

CHAPTER 1

INTRODUCTION

Few of us know what event took place in Paris in December 1895. Some of those present at the time sensed the potential of the new medium, but few realized just how much the moving picture would irreversibly influence and change our lifestyles. Since then, there have been many important milestones, most of which we now give little thought to. The first true international star known in every country was Charlie Chaplin. In 1927, *The Jazz Singer* provided synchronization of moving picture and sound. After the Second World War, Hollywood led the way with color feature films and the great epics. In the 50's and 60's, the broadcasting of the television signal brought the same medium into our homes and challenged the, until then, unrivaled position of the cinema. For the older generation, "Where were you when President Kennedy was assassinated?" has an additional significance for Japanese: those scenes were the first live broadcast to Japan. In 1969, we saw a live broadcast of man's first steps on the moon. The 1980's brought the spread of the videocassette recorder and video camera. As we enter the twenty-first century, fiber optics and digital satellite offer hundreds of channels. Satellite conferencing, on-line internet viewing, pay per view broadcasts, and the downloading, or viewing, of films by cable or the Internet will soon be widespread.

In this process of change, there is something else that most people have given little thought to: those who have not been able to fully enjoy the moving picture because

they are deaf or hard-of-hearing viewers. Prior to the talking movie, the lack of sound meant that being a deaf or a hard-of-hearing viewer was a disadvantage only where a commentator explained the scenes, usually news, or where a pianist provided a mood element to the already visually contextualized narrative. What is also forgotten about the early days of cinema is that as there was no sound, the script below had to be read. Whether they were slapstick comedies, such as those of Chaplin, or love stories, the captions became an incentive to read. *The History of Cinema*, in the BBC documentary series, *The Twentieth Century*, reports of the pressure from children, sometimes intense, upon projector operators, to slow down the projection so that they could read the script. Therefore, it is reasonable to presume that the cinema did not detract from literacy, but actually raised literacy levels; in some cases children went from being functionally illiterate to achieving some degree of literacy. There was an enjoyable, motivating, and highly contextualized environment: something which certain elitists and educators seem to choose to overlook, have conveniently forgotten, or have never considered.

For deaf and hard-of-hearing viewers, however, it was only in 1980 that, “after seven years of research and development, a technology became available which offered a bridge between isolation and the mainstream of American life for hundreds of thousands of hearing-impaired people in the United States” (Neuman, 1990, p. vi). For the first time, in March 1980, closed-captioning technology allowed viewers the option of reading the text of the spoken dialogue commentary superimposed over the bottom of the screen. It is the role of captioning as part of multimedia systems that this dissertation wishes to address. As stated, captioning was originally designed to help first language (L1) deaf

native speakers (NS) view television. However, its use has also become widespread amongst non-native speakers (NNS) who desire to improve their English proficiency.

Usually the captioning parallels the dialogue commentary exactly. However, where the rate of speech exceeds one hundred and twenty words per minute, there is some modification. The word *closed* is used because with the *closed-captioning* technology *the viewer can turn off the captioning decoder* and view without any text on the screen. Some broadcasts or videos superimpose the captioning as text at the time of production. This is usually called *open-captioning: the viewer cannot prevent the text from being on the screen*. The vast majority of broadcasts and available software are encoded with closed-captioning. Throughout this dissertation, the term *captioning* will refer only to closed captioning.

Introduction Outline

The introduction has five sections. The first section contains a list of definitions as used in this dissertation. The second section provides the background to the study and has two parts: my initial encounters with captioning and earlier educational experiences as a student and teacher, both in the UK and in Japan. The third section briefly outlines differing perspectives on technology, particularly emphasizing the need for a balanced approach and warning of the dangers of synchronic analysis. The fourth section briefly outlines captioning research and areas where more is needed. It then states the research questions and briefly outlines the nature of the three studies conducted for this

dissertation. The fifth and final section contains more detailed information concerning the historical development and technical aspects of the captioning system.

Definitions

For clarification, the following is a list of definitions used in the dissertation.

Video: Any electronic input, which has a visual element, usually in the form of moving pictures. This input may be combinations of real, virtual, animated, or iconic data. Such *video* could be from the Internet, TV and satellite broadcasts, movies, laser discs, digital-video-discs (DVD), CD-ROMs, or video clips downloaded into or created on computers.

Captions: Text that is superimposed on or has proximity to some visual element. Therefore, this definition includes text connected with pictures in advertisements, newspapers, and magazines as well as TV, video, and computers, but excludes headlines or titles.

Captioning: The placing on video, as defined above, of a modified or exact written text version of the spoken language. There are two main types of captioning: open and closed.

Closed Captioning (CC): Closed-captioning is when the text is encoded in the broadcast signal or on the video, laser disc, DVD, or CD-ROM. The written text version of the spoken language can only be accessed if the viewer has a decoding machine, or a decoding chip built into the TV, video player, AV projector, etc. The viewers have control over whether they wish to have the captioning present on the screen or not. With some decoding machines, the viewer can also change the position, color, or size of the captioning.

Open Captioning: The written text version of the spoken language is placed on the video at the production stage. Thus, it is always present and the viewer does not need any additional decoding equipment. However, the viewer obviously cannot remove the captioning.

Written text: A printed or handwritten character format. To some, this may appear a narrow definition, but it seeks to distinguish written text from multimedia text. (Graddol & Boyd-Barrett, 1993; Kress & Van Leeuwen, 1996)

Multimedia Text: A compilation of language, image, music and sound effects.

Text: Language, either written or spoken.

Genre: In this dissertation, genre is defined as types of video, particularly film, that are perceived as being different by the viewer. This is a wider definition than the standard definitions found in either linguistics (Hoey, 1991; Swales, 1990) or film theory (Nichols, 1976).

Image: Any visual element that cannot be interpreted as language. While semioticians will argue that written text is a visual code, the written text is different from other codes, icons, etc., in that the spoken language can usually replace the written language without recourse to additional explanation.

Subtitling: Where the captioning and the spoken language are in different languages. Traditionally, subtitling is the term used where written text is provided to assist the viewer. However, there are many possible combinations of first and second language (L1 and L2) input in spoken and captioning mode. One of the earliest papers in this field addressed nine input conditions of various combinations. For the second language learner the captioning being considered in this dissertation was called Bi-Modal Input-L2 (Lambert, Boehler, & Sidoti, 1981).

Subtitling vs. Captioning: In this dissertation, the term *captioning* will be used for the following reasons. First, the term *subtitling* is usually used when the written words or text of the broadcast or video are in a language different from that of the spoken text. Second, in North America, and increasingly in the UK, closed-captioning is the term found on most software for rental or purchase, denoted somewhere on the front, back, or side of the material by the small symbol CC or by a small black TV screen box symbol. Furthermore, in Asia, hardware decoding machines, broadcasting systems, and software also use the term captioning, so it may be reasonable to assume that for the Bi-Modal Input-L2 condition captioning will become the accepted terminology.

Background to the Study

First Encounters

Authentic vs. Non-Authentic Materials

I first encountered the captioning technology in the spring of 1989. The possibility of being able to present on screen a text of the spoken dialogue, in the same language as the spoken dialogue, had immediate appeal. Intuitively, I realized that the opportunity to use authentic teaching materials such as movies, documentaries, children's educational program had become a reality. Until this time, the use of such materials was difficult to justify on both ethical and professional grounds. In Japan and many other English as a Foreign Language (EFL) contexts, the listening proficiency level of learners means it is very difficult for them to catch enough of the dialogue of authentic materials to make them the most beneficial way to spend valuable class time. Without captioning technology, the placing of authentic materials in multimedia or self-access centers similarly had little value, because they were too difficult for students to understand. The alternatives were not very attractive. Some enlightened educators produced support materials for short video clips. Others made use of non-authentic materials. Unfortunately, for a combination of reasons such materials were, and still are, not well produced and not very interesting. The actors and actresses are often amateur. The producers lack experience. Furthermore, the likely sales of such videos are one per academic institution. Publishers came to realize that the only profit is in the quality of the support materials which, if good, will be used as course books and be purchased by students. I had used some videotexts such as *Your Life in Your Hands* (1985), *Weekend*

Away (1986), and *At Home in Britain* (1983). The high standard of production of these materials was unusual. Generally, however good the support materials were, the quality of the video production failed to achieve a bearable standard. This led me to experiment with films. In Japan, the introduction of bilingual broadcasting, Japanese and English, and also of playback systems, made some films suitable material. Certain films, such as *The Day of the Jackal*, have one difficult scene: in this case, the meeting in the hotel in Austria, where the contract and operational details for the plan to assassinate President de Gaulle are finalized. Once learners understand this, they have contextual background to enjoy the remainder of the film, either by themselves, or as serialized with support activities. The arrival of captioning technology presented an opportunity to combine listening and reading through authentic materials such as movies. This led me to experiment with the captioning technology.

First Usage

In 1989, there was only one small store in the whole of Tokyo where one could purchase videos without Japanese subtitling, and none had encoded closed captioning. Therefore, when visiting California in the summer of 1989, I purchased several captioned movies. At the same time, I persuaded the academic institution where I was working to purchase a decoding machine. Results were mixed, because sometimes the captioning would appear on the screen as hieroglyphics, or would sometimes, as in the case of one film I used, disappear completely. Such varying quality was frustrating. One captioning decoder machine also allowed the captioning to be downloaded into a computer.

Wishing to produce support materials, the opportunity to have the dialogue printed out for me was attractive. Results of attempts to download the captioning into the computer were poor. The computer program was unfriendly and poorly written. Any mistake meant going back to the beginning and starting the set-up from step one.

A more detailed explanation of the nature of and historical development of captioning is contained at the end of this chapter. Despite my early frustrations, student response was favorable. This was one of the reasons that I continued to struggle with the hardware and software. There were two more reasons: personal experience as a student and educator, and my perspectives on and experience with technologies. The rationale in research is one of objectivity without personal bias. However, while seeking to minimize such personal bias, it can never be totally excluded. Therefore, rather than trying to hide my biases, the next section outlines my experiences.

Personal Experience

From experiences in the UK and Japan, the author has great sympathy for, and places himself with, students who have talent but are not exceptional language learners. For exceptional language learners, I use the term *a natural*. The definition of the term is someone who is gifted or exceptional. What constitutes being a natural is enigmatic. The naturals, interestingly described by Stevick (1989), do not easily fall into any one category. They all encountered barriers to progress with respect to their environment and varying methodologies. However, in their own ways, they all overcame these obstacles, and became exceptionally proficient in one, or more, languages. For this dissertation, my

latent bias and drive was to seek to improve the language learning of the majority of learners, who are not naturals. Thus, I sort to examine and use new technologies, while at the same time searching for greater understanding of multimedia systems, cognitive processes, and second language acquisition.

Education in Britain

As a student. The author's schoolday interests were math, science, and geography, and later at university, economics and management. Experiences with the formal study of languages held little appeal. French classes had arcane materials and a fossilized traditional methodology, with only one older teacher recognizing the possible benefits to be gained from an infusion of oral work. Latin was a dead language, apart from intellectual exercise of the mind. German, which was a recent addition to the curriculum, had a more modern syllabus and text, but was still taught with the traditional grammar-translation methodology. The only chance to speak was about once every five weeks when, in groups of six to eight students, we had a lesson with a foreign language assistant. As they were usually university students from Germany or France, none of the teaching faculty took their presence seriously and our oral performance had no bearing on final exams. The oral section of the *Ordinary Level* national exams (O Levels, now known as the *General Certificate of Secondary Education* (GCSE) usually taken at the age of sixteen) was worth only ten percent, so most students did not make any effort.

As a teacher. I worked as a relief (substitute) teacher for one of the London boroughs. I taught everything from physics to history to religious knowledge to students aged eleven through eighteen. This required a great deal of versatility and also quick thinking. It was a good chance for me to look at different schools and how they operated. Later, I accepted a full-time position teaching a combination of math and social studies. As a result of both kinds of teaching, I became quite good at meeting syllabus requirements while at the same time making materials and classes both interesting and relevant to students.

Education in Japan

As a student. My experiences of formal study of the Japanese language in Japan were, for several reasons, more favorable. First, classes were small with a maximum of ten or so students. Second, the language of instruction had to be Japanese because of the varying nationalities of the students. Third, because of the need to converse and the difficulty of reading and writing *kanji*, the emphasis in most courses (certainly for the first year) was on the spoken structure of the language. Lastly, Japan distinguishes between *kokugo*, which is to be studied by and can only be studied by Japanese, and *Nihongo*, which is the Japanese language as learned by foreigners. While I do not wish to enter into the ethics and philosophy of such a distinction, it meant that Japan's academia largely ignored *Nihongo*. Therefore, in the classroom the traditional lecture style methodology was not present. Furthermore, the standard use of difficult readings and translations, usually from literature, was avoided.

The author does not claim to be a natural at languages. However, a mixture of this formal study, self-study, and use of the language did lead to passing the top Level 1 (*Ikkyu*) of the *Japanese Language Proficiency Exam* known in Japanese as the *Nihongo Noryoku Shiken*. There are four levels, but even graduate students of Japanese at European or North American universities rarely pass this Level 1 exam. Asian students by and large strive for this qualification, which is required for study at Japanese universities

As a teacher. I have taught in many differing institutions in Japan. The following is a very brief summary of the system. The reality of the English as a Foreign Language (EFL) context in Japan is that the Japanese education system has allowed only one kind of *natural* to succeed. The system dating from the Meiji Era emphasizes translation, grammar, and rote learning. Those for whom the system worked so well see little reason to change it and thus perpetuate the same system. Those familiar with the Japanese education system know this all too well. There are many students who, while not being *naturals* as defined by the system, have ability and determination. However, they get scant reward for their efforts. If one is more cynical or looks at the hidden curriculum, it could be said that the purpose is not to educate, but to select. Thus students are not supposed to actually learn English or other subjects for that matter, but are supposed to *gaman* (endure) and *gambare* (fight and persevere). These are the qualities that have at least until now been sought by companies. Concerning junior and senior high school education,

Kelly (1993) states:

Ideals of endurance, maximum effort, and self-denial are taught: conformity and group consciousness imbued. To accomplish these goals, the school becomes virtually totalitarian...rather than encourage students to explore and discover, they are loaded down with massive amounts of information to memorize, far more than most can handle, and according to one survey, estimate that 70 per cent of their students cannot keep up... At a glance the entrance exam itself may seem meaningless since it appears to test only how well a mass of facts has been memorized, but this is not the case. It tests another, less measurable quality: how successfully the student has responded to the enculturation. By measuring the degree of memorization, the test also measures the degree of compliance to the system, in both effort and attitude.After all, society-industry has little need for people who are only good at memorization; it needs people, who, in confirming to these values, become devoted self-sacrificing workers. (pp. 178-179)

Concerning the purpose of English education in high schools, Wiig (1985) states:

English study serves a number of societal purposes, seldom verbalized, at the pre-college level in Japan: 1. It is part of an elaborate, intense rite of passage in which the more ambitious of the young people in this country demonstrate their capacity for drudgery and self-denial to the powers-that-be, and, in so doing, hope that they will be granted admission to the institutions of higher learning, which will lead to the best jobs the society has to offer. (p. 62)

Thus, accommodating varying degrees and types of student ability, different latent favored learning styles and differing motivation levels is rare. Even where teachers wish to use a variety of techniques and methodologies that would facilitate understanding and increase learning, the curriculum often prohibits this. I personally have met some very capable Japanese teachers who are frustrated by this.

At university, the situation it is completely the reverse. For those unfamiliar with the Japanese system, the university world is very different from that of, for example the US or the UK. Students have a great deal of freedom and free time. Course requirements

are not usually taxing, and lecturers are lenient in penalizing students. Although course names are fixed, few restrictions are placed upon the content. However, there are many students with ability who wish to improve their English proficiency but given their experiences in junior and senior high school dislike the traditional approach. Captioning is one of those technologies which through the use of authentic materials can provide a stimulating environment. This is not an argument for saying that this should not happen in junior and senior high schools. It should. However, a realization of the potential of captioning, usually does not result in a maximizing of that potential due to reasons outlined in the next section.

Perspectives on Technologies

The need for an ongoing assessment of our perspective on technologies is an area frequently overlooked, especially in SLA. Both negative and positive attitudes to captioning have separately prevented captioning from being used more widely.

A Balanced Approach

Avoiding the Technological Bandwagon

This desire to improve students' learning does not necessarily place the author in the position of being on a technological bandwagon. He does not wish to be seen as some kind of latter-day technophilic proselytizer. In fact, the author recognizes that it is incorrect to assume that the cutting edge of technology decreases the role of the written text. The development of the Internet is a case in point. The initial way of transferring

information was written text. Now on-line video, direct conversations, etc., are becoming widespread, but email will remain one convenient way of sending information. However, there are dangers present with the arrival and development of new technologies, which often prevent a balanced opinion. Whatever the technology, there seems to exist an inherent paradox. First, there are those who jump on some kind of technological bandwagon and desire to view that particular technology as a panacea for many existing problems. Second, there are those who for a number of reasons vehemently oppose such technologies. Both camps need to move from these isolated positions. Thus, in this dissertation the development of captioning is not viewed as something that will revolutionize learning. It is rather considered to be a tool assisting in the contextual viewing of video, fiction or non-fiction. However, its unique characteristics are the paralleling of the speech on the screen in real time, as opposed to a script or scenario book of the video.

The next two sections address those who oppose such technologies and those who support them but do not maximize their potential.

Technophobes, Elitists, and Media Haters

Often the arrival of a new technology is met with attitudes of indifference, ignorance, ostrich-like ignoring, and opposition. Underlying these attitudes are three main positions. First are the technophobes who are not naturals with machines and who see little reason to depart from the well-trodden paths. The potential uses of the captioning system were immediately recognizable to some but not to others. In fact, in

1991, I heard two respected second language acquisition (SLA) researchers state (off the record), on separate occasions, that they felt that captioning had no role to play in language learning. Second are the elitists from arts and humanities backgrounds who feel that anything that uses video, TV, or computers is entertainment, one step away from the factory floor, and therefore does not constitute education. In my own university, it has been impossible to place any captioning machines or software in the library AV area because of this perspective. And now administrators are upset because none of the students use the equipment that is there. Third are the media haters who harbor an almost Orwellian fear that developments in technology will increase the power of commercialism and that the consumer/viewer/student will be easy prey for the hidden persuaders.

Pitfalls Accompanying a Positive Perspective

The dangers of the negative positions are clear. However, hazards also lie in wait for those who recognize potential advantages. Two are discussed: ad hoc eclecticism and making the technology the center of attention.

Ad hoc eclecticism. Considerable benefit can be gained from reading published books about video, computers, and suggestions accompanying teaching (Stempleski & Tomalin, 1990; Cooper et. al., 1991). While I do not decry the practical nature and importance of these books, I feel that they are limited to the physical aspects of technologies, problems that occur, and a list of suggested techniques and activities.

While professional instructors are often successful with this approach, there is no way that the potential benefits can be maximized or that all the pitfalls can be avoided. The results of such an approach are more evident in the failure to link hardware, the learning environment, and software. On many occasions, an institution has installed instructional and/or self-study facilities at considerable cost only to learn that they are not being used by teachers or students. Therefore, there is a pressing need to construct a framework that enables teachers, researchers, and academic institutions to analyze multimedia systems easily. Even when administrators, researchers, lecturers, and instructors are aware of the nature of new technologies, rarely is their potential maximized. The main reason for this under-utilization or incorrect use is a lack of suitable framework, which would allow analysis of varying combinations of technologies. There is a need to understand the theoretical bases and implications of present and future technical developments in order to be able to make curriculum, self-study, and instructional decisions from the position of principled and enlightened eclecticism informed by both theory and practice rather than by responses to technology which are either ad hoc or individualistic (Brown, 1987; White, 1988).

Making technology the focus. With the arrival of a new technology, it would seem logical to make the analysis center on the technology itself. Certainly historical inventions like the telephone have vastly altered the nature of social interaction. Radio, TV, and satellites have enabled and speeded access to information available only to the very privileged one hundred years ago. However, rather than concentrating on the

technology per se as technophiles prefer to do, it would seem more important to see with differing multimedia how the information is compiled, what the nature of interaction is, and where the benefits of uniqueness are. Salomon (1994) states, “The impressive observable changes that follow a grand scale technological change result mainly from what technology carries with it and rarely from the technological innovation *itself*” (p. 16). Second, there are those who assume that new media are alternative ways of achieving the same ends. Thus, they either accept the presence of the new technology but try to adapt it to existing patterns of compilation and interaction, or they see no reason to use it, as the ends can be achieved equally well through existing methods or media. However, as Pryluck and Snow (1967) state, “If media have some unique characteristics, then unique learning-effects should be expected.” For captioning, the presence of text is not unique. As most foreign films are usually subtitled in Japanese, Japanese people are used to reading at the same time as viewing. However, being able to read the same language, English, at the same time as the listening to the spoken dialogue, without having to look away from the screen or monitor, is a unique factor. Therefore, special learning effects should be anticipated. Before looking at captioning research, one perspective on technology merits special mention.

Synchronic and Diachronic Analysis

Synchronic analysis means the analysis of something at any one point in time. Diachronic analysis means the analysis of something over a period of time, similar in meaning to historical. Saussure (1966) used this distinction as a way of examining text.

The distinction is similar to the difference between cross-sectional studies, and longitudinal ones. The same linguistic principle can be applied to media. In 1967, Corder presented an analysis of the control of the teacher over visual material. In the same year his seminal paper on learner's errors was published, felt by Ellis (1995) to be important enough to be included in the opening paragraph of his major work, *The Study of Second Language Acquisition*. Corder (1966) argued in *The Visual Element in Language Teaching* that there was a decrease in control by the teacher over the content, timing, and the method with respect to differing technologies. In the case of TV, the most advanced technology at that time, the teacher had control over none of these. Corder wondered whether "the 'TV teacher' may be able to teach in the absence of a classroom teacher" (p. 41) but thought it unlikely. Corder recognized that the TV could contextualize language material more efficiently and allow capable teachers to concentrate on the things that the teacher could do better than the TV.

Despite this recognition, Corder's underlying analysis is still synchronic. This perspective, which to be fair to Corder was not his alone, has fueled the argument of the inherent loss of control as an ever-present danger of new technologies. However, if one adopts a diachronic perspective, which is easier to do nowadays with the ever-increasing rate of change, the resulting analysis is different. Two areas deserve special comment, and are made in the context of captioning technology.

Passive vs. Active

Arguments like Corder's are sometimes made, that the captioning system does not allow the learner enough control. The degree of passiveness or activeness is one that will change. In the last ten years, the increased availability and choice of machines together with an accompanying decrease in cost, size, and weight of machines has given the teacher and the learner in the AV center or at home much more control. They now can decide what, when, and how materials are used. Important future developments will be the interaction of the video and captioning on computers, increased ease for the teacher/materials consultant to put captioning onto any video sequence, and the possibility of changing or matching the spoken script/dialogue with the captioning.

Availability of Hardware and Software

For commercial and educational reasons, compared with ten years ago, the range of materials available is vast, access is much easier, and their cost much lower. In Japan, publishing houses and electronics manufacturers have recognized the potential and are continually helping institutions, teachers, and learners. Several publishers have produced a large number of script books of movies, with translations, notes on difficult expressions, exercises etc. These are available in the major bookshops. The same bookshops also sell captioned video software and decoding machines. In Japan, rental video shops sometimes have encoded tapes together with the Japanese subtitling. Even academia is changing. The Association for the Teaching of English through Movies (ATEM), formed in 1995, provides a forum for a useful blend of research and pedagogy.

That captioning technology will continue to be used is not in question. Quality authentic material like news, documentaries, dramas, and movies will always be in demand. The mode of access will become more varied: satellite, cable, the Internet, digital-video-disc (DVD), etc. To avoid both the ad-hoc approach and over-focusing on the technology, more research is needed.

Captioning Research

This section concludes with a statement of the aims of this dissertation, and a brief summary of the research study. The first two sections address the main fields and types of captioning research.

Fields of Research

The amount of research on the effect of captioning is larger than applied linguistics and SLA journals indicate. This is because this technology is of value in a number of different disciplines: there are three main areas. The first area where research has been conducted has been with deaf and hard-of-hearing children and adults whose first language was English (Baker, 1985). The captioning system was developed in North America to help people who were born with or who had developed hearing difficulties. At about the same time in the early 1980's, the teletext system became available in the UK. They are similar except that teletext appears at the bottom of the screen as a kind of running tickertape on a black background. The second area of research is also within mainstream US education. Faced with a large number of language minority students,

teachers and institutions were quick to realize that benefits could accrue from using captioning (Koshinen, Wilson, Gambrell, & Neuman, 1993; Neuman, 1990; Neuman & Koshinen, 1992). These students are strictly speaking ESL students. However, adult ESL and SLA research in North America has largely ignored the field of captioning. There are a few studies (Markham, 1989). Thus, the third area is to be found, not within ESL, but in EFL contexts in Europe (Jung, 1990; Vanderplank, 1988, 1990a, 1990b, 1992). In the last five years, there has been a rapid expansion of interest and research within Japan and Asia (Hirose & Kamei, 1992; Kikuchi, 1998; Smith & Shen, 1992; Wood & Ishii, 1991). The Association for the Teaching of English through Movies (ATEM) journal always has at least one article about captioning in each publication.

Types of Research

The majority of the research has been quantitative rather than qualitative. Vanderplank (1988, 1990a, 1990b, 1992) is an exception. A few papers have examined the nature of the system and input (Jung, 1990; Baker, 1985; Sato, 1995). Research with deaf and hard-of-hearing learners has focused on readability and reading levels. In mainstream education, studies concentrate on comprehension and vocabulary acquisition, particularly with educational and science documentaries (Neuman, 1990). EFL studies have looked at a wider range of materials, including movies. However, these studies have tended to concentrate on comprehension gains (Shang-Ikeda, 1994). Almost no studies have looked at the effect of the captioning upon speaking with tasks or activities in an instructional setting (Borras & Lafayette, 1994). Very few studies have provided a

way by which material could be assessed for suitability for in-class or self-study activities. Some researchers have amassed large databases of captioning data from films but are unable to make any suggestions as to how this technology could or should be applied pedagogically. In most studies, although materials selected for the studies reflect learners' needs, neither learners' proficiency levels nor the levels of the difficulty of materials are reported.

Dissertation Areas and Study

This dissertation seeks to answer two general questions. First, what areas of learners' proficiency are developed by closed captioning. The answers are sought through films. Almost all quantitative research has found that there are gains or benefits from the presence of captioning. Similarly, almost all qualitative research reports positive responses from students, whether the research concerns attitudes, benefits to study, or increased comprehension. Thus, there are probably benefits for language learning to be gained through the use of suitable movies. This leads to the second general question, what kinds of criteria should be used by teachers or learners to choose materials?

Study

This study sought a comprehensive overview, rather than focusing on one single area, such as comprehension, or vocabulary gains. Therefore, this study had three sections. First, Study 1 analyzed the input of the beginning sections of two films

Airplane and *The Graduate*, and developed comprehension tests based on these introductory sequences. There was also a self-assessment by students of what they considered important or interesting in these introductory sequences. Second, Study 2, developed tests to assess how and whether captioning helps learners increase (broaden) their knowledge and also deepen existing knowledge. Third, Study 3 repeated the modified versions of the comprehension and acquisition tests developed in Studies 1 & 2.

Historical Development of Captioning

This section looks briefly at the development and use of captioning in different parts of the world.

North America

Developed in the United States to help deaf and hard-of-hearing viewers, closed-captioning (CC) is a process of encoding the dialogue as script at the bottom of the television screen. In the case of the closed-captioning (CC), whether it be a television broadcast, a video cassette, or a laser disc, in order to have the script appear on the screen, it is necessary to have a decoding machine or a television which has a decoder built in. In the 1980's, the number of broadcasts and availability of encoded software was limited. Now CC is widespread and increasing every year. Up to 30% of transmissions, rising to 70% in prime time, are captioned. On almost all educational or entertainment materials, the small CC sign or small black television box symbol can be found.

Furthermore, the US government required in July 1993 that all television sets of fourteen inches or larger have this decoder built into them (Robson, 1997, p.3).

United Kingdom

In the United Kingdom, television viewers have the choice of the CEEFAX or ORACLE captioning systems. The number of programs that have closed captioning is similar to that for broadcasts in North America. Unfortunately, video software for rental or purchase has not until recently had captioning encoded. Since the early 1990's, this situation has been rectified. When I visited the New York office of the National Captioning Institute (NCI), I was able to watch the digitalized encoding process firsthand. Following encoding, NCI ensures that captioning can be encoded not only onto videos, laser discs, and DVDs using the NTSC system, but also onto those using PAL. (For those unfamiliar with this distinction, North America and Japan uses the NTSC broadcast system, whereas almost all the rest of the world uses PAL, apart from France and a few other countries which use a third system, SECAM. This means that on a standard North American or Japanese video cassette deck or DVD you cannot play a video bought in Europe). In the early 1990's, it was impossible to find any captioned videos in the UK. However, this is no longer the case, and it is logical to presume that in the UK within a few years most software will have closed captioning.

Other European countries

In other European countries, a variety of combinations of broadcasts are available. The motivation here is usually to aid second language acquisition (SLA). In the English as a Foreign Language (EFL) context where the learner is not in the target language (TL) environment, the option of being able to read the second language (L2) dialogue as well as listen is available in a variety of formats.

Asia

In Japan and other Asian countries, the potential of this technology for second language learners is gradually being recognized. Manufacturers, software producers, publishing houses, and distributors are all competing to improve standards. More advanced machines allow the user (instructor or learner) to freeze the captions, to change the color of the characters, and to change the position of where the captioning appears on the screen. This can be done by remote control. The machines themselves are one tenth of the price, size, and weight of five years ago. Most software originating from North America has the captioning, but it is all upper case size, i.e., capitals. Companies based in Japan change this into upper and lower case, making it easier to read. More and more foreign movies have both the Japanese subtitling and the English CC, affording the option of having both on the screen at the same time, or covering the Japanese subtitling with the CC.

Summary

Nowadays in Japan, captioning hardware or software can usually be found somewhere within most academic institutions. However, because of the differing perspectives on technology, and because of the lack of research, the potential of captioning is not being fully realized. There is a need to understand more fully where captioning can speed language acquisition, and afford it a more important role in pedagogy and the curriculum, rather than allowing it to be regarded as an appendage. This dissertation seeks to aid the process of assessing the effects of the presence of captioning by constructing a battery of tests for two film sequences.

CHAPTER 1 1

INTRODUCTION 1

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