summary of the videos

The following is a summary of the videos used in the present research, in the order in which they were used.

Video Title	Type	Length (min:sec)
<i>Practice video :</i>		
1. "RetroBites: Leonard Cohen"	Interview	0:49
<i>Test of pre-experiment listening skills:</i>		
2. Otters holding hands	News report	2:18
<i>Treatment videos:</i>		
3. "Space with Same Neill – Effects of a black hole"	Science fiction	2:52
4. Can you see the love tonight?	Music video	3:04
5. "Yuda Hot Spring Station"	Documentary	6:08
6. BYU Gymnast competes while deaf and blind	News report	5:49
7. Historian Karen Wilson on Storytelling	Documentary	8:15
8. On Living Longer	Documentary	8:23
<i>Post-experiment evaluation video:</i>		
9. Canadiana Backpackers CBC News Report	News report	3:17

Appendix E

Transcriptions of video content

Each line of the transcript represents a separate caption on the video. It is easy to find these videos on YouTube by doing a search using the title from the site www.youtube.com.

1. RetroBites: Leonard Cohen (practice video)

Have you ever thought of changing your name?
Yeah, I was going to change my name to September.
I beg your pardon?
I was going to change my name to September
when I started writing songs and singing them.
Leonard September?
No, September Cohen.
But Cohen is such a standard name.
Anyway, well September's pretty standard too.
Not for a first name.
No, well I thought that...
I always had this feeling that new things were beginning.
And I thought that I would change my name and get a tattoo.
Where?
There's this place on St-Lawrence boulevard.

2. Sea Otters holding hands (1st evaluation video)

The Vancouver aquarium is using an Internet phenomena to get their message out.
The power of YouTube has made instant celebrities out of a pair of otters,
And as Alan Waterman explains,
The aquarium is using the attention to raise awareness.
They're cute...
They're holding hands....
Look at that....
Absolutely adorable.
It's the video that YouTubers can't get enough of.
In just two weeks, more than 1.5 million people have viewed the happy couple.
The Sea Otters from the Vancouver Aquarium are now YouTube's top-rated animal video
of all time.
And search the Web, and you'll find the otters have become a virus of sweetness. They
show up on a half a million other web pages.
At the Vancouver aquarium, the video stars, Niac and Milo,
Are more concerned about their squid snacks than their stardom.
But here too, the admiration is constant.
And around the otter pool, just one word keeps cropping up: cute.

I think they're really cute.
You know, just the way they swim and rub their faces and stuff.
I think they're like little swimming teddy bears.
But the so-called holding hands... is it love?
No, it's a survival instinct.
It protects each other from floating apart.
In the wild, if you're out in the open ocean, you've got some rough water
They could easier drift away from each other
And the social grouping for sea otters is very important.
The video was actually shot five years ago by a student at UBC.
She's now a professor in Florida and decided to post the pictures just two weeks ago.
It's just sort of an interesting phenomenon.
Everybody's linked to it and watches it
I don't think it's a particularly remarkable video, I think it's cute.
It's not the first time Niac has been featured on TV,
But then, she looked far from cute.
Niac was one of the few sea otters to survive the Exxon Valdez's oil spill in Alaska.
She was cleaned up and flown to Vancouver where she's thrived ever since.
The otters may not care about the publicity, but the aquarium does.
It hopes the Internet audience learns that these animals are endangered, as well as cute.

3. Space with Sam Neill – the Effects of a Black Hole

Suddenly, the idea that the Earth might one day fall victim of a black hole doesn't seem quite so unlikely.
If we are every unlikely enough to meet one, what would it be like?
It begins far out in space, beyond the furthest planets.
Unseen, a rouge black hole plows into the cloud of comets
that surrounds our solar system
and flings them towards Earth with incredible force.
These impacts are the first warning of our fate.
As the black hole comes closer, its next victim is Jupiter, the giant of our solar system.
Even from so far away, the black hole's (gravity) makes itself felt here on Earth.
Our world is being shaken apart.
But the black hole hasn't finished yet,
it's heading straight for the heart of the solar system, our Sun.
Though tiny in comparison, it tears the Sun apart.
Dragging the Sun with it, the black hole heads towards Earth.
The Earth is now unbearably close to the Sun.
All life has long since ceased to exist.
And our planet starts to melt.
Quietly, our battered world disintegrates, and is consumed.
And all that is left, is the black hole drifting through space.

4. Can you feel the love tonight

I've really missed you.
I've missed you, too.
I tell you , Pumbaa. This stinks.
Oh, sorry.
Not you! Them!
Him, her, alone.
What's wrong with that?
I can see what's happening.
What?
And they don't have a clue.
Who?
They'll fall in love and here's the bottom line:
Our trio's down to two.
Oh.
The sweet caress of twilight.
There's magic everywhere.
And with all this romantic atmosphere
disaster's in the air.
Can you feel the love tonight?
The peace the evening brings.
The world, for once
in perfect harmony
with all its living things.
So many things to tell her,
but how to make her see
the truth about my past.
Impossible.
She'd turn away from me.
He's holding back, he's hiding
but what, I can't decide.
Why won't he be the king I know he is,
the king I see inside?
Can you feel the love tonight?
The peace the evening brings.
The world, for once
in perfect harmony
with all its living things.
Can you feel the love tonight?
You needn't look too far.
Stealing through
the night's uncertainties.
Love is where they are.
And if he falls in love tonight,
it can be assumed

his carefree days
with us are history.
In short, our pal
is doomed.

5. Yuda Hotspring Station

The building behind me to my right
is Yuda Station
a very typical branch line station in a small town in Japan.
This one is for the local hot spring
in other words, we have hot water
pumped up out of the ground
into which people have baths.
It's a spa.
It's also the place from which
local high school students commute to school.
And so what makes it typical?
I'll go through some of the things.
There's a taxi rank.
In these times of depression
Japan's been in a long economic depression really
for the part 20 years about.
Since I came.
There's a row of taxis outside the station
but not many people are hiring them.
The cars are a little different.
In America, you'll find that most
taxi drivers are of a different ethnicity
to their customers.
But in Japan,
since there are few ethnic minorities
all the Japanese taxi drivers
are Japanese.
Maybe you can see some standing there.
It's kind of bright
so I can't see too well.
All the cars are made by Toyoto
and generally they're
the Crown make of car
which is quite a luxury car in some ways.
And they have mirrors
attached to the front wing as opposed to the door.
There's a map
next to the train station.

The reason why there's a map
is because since
Japanese roads lack street names.
If there wasn't a map
it's be very very difficult
to find out where you want to go.
One of the things that makes Yuda Onsen Station
a little different
is the existence of the large
statue, which statue of a fox.
Of the white fox.
No, there are no white foxes in Japan,
as far as I am aware.
It's a legendary fox
which is said to have found
the source of the hot spring.
And it's a very common legend
throughout Japan
that animals find hot springs.
I think the idea is that
hot springs are
considered to be very natural.
So if they were found by humans,
digging in the ground,
that would reduce their sense of naturalness.
So, there are many legends
generally of one type of animal or another
finding the hot spring
before humans.
And humans observing
animals having a good time in the hot water
which flows naturally out of the ground
before realizing that
we humans too will enjoy it.
So as according to the legend,
that one day a monk
or, an otherwise auspicious person
saw a white fox
bathing in a pool of water
and he tried it,
and he enjoyed it.
There's not a lot in front of the station.
There's a
a squewer barbeque shop
a "kushiyaki shop"
which is behind me to my left

which sells
a variety of
meats and vegetables
squewered and then grilled
on a sort of indoor barbeque.
It's very tasty actually.
It doesn't look like much from the outside but
Kushizou, that's the name of the restaurant
is well recommended
in front of Yuda Spa station
Yuda Onsen Station.
And there is the ubiquitous
bicycle car park.
The Japanese aren't into
bicycles nearly as much as
Chinese people are.
But there are always a lot of bicycles
outside Japanese stations.
Less because of the popularity
of this mode of transport
but more because
the Japanese have a tendency
to dump their bicycles.
There are an awful lot of bicycles in the bicycle park
considering the size of the station.
And what's special about them is
that almost all of them are "shoppers"
with low crossbars
to facilitate easy
getting on and getting off.
A popular Japanese make is
Bridgestone.
And they're very cheap
they're about well,
well, Bridgeston are not so cheap
but you can get a bicycle like this
new for less than 200 dollars.
And I don't think
that people feel so identified
with their bicycle.
A bicycle is a bicycle is a bicycle
rather than being "my bicycle".
Perhaps that's one of the reasons
why they have a tendency to throw them away.
And I think that
I just was talking to guy who

runs the bicycle carpark
who you can see over there in the yellow hat
and he recons
that a considerable proportion
of them are already abandoned.
And you can see some of them have very rusty chains
like this one here.
Every now and again, every few months
they'll get rid of all the bicycles
that no one is coming to ride.
Which will mean that
a considerable portion of them will be thrown away
because bicycles are cheap
because people move
they graduate from university.
The bicycles get left behind
and the only fast bike
in the bicycle park is mine.
And here's a train
full of people arriving at
Yuda Onsen station.
The majority seem to be
school children and university students
or people coming to work in the city.
Many of them will have left their bicycle here
overnight, since they are commuters.

6. BYU Gymnast competes while deaf and blind in one eye

When BYU gymnastic coach Brad Cottermole met
incoming gymnast Aime Walker Pond he had a feeling
his squad was about to experience something remarkable.
Aimee was one of the top college recruits out of California.
She's also deaf, and blind in one eye.
But if you think that holds her back even a little bit, think again.
Sammy Linebaugh has the story from Provo.
In a world of perfection,
precise movements and costly mistakes,
Aimee Walker Pond finds freedom.
Gymnastics gives me a lot of freedom. I feel like I can fly.
Legally blind in her right eye and deaf since birth,
Aimee relies on touch to master complicated routines.
Sometimes it's a little scary because when I do a
twisting move or whatever, because I'm blind in one eye,

I have to look and it depends a lot on my left eye, and I can't see so sometimes it's a little nerve-racking.
Being blind in one eye totally messes with your depth perception.
So for her gymnastics I think it's all about feeling.
She's an exceptional athlete in terms of being able to feel what her body's doing.
It's a little bit quick. OK? Slow down. Take your time... on this part.
Head coach Brad Cattermole not only has learned his own style of sign language, he's seen the team dynamics transformed by a single athlete who once upon a time was told she couldn't do gymnastics at all.
Aimee was seven years old when she first watched her cousins taking gymnastics and asked her mom if she could take lessons too.
But when her mom approached the teacher, the teacher turned her down, saying she didn't know how to coach a child who couldn't hear.
My heart was broken and I started to cry, and I thought, that's not fair.
I'm the same as everyone else, I'm normal. I'm not different.
There's just a small difference but I can still communicate fine.
A second chance soon came along and this time Aimee's mom decided not to tell the teacher her daughter was different at all.
Instead, she told Aimee simply follow the other kids in class.
My mom said "Now, don't sign, remember?" That was hard because that was my language. And that's how I communicated.
A brave seven-year-old Aimee practised her cartwheels and quickly excelled.
Until one day the teacher asked her a question.
And I was like, um, I started shaking, I didn't know what to do.
So I looked at my mom, and I started to sign, "What is she saying?"
And then my mom said, "Oh, no". I was very nervous.
And I just knew I'd lost my second chance.
But what happened next would surprise everybody.
She walked over to my mom and said, "Your daughter is really talented. She's very good at gymnastics, very talented. I want to teach her."
And I was like "I'm on the team! I'm so excited."
And so I started jumping up and down.
One person who could have said no, said yes.
And there, Aimee Walker was on her way to becoming one of the best junior Olympic gymnasts in the country.
And one of the top college recruits out of California.
She's a fighter, but she's still the sweetest thing in the world.
Derek Pond first met Aimee while serving a two-year sign-language mission for the LDS Church in Aimee's home town.
After his mission, the two went on their first date.
That date was just, I don't know, a blast.
They were married three years later and now he is perhaps her biggest fan.
There's a lot of things that aren't easy for her.
But there is a lot of things that, uh, you kind of think would work against her, but she makes it all work for her.

Aimee was worked especially hard this season,
coming back from two knee surgeries and an ankle injury
to represent her team on the uneven bars.
They always, in competition,
the whole team shake their hands, which is how you cheer in sign,
and they stand around the mat,
and I love it because it helps me feel like I know what they're saying.
I know that I can do it.
Every time she does something well, if she sticks a landing, or
does something awesome on the bars, it's just exhilaration.
It's gotten fun, kind of, at meets because when it's really loud and real noisy
and you can't hear, and everybody just kind of breaks into sign.
The fact they can all sign is nice, I mean that's cute,
but the cool thing about it is nobody sees anything weird about it.
Where she's made a difference is the whole package, not just the gymnastics.
I mean the gymnastics is kind of a small end of it.
What she does in school and what she does for everybody else is the big deal.
I want deaf children to know that they can do anything.
They're the same as hearing people.
And it doesn't matter; they can get up to the same level
or even raise the bar, like a little girl from California.
Who believed in a dream, and is showing how different the world can be.
In Provo, Sammy Linebaugh for The Mountain.
What an amazing story. What a great....
I mean – to be deaf in one...
Or blind in one eye and deaf
That's just amazing.
And how the team has adapted to her is great as well.

7. Historian Karen Wilson on Storytelling

Karen Wilson led a very full life before she came to Riverside as a graduate student in the history department.
She describes herself as a teacher-artist, using her skills as a vocalist, educator and consultant
to develop new curriculum in public schools.
But she finally took time out to do something her busy career had so far prevented her from doing:
Research and study in-depth the nature and role of story telling in both African cultures and among American slaves.
I spent some time talking with and shadowing Karen recently, and discovered through her performances on campus and in the community
How stories from diverse cultures can bring very diverse groups of people together.
Recall today's, thing, is "Songs and Stories from Anasi's Basket: How Do We Think About Peace?"

Once, there was a time, you know, when there were no stories. There were no stories. Not only were there no people walking around telling stories, there was no time after dinner to sit around and talk about your day. There was nothing to say when you walked down the road, because at this time people had no cars, so there was a lot of walking down a lot of roads, and there were no stories.

A story is a unique set of relationships and within those relationships people find themselves.

There are many ways to set that up, and a narrative often takes us often through a process of problem-solving,

And when we move through this process, we move on many layers.

When someone finds themselves in a story, the layer that they find themselves on might help them understand something they don't understand, help them take them through a problem-solving process.

We manage that in many different ways, we use lots of different tools to have that happen.

One of the tools is song. Because a story is multi-layered, song is even more multi-layered.

It's like those Greek pastries, that have these delicate layers, sometimes they touch and sometimes they open, there's air inside, they're crisp and give you things you didn't have before, they're fun. Song and story together are incredibly powerful.

To have people connect with their own problem-solving on lots of layers at once.

"Kweku Anansi, Father Anansi. Where are the stories?"

He said "ohh" (he always talks a little funny)

"ohh, they must be with Nyame the Sky-God, he has them all".

And he says, "Why don't you ask Nyame?" And they said, "Oh, alright".

So they got up, and they did, for real. "Nyame, great Nyame, please give us stories!"

Nothing. So they said "he's not saying anything. What are we supposed to do?"

And so, Anasi says, "Don't worry, I'll get you stories!"

Have you ever had one of those moments, like "Oh yes, I'll do it!" Uh huh. "I'll get you stories!"

So he went over, and he wove a magic ladder, up to the Sky-God's kingdom.

He went up to the Sky-God, and he said: "Great Nyame, please, give me stories for the people of this small village".

And Nyame said "No."

"No? Why no?"

"Great towns and cities have asked me for stories and I haven't given them. Why should I have the people of this insignificant village?"

"Oh, well, I tell you what. I will give you anything you ask if you will give me stories for these people."

"Anything?" "Anything!"

Here's a little spider talking to a great big god.

"Alright, I want Onini the Python, Osebo the Leopard, Mmoatia the Fairy."

Anansi says "Not only will I bring you Onini the Python, Mmoatia, and Osebo the Leopard,
I'll throw in my grandmother too!
I understand story to connect in many ways for enslaved people, like universes of experience.
Story can connect you to your ancestors. Story can take you over the water.
Story can explain what resistance is, and story can you give you lots of ways to resist.
You can not work. You can rise up and beat the person down who is beating you.
You can learn how to keep community even when you're so far away. Story empowers us.
It's a story you know.
I want to provide a multi-layered experience so that everyone in the room can come away
Ideally with something useful, with something good,
Something they can think about that they perhaps were not thinking about before.
Or, validation for a thought that they had that they thought no one was paying attention to.
Story's powerful that way.
I'm gonna sing when the spirit says sing. I'm gonna sing when the spirit says sing.
When the spirit says sing I'm gonna sing right along. I'm gonna sing when the spirit says sing (Come on now).
I'm gonna dance when the spirit says dance (oh I'm sorry). I'm gonna dance when the spirit says dance (sometimes it happens).
When the spirit says dance I'm gonna dance right along. I'm gonna dance when the spirit says dance.
I'm gonna speak when the spirit says speak. I'm gonna speak when the spirit says speak.
When the spirit says speak....
For Karen Wilson, the past continually renews the future for individuals and for cultures through storytelling.
Renewed herself by studying how stories moved and evolved from Africa to new world, and how they helped African Americans maintain their identities through adversity, she now brings that sense of renewal to groups through Southern California, bringing people together, with laughter, with song, but most of all with stories.
This is Jim Brown, reporting from UC Riverside.
I'm gonna sing when the spirit says sing.

8. On Living Longer

Since the 1970's, scientists like Bradley and Craig Willcox have been trying to understand what is enabling Okinawans to combat old age so successfully. For the past 30 years, we've focused on a lot of different things. We look and see if there's a family history of longevity, past medical history of all of the people in their network, their parents, their... their brothers and sisters, their children.

Year after year, this research has revealed a remarkable fact –
the Okinawans actually age more slowly
than almost anyone else on earth.
The calendar may say they're 75 or 80,
but their body says they're 50,
and the most impressive part of it
is that a good lot of them are healthy until the very end.
Over 70% of Okinawans centenarians are still functioning independently
at age 97
That's 97% of their life has been healthy.
But finding the cause of their exceptional longevity
has not been simple.
Thousands of tests have been run
in an attempt to unlock the Okinawan secret.
In the last few years, the first answers have begun to emerge.
The spotlight has fallen on one particular hormone, known as DHEA.
DHEA, it's a precursor of both oestrogen and testosterone.
It's produced in the adrenal glands.
We don't know exactly what it does –
nobody knows exactly what it does –
but we do know that DHEA as a hormone drops with age.
But as Okinawans grow older,
their levels of DHEA appear to decline at a much slower rate.
You might think of DHEA as the marker on the clock.
Maybe think of it as backward, the clock's gone backward, right?
You're at 12, it goes to 11, 10, 9, 8, ... 1.
When it hits 12 again, life's over, OK?
So Okinawans, their clock runs more slowly.
Something about the Okinawan lifestyle
is slowing down their ageing clock,
keeping their levels of crucial hormones higher
and their bodies fitter and healthier for longer.
Here we have a society that has... the lowest, it seems, of everything...
The longest lifespan, the lowest breast cancer,
the lowest prostate cancer, the lowest colon cancer,
the lowest coronary heart disease,
so those kinds of things fascinate me.
How could it be low in almost every disease and have this incredibly long lifespan?
The explanation for this extraordinary phenomenon begins
in the most ordinary of places.
Like every town in Okinawa,
the fruit and vegetable shop in Ogimi
lies at the heart of village life.
It's here that Bradley and Craig
believe the source of the Okinawan miracle can be traced.
These veggies are a type of sweet potato.

It's called, in the local dialect it's called beni-imo
and beni-imo, it's a purple sweet potato and that...
oh, look at that purple colour.
The purple really comes out more when you cook it.
The key is to get a lot of vegetables that are very colourful
oranges like these carrots here, dark greens and yellow vegetables.
You might think of it as a rainbow diet.
For the past 20 years, Bradley and Craig
have been analysing the life-enhancing Okinawan ingredients.
Got reds here in the tomatoes, the peppers,
you've got green peppers here.
They've identified a number of crucial properties
that guard the Okinawans from disease,
from the anti-oxidant rich vegetables
that protect against cell damage
to the high quantities of soya protein.
The Okinawans probably consume more tofu than more soy products
than any other population in the world.
We believe that this is playing a part in their low rates
of hormone-dependent cancers.
Okinawans have among the lowest rates of breast and prostate cancer in the world.
Studies suggest that this could be to do with the levels of soya
they consume across their lifetime.
I am amazed by those statistics because if we lived in the west
more like the Okinawans,
you could probably close down 80% of the coronary care units,
one third of the cancer wards
and a lot of nursing homes would be out of business,
simply because these people are so healthy.
He passes the test, this is really good. Go ahead, sample.
Thank you!
But it's what the Okinawans don't eat
that may be at the heart of their exceptionally long lives.
In Ogimi, 100-year-old Matsu is preparing
a traditional Okinawan dish using all the vital ingredients.
It's only after the food is served
that the most significant Okinawan tradition can be observed.
The Okinawans developed, also, cultural habits over the years
that appear to have health-protective properties.
They have a saying called – eat until you're only 80% full,
and that's something you hear in the rest of Japan as well,
but it was particularly common to hear that in Okinawa
where people tended to push away from the table
when they were only 80% full.
In a typical day, Matsu only consumes around 1,200 calories,
about 20% less than most people in Britain and America.

It's a phenomenon scientists call caloric restriction.
Nobody understands entirely in science
why caloric restriction works, but what we do know
is that caloric restriction seems to signal to the body
that there is going to be an impending famine.
What do you do when there's a famine about or some type of crisis?
Well, the body goes into this self-preservation mode
for a future when food becomes more plentiful.
It's this ability to trick their bodies into starvation
that may be keeping Okinawans physiologically so young.
It's a stark contrast with the cultural habits
that drive food consumption in other parts of the world.
In the west, we're very much focused on getting more for our money.
I mean, one of the most popular things is these "all you can eat" restaurants.
You go, and you load up at the all you can eat restaurant
and you walk away with the bloated feeling
and you may have got your money's worth,
but you probably didn't get your health's worth.
Because what you doing is just digging yourself into an early grave.

9. Canadiana Backpackers CBC News Report (2nd evaluation video)

It's a small refuge on a small sidestreet,
But a youth hostel downtown has suddenly gained a big reputation.
Called the Canadiana, it was voted top hostel in North America by a prestigious website
devoted to backpackers. So we sent out Jim Lagaganis to find out why it's ranked so high.
Pancakes and maple syrup : a taste of Canada, courtesy of Canadiana Backpackers Inn,
voted the top hostel in North America by an Internet survey of International travelers.
We don't have pancakes in Brazil. So what do you think?
They're good! But I try not eat them because they make me fat.
Cynthia Santos is from Rio de Janeiro.
She's in Toronto to study English.
That was the one that I liked the most.
When I came here, I realized that was the best one. You know, and everyone says that.
Everyone that has been to some other ones, they say that's the best one. It is.
And what's the key to making a good pancake?
Well I... I just mix water.
From Sir John A. Macdonald at the front door to a lake trout at the reception desk,
The Canadiana is everything Canuck.
Most of these people are coming to see Canada, so we've themed it in a Canadian way.
In has... And also, like 1880 Canada. So we've got Queen Victoria up, we've got an
Indian just here, a deer.
Chris Morgan set up the hostel five years ago with the help of his father, John Morgan,
one of the original Air Farce stars who recently passed away.

Located in the middle of the city's bar district, it has 165 beds. A dorm bed goes for 25\$ a night. A private room costs 65\$. It's early January, and the hostel is almost full. We don't have seasons, so there's all the time 15o, all the time, and it's nice for me the winter, you know, minus whatever. It's really... I don't know.. amazing. It's not just the weather attracting travelers to Toronto. I've done quite a bit of traveling before, quite a bit of hosteling, And I decided that Toronto probably is a big city, a good place for going out... go down to the lake, if I want to see something nice... ...go to the bars on Queen Street. And I think I came for that reason specifically. But also to go to the hostels, because you can meet people. Travelers are encouraged to mingle. In fact, there've been a few love connections. We've created an atmosphere where people get to meet one another. In the 5 years that we've been open, we've had two marriages. Two couples of have met here and ended up getting married. I don't know what it is here. Maybe it's the pancakes. I'm shaking already. Speaking of pancakes, it turns out this Brazilian isn't as big on Toronto's weather as the other travelers. I know I'm not going to be here forever. So it's ok. I'm going to be back to the beaches soon. Sure, but I bet pancakes and maple syrop on the Copacapana don't compare to the Canadiana experience. Jim Lagaganis, CBC News, Toronto.

Appendix F

Interview Questions

Groupe : Subt. ____
 Control ____

Nom du participant: _____

Merci beaucoup d'avoir participé à ce projet de recherche et d'avoir accepté de faire une entrevue. J'espère que vous avez aimé l'expérience. Maintenant, j'aimerais connaître votre opinion sur le projet. D'abord, je vous demande de répondre aux questions suivantes en précisant, sur une échelle de 1 à 5, le degré auquel vous êtes en accord ou en désaccord avec chacune des énonciations.

(1 = complètement d'accord, 5 = pas du tout d'accord). Soyez à l'aise d'ajouter des commentaires, s'il y a lieu.

1. J'écoute les films ou la télévision en anglais souvent.

1	2	3	4	5
souvent				jamais

Pourquoi? Pourquoi pas? Si oui, comment ça vous aide?

2. J'ai de la facilité à comprendre les films ou la télévision en anglais.

1	2	3	4	5
beaucoup				très peu

3. J'utilise des sous-titres pour mieux comprendre les films en anglais.

1	2	3	4	5
souvent				jamais

Utilisez-vous les sous-titres en anglais, français ou une autre langue?

4. J'ai aimé l'expérience de l'écoute des vidéos.

Âge : _____

Langue maternelle : _____

Classement en anglais : _____

Avez-vous des amis ou des membres de la famille avec qui vous parlez en anglais?

Pouvez-vous me dire des choses qui vous aident à apprendre l'anglais? _____

Appendix G

Consent Forms

FORMULAIRE DE CONSENTEMENT POUR PARTICIPATION À UN PROJET DE RECHERCHE

La présente est pour attester que je suis d'accord pour participer sur une base volontaire au projet de recherche de Mr. Charles Gibbs du département d'Éducation de l'Université Concordia.

Vous pouvez rejoindre M. Gibbs par courriel à l'adresse gibbsc@csdm.qc.ca, ou bien par téléphone au (514) 596-4381 poste 4511.

BUT

Je comprends que la recherche porte sur l'apprentissage de l'anglais langue seconde par le biais de vidéos éducatifs sur Internet.

PROCÉDURES

Je comprends que la recherche durera pendant huit (8) séances d'une période d'une heure, échelonnée sur deux semaines.

La recherche aura lieu au Centre Ste-Croix durant les heures de cours. Lors de chaque séance, il y a aura un test de vocabulaire à compléter, à l'ordinateur, avant et après l'écoute d'un vidéo en anglais sur le site Internet YouTube. Les vidéos dureront de 3 à 8 minutes. Il y a aura aussi un test de compréhension générale à compléter.

Il est possible que je sois invité(e) à faire une entrevue après le projet de recherche, mais ma participation est toujours facultative.

RISQUES ET BÉNÉFICES

Ce projet ne comporte pas de risques, à par le temps passé lors des séances. Par contre, le projet de recherche pourrait être amusant à faire et pourrait amener à des apprentissages en anglais.

CONDITIONS DE PARTICIPATION

Je comprends que je peux cesser de participer au projet de recherche en cours de route si je le désire, sans conséquences.

Je comprends que ma participation dans cette recherche est **confidentielle**. Les résultats des tests seront analysés à partir d'un code, et non à partir du nom d'une personne.

Aucun résultat des tests de vocabulaire ou des tests de compréhension générale ne sera divulgué à aucun des professeurs au centre Ste-Croix.

Je comprends que les données provenant de ce projet de recherche pourraient être publiées.

J'AI LU CE QUI PRÉCÈDE ET JE COMPRENDS CETTE ENTENTE. JE SUIS D'ACCORD POUR PARTICIPER AU PROJET DE RECHERCHE.

Nom (lettres détachées) : _____

Signature : _____

Si vous avez des questions au regard de vos droits en tant que participant(e) à cette recherche, veuillez contacter Mme Adela Reid, agent d'éthique à la recherche, Université Concordia, (514) 848-2424 x 7481, ou par courriel à areid@alcor.concordia.ca.

Consent to Participation in a Research Project on Language Learning

This is to state that I agree to participate in a program of research being conducted by Charles Gibbs of the Education Department of Concordia University.

Charles Gibbs can be contacted at the email address gibbsc@csdm.qc.ca, or by phone at 514-596-4381 extension 4511.

A. Purpose

I have been informed that the purpose of the research is to study how YouTube videos can be used for learning English as a second language.

B. Procedures

I understand that the research will take place over eight (8) one-hour sessions over a course of two weeks.

The research will take place at the Centre Ste-Croix during class hours. During each session, there will be a computer-based vocabulary test to be completed before and after watching a YouTube video. The videos will last from 3 to 8 minutes. There will also be a general comprehension test based on the video.

It is possible that I will be invited to take part in an interview after the research project, but this will be optional.

C. Risks and Benefits

This project has no inherent risks. The research project may be amusing to complete and may lead to learning English.

D. Conditions of Participation

- I understand that I am free to withdraw my consent and discontinue my participation at anytime without negative consequences.
- I understand that my participation in this study is **confidential**. That is, the research will know my test scores, but will not disclose my identity.
- None of my test results will be released to the teachers of Centre Ste-Croix.
- I understand that the data from this study may be published, but my name will not be.

I HAVE CAREFULLY STUDIED THE ABOVE AND UNDERSTOOD THIS AGREEMENT. I FREELY CONSENT AND VOLUNTARILY AGREE TO PARTICIPATE IN THIS STUDY.

NAME (please print): _____

SIGNATURE _____

If at any time you have questions about your rights as a research participant, please contact Adela Reid, Research Ethics and Compliance Officer, Concordia University, at (514) 848-2424 x7481 or by email at areid@alcor.concordia.ca.