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Implementing Standards and Guidelines for C-Print in the Secondary Education of Deaf Students

MSSE Master’s Project

Submitted to the Faculty
Of the Master of Science Program in Secondary Education
Of Students who are Deaf or Hard of Hearing

By

Jason Franklin

In Partial Fulfillment of the Requirements
For the Degree of Master of Science

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Abstract

This curriculum project was created in hopes of developing a set of guidelines that will strengthen the use of C-print and speech to text services at the K-12 level. The (1988) National Task force on Educational Interpreting released a report that outlined the job description, roles and responsibilities of all Educational Interpreters. In contrast, C-print and speech to text services do not yet have a clear consensus or mandate on the roles and responsibilities involved in this service. This project attempts to address the strengths and weaknesses of implementing C-print in public schools. It also creates materials to better prepare teachers, students, and support personnel to use these services effectively in the K-12 demographic. The materials implemented in this project were created with the support and feedback of high school and college instructors, college, high school, and one middle school student, and with the ideas and support of C-Print service providers. These materials will help the provider and the Educational team supporting the C-print service have a more clear picture of what their respective roles and responsibilities are to implement this service successfully for all deaf and hard of hearing students.

Project Overview

This project culminated in the creation of three captioning brochures/handouts, and one Captioning Evaluation Form related to C-print speech to text services. Each brochure is one page, front and back, and has the format of a Frequently Asked Questions handout. The first brochure was developed for Itinerant Teachers of the Deaf and supporting staff. The purpose of this was to provide supporting staff with resources to help enhance speech to text services, to support student study habits with C-print, and to help them promote student advocacy skills. Themes within this brochure include learning and using the C-print software, use of the C-print notes after class, and requesting C-print services for a student on their caseload. A second brochure was developed to provide tips to mainstream teachers that have C-print services in their classrooms for the first time, or who have used it in the past. Classroom teachers
frequently employ several different methods of instruction that range from educational videotapes, lecture, and reading aloud/reading along to more unconventional methods such as role-playing, or visual/art displays, awareness of how to integrate students into the classroom discussion successfully will vary from day to day. The goal of this second brochure was to provide instructors tips and suggestions of what to do in pragmatic situations that might occur in their classrooms with C-print services. The themes of this brochure provide an overview of how students can participate and communicate in classroom discussions, how to use the C-print transcripts after class, and describes how they can help ensure the C-print message is accurate. The final brochure was geared towards the Captionist role. The goal of this brochure was to create a 'survival guide that would help each Captionist be prepared before each assignment. The themes included here include equipment issues, instruction/responsibility issues, and ethical issues and responsibilities. Each brochure was intended to provide pragmatic ideas and suggestions on what to do in situations that occur in the classroom. They were also created with the hope of being used consistently, instilling better standard practices in the K-12 Educational setting.

The final brochure created is a one page Evaluation form that consists of 15 questions. Five questions are designated to the student to answer, five questions are designated for the Captionist to answer, and five questions are designated to the mainstream teacher to answer. The goal of this Evaluation form is to provide an informal format that will help evaluate the services provided in that classroom, encourage a weekly or bi-weekly meeting where the Captionist, the student, and the instructor can
monitor breakdowns that occur, and provide a documented method for intervention when
necessary to ensure that communication access is being provided.

**Importance of Project**

The large increase in Deaf students being educated in the mainstream classroom
setting has placed a greater burden onto public schools to ensure that these students
receive fair and appropriate classroom accommodations. The demographics of these
deaf and hard of hearing students reflect great diversity in the levels of hearing loss,
preferred method of communication, and strength of their first language acquisition. This
diversity presents a strong challenge for educational staff in providing students with equal
access in the classroom. Accommodation services that work effectively in a classroom
for one deaf student may place a second deaf student in the same classroom at a severe
disadvantage. Noting research, “Students who are deaf or hard of hearing come to
school with a variety of communication skills and needs which may be addressed with
assistive technologies or other instructional accommodations. Inclusion of these students
in mainstreamed settings intensifies the need for effective communication and access to
information in the classroom”. (Elliot, Foster and Stinson, 2003).

Mainstream schools that have a small percentage of Deaf and hard of hearing
students in their populations or new to providing services for these students may be ill-
equipped or misinformed about how to best tailor services to meet their needs. C-print is
one support service that can be used to accommodate the communication needs of deaf
and hard of hearing students within the mainstream setting. Implementing this service
into the mainstream classroom successfully requires awareness of how to request and use
this service, knowing which students would benefit most from it as a primary service based on their background and communication preferences, and the skill and quality of services provided. This project is intended to provide Educational staff, parents, and administrators with guidelines and suggestions for implementing C-print in a way that will best benefit students who use these services.

C-print is a newer service that is growing both in appeal and in quality. C-print technology and software improvements have made it a realistic accommodation for a growing number of deaf and Hard of hearing students in mainstream classroom environments. Because of the pace of C-print's rapid growth, its role in the mainstream classroom is not always clear for educational staff who are newly exposed to it, or for the students and captionists who provide services. This project is intended to provide tools, tips, and suggestions to help ensure that the C-print services are used consistently to provide equal access to information in the mainstream, secondary classroom. The purpose of this project is to ensure that when this service is used, it is tailored to students who will benefit and that those students are supported by staff who have the resources and knowledge to implement this service effectively.

Review of Literature

Introduction

The need to provide speech to text services for deaf and hard of hearing students entering mainstream secondary and middle schools is evidenced by the growing number of students and the diversity of these students entering the K-12 levels. Many of these students cannot receive an appropriate education in the least restrictive environment using Assistive Listening Devices such as hearing aids or phonic ears alone, or through
the use of ASL interpreters. Research has consistently shown that the needs of this deaf and hard of hearing body require diverse and innovative approaches to fairly accommodate their accessibility in the classroom (Day & Huefner, 2003). One reference below strongly indicates the diverse needs of this student body.

Individuals who are post-lingually deaf have had the opportunity to acquire some form of spoken language, although they may not have complete mastery of that spoken language. Some post-lingually deaf persons have learned sign language and prefer to have a sign language interpreter. Others would prefer to use an oral interpreter, real-time transcription (CART and C-Print), assistive listening devices (ALDs) or notetaking services. (Retrieved from http://www.colorado.edu/disabilityservices/handbook/handbook8.html)

There is no one standard service that will be a panacea and work for all deaf and hard of hearing students. Ensuring that deaf and hard of hearing students have whatever necessary services requires flexibility and innovation because, "if they are only getting 50% of the message, the other 50% of your/their Education is lost. This is clearly unacceptable." (retrieved from http://www.stsn.org). There is a growing demand for speech to text services to ensure that students have access as much of the classroom message as possible, not just 50 percent. This provides an important creed for how we should work to provide access for deaf and hard of hearing students in mainstream education.

C-print is one of approximately five popular speech to text communication services currently provided to deaf and hard of hearing students in mainstream education settings (retrieved from http://www.stsn.org). The growing use of C-print as a means for accommodating deaf and hard of hearing students is outpacing at times, our understanding of how it is being implemented and how it should be implemented. (Kavin, D. (2005) A New Professional Organization. Harper College PowerPoint Presentation,
6. The purpose of this Literature Review is to show where C-print and speech to text services fit inside the broad educational needs for deaf and hard of hearing students. Who does this service benefit? How do teachers who use it perceive it? What are some of the strengths and weaknesses of this service, and what are some ways that this service could be improved and implemented better? This literature review is focused on the following themes: how teachers make use of C-print and what current commonplace perceptions and attitudes are; how students who have C-print services perceive the services and how these students utilize the services, and assessing how C-print fits with other Assistive Technology services provided in the Educational setting.

**Teachers Perception of C-print**

A qualitative study of teacher’s acceptance of C-print found that the perception of C-print as a service among mainstream teachers has varied, but teachers who have used it in their classrooms were in general agreement that this service was “non-obtrusive” and did not interfere with their teaching style. (retrieved from http://fset.unlv.edu/18.3/elliot/eight.html). There was a very strong popular consensus from research that showed many mainstream teachers reporting a sense of excitement about the potential of C-print, perceiving it as a strong medium for giving students needed academic support, with the added bonus of helping with peer interaction (p. 84 Stinson, M., McKee, B., & Elliot, L. (2000). One instructor stated, “It is an incredibly useful resource for them. I think that it gives them a security that once again they know they’re going to get all that information so they don’t need to worry about missing something because it’s all right there. I think it definitely helps them facilitate access to knowledge” (http://fset.unlv.edu/18.3/elliot/eight.html). Another classroom instructor
expressed feeling a sense of security with C-print services and what they provide for her students, stating “I don’t have to be as worried about them missing information... I’m getting the notes that she prints out so if there is anything missing or if... there was any kind of error whatsoever I’m in direct control of that information so I know exactly what they are receiving.” (Stinson et. Al, p. 50). Increasing awareness of how C-print is used, and what roles the captionist, the student, and the teacher have in implementing successfully it will provide teachers with a more complete picture of how to utilize and become comfortable with what it offers.

To demonstrate the importance of awareness for teachers who have this service in their classroom, some teachers have expressed concern related to what their role is within this service. Providing awareness and exposure can help each instructor have the resources to ensure that this service is successfully integrated into their classroom. Some teachers have expressed concern that it will make students ‘disconnected’ from their lecture, and less involved or active in the classroom. From one study, “In contrast, two professors who taught small classes (i.e., approximately 20 students) felt that C-Print was a distraction in their classes because students looked down at the computer laptop display instead of up as they would when they focused on the interpreter to read ASL or the teacher to read lips. (https://jset.unlv.edu/18.3/elliot/six.html). Clarifying the different ways that students will utilize this service will provide a stronger recognition of what the mainstream teacher’s role is, and help them be a greater source of support.

The mainstream teacher has great leeway in deciding how to utilize the C-print service. Because they facilitate all communication in the classroom, their awareness and comfort with the service can influence the student’s ability to participate fully in class.
discussions, having complete access to all communication. Research has shown that one of the strongest benefits of using a speech to text service is that it can "provide content information and social information in real time, making student's participation possible" (Kavin, D. (2005) A New Professional Organization. Harper College PowerPoint Presentation, 6.). One teacher emphasized this point, "For instance this works really well with partners. We had three people in the group and they took the two laptops and used it almost like an instant message machine. It's a chat session and then they can just take it and print it out from one and they've got the record of it" (retrieved from http://jset.unlv.edu/18.3/elliott/six.html). The way this service is provided can also expand C-print's capabilities to impact hearing peers, students with secondary disabilities, or utilizing the note-taking services as a classroom study resource. Another instructor commented that she "likes to keep a copy of the C-print notes for her own personal reference in the library...If other hearing students have a question, they can get a hold of the teacher for her C-Print notes. It's just not for the deaf students. The hearing students can also take advantage, and the teacher is able to take advantage of the service too" (p. 71, Stinson et. Al.).

In one study of teachers who utilized C-print in the classroom, "two of the teachers commented that having C-print in the class did not influence their teaching style at all." (p. 71, Stinson et. Al.) Based on research conducted by Rogers (Retrieved from http://jset.unlv.edu/18.3/elliott/four.html) the results from this study seem very encouraging. Rogers suggests the "complexity is the degree to which an innovation is perceived as relatively difficult to understand and use." It appears that, "With regard to C-Print technology, one might consider two factors: how much training is required for
teachers to use C-Print with their students and how much the teacher needs to change his or her teaching style or other classroom habits in order to implement C-Print.

Mainstream teachers seem to have accepted C-print into their classrooms with an ease that did not require them to 'overhaul' how they presented instruction. But it is also important to note that being aware of C-print and what the demands are on the captionist and the student should affect some changes in how the teacher approaches the classroom.

The ease and flow of communication can be improved when small changes are implemented in the classroom. These changes could be as small as pacing the class slower, moderating class discussions in a way that provides for more equal accessibility to deaf and hard of hearing students. We know that "Interpreting and captioning are mental and physical processes, and a rapid delivery can be very difficult for the interpreter or captionist, and in turn for students. Fatigue will lower the quality of the interpreting or captioning service" (retrieved from http://www.rit.edu/~classact/communication/pace.html).

Research also shows that for deaf students who are struggling because of the pace and flow of teachers who approach the class in an attempt to "ignore the C-print service" can be hurt because "the concentration demanded on their part as a result of your rapid delivery will result in their fatigue, weakening their understanding of your content. These students may miss all or part of your lesson" (retrieved from http://www.rit.edu/~classact/communication/pace.html).

The role of the instructor does not only have an immediate impact on students' ability to participate in the classroom, but can also additional impact on quality of the captioning service. Providing textbook material, handouts, notes, syllabi, and important
vocabulary/terminology for the captionist, decisions of how to utilize the note-taking service, and utilizing C-print for universal design applications such as vocabulary awareness and course content.

**Students Perceptions and Use of C-print**

Like every service provided for Deaf and hard of hearing students, we know that “C-print is not a panacea for overcoming communication barriers. No single channel of receptive communication can be entirely suitable for all deaf and hard of hearing students under all conditions” (p. 75 Stinson et. Al.). C-print’s effectiveness and the preferences for this service are most associated with “being skilled in English and in receiving spoken (e.g., English) communication” (p. 72 Stinson et. Al.) There are no limits on what students ‘qualify’ for C-print services as research has shown it can benefit any student with skilled written language at around a 4th grade reading level. We know that C-print can serve as a strong communication service for a number of deaf and hard of hearing students, but one of the most important keys to increasing the effectiveness of this service is to evaluate how C-print is already being used by students, and what impact it has on their Educational attitudes.

*Students provided with C-print services tend to use this service in one of three ways; to reinforce instruction, to serve as a primary source of communication access, or by relying on it primarily as a post-production service to reinforce learning.*

Students who use it to reinforce instruction may display a tendency to attend primarily to the instructor during class lectures (Stinson, M. & Liu, Y. (1999), Stinson, M., Kelly, R., Elliot, L., Liu, Y., & Stinson, S. (2000, April). C-print becomes a tool that helps them stay on pace if they miss something during the class, or if they simply get
'lost' in the flow of communication. Students who prefer using C-print this way have mentioned that the benefit of attending to the teacher allows them to maintain feeling actively and more personally involved in the classroom. How these students use the C-print notes may vary. They may alternate their attention between the instructor and the C-print screen, or they may attend to the captionist to pick up cues when they miss communication exchanges, or when new vocabulary words or something unfamiliar is said. Other students who use C-print may use it as a primary communication service. They attend completely to the C-print screen for all communications. They may use other support services such as notetakers, FM systems, or in some cases interpreters to compliment C-print, but they attend primarily to the C-print screen to access communication.

C-print, along with remote real-time captioning, is one of two speech to text communication services that provides access to students and allows them an opportunity to modify information they access during the class session by adding their own notes onto the computer screen. This active approach would be difficult to do with an interpreter, or with A.L.D because students would be at risk for picking and choosing between taking notes and attending to new information. Students who use C-print as a primary communication service may also be more passive and attend to the C-print screen, or switch between attending to the C-print screen and the teacher's visual aids/overheads. Other students may use C-print as a complimentary service to ASL interpreting and other access services. This may be less common in secondary education settings due to costs, but these students will likely use the service primarily post-production only. They will
rely on the notes to reinforce the information they missed, and have the benefit of attending to the lecture, and capturing the visual information in the classroom.

No student will use C-print the same way, just as no student who relies on ASL interpreters will use interpreters the same way (p. 25 Elliot, L., Foster, S., & Stinson, M. (2002b). Some ASL interpreters are asked to transliterate word for word what has been said in English, some interpreters will conceptualize signs more depending on their students needs. At the secondary and post secondary level, this remains true for C-print services, because no two students have exactly the same background. Some students have expressed strong reliance on Speech to Text note-taking services appreciating its accuracy and completeness (Stinson, M., McKee, B., & Elliot, L. (2000), while others felt this service was less personal, too wordy, and required them to work harder to pick out salient information. (Stinson, M., Elliot, L., McKee, B. & Francis, P. (2001). These students still utilize the C-print live captioning option, but prefer using professional note-takers to supplement their information, compared to using C-print notes. Some students expressed satisfaction with attending only on C-print during the lecture, having complete access to the lecture material, with no conceptualizing or condensing of information happening. These students often expressed an ability to become more active participants in the classroom, having complete, real time access to all communication with an opportunity to be involved in their access service (personal correspondence with Gina Coyne, April, 2005). Other students felt that emotion was missing from attending to the C-print screen, turn-taking cues may be missed, and visual information such as graphs and formulas still could not easily be accessible to them. Because each student will have
unique preferences and backgrounds, taking these into consideration helps tailor how C-print services can be provided for each student's individual needs.

C-print as an Assistive Technology Tool

The steps that are critical to ensuring that education and communication is successful for all students using Assistive Technology become even more significant when working with deaf and hard of hearing students with C-print. The need for C-print as a communication service for deaf and hard of hearing students was outlined when referencing the growing number of deaf and hard of hearing students educated in the mainstream setting. In Elliot et Al. (2001) "a major concern for deaf and hard of hearing students is the adequacy of classroom communication...even when an interpreter and additional support services are provided, students still experience communication difficulties" (285). Spawning from those difficulties is a strong need for a secondary service such as C-print. Knowing the students' rights in providing Assistive Technology becomes essential to ensuring that supporting staff, parents, and personnel know how and when to appropriately request C-print and speech to text services for students who would benefit most. IDEA states that an assistive technology is any technology or assorted services that the child’s IEP team states is required for the student to receive a free appropriate public Education. C-print is one essential form of assistive technology that can provide for FAPE to be met for Deaf and hard of hearing students.

Assistive technology is defined by the Wisconsin Assistive Technology Initiative as "any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of individuals with disabilities." (retrieved from..."
Assistive Technology has been shown to be a tool for the "emotional, educational, social, communication" growth of students. This Initiative outlines the key benefits of using any source of Assistive Technology, stating it can be used to support all areas of development, and that "used appropriately, (Assistive) technology can improve children's thinking ability and help them develop good relationships with peers...technology has a powerful influence over children's learning". More than that, Assistive Technology provides students with the opportunity to "communicate to others, receive instruction that matches their learning style, demonstrate and display what they have learned, be independent, and improve literacy skills." These critical skills outline Universal Design implications of Assistive Technology. Using the appropriate Assistive Technology can enhance the learning potential for all students.

The Wisconsin Initiative also outlines important steps to ensuring that Assistive Technology works in the classroom successfully. Those steps include working together with parents, and "applying the principles of developmentally appropriate practice and appropriate curriculum and assessment". In addition to appropriate instruction, matching the appropriate means of communication access to each student becomes critical. As quoted from the Wisconsin Initiative, "The key to assistive technology is not the price tag or sophistication of the devices, but the usefulness as a tool to the user". C-print and all speech to text services, under that definition, are product systems that service the needs for deaf and hard of hearing students that are not getting their needs met with current access services. For many deaf students, C-print is an Assistive Technology service that provides all of the above self-advocacy and learning
skills, and more. It also provides for them a chance to have full access to communication, the foundation of learning.

Conclusions and Discussion

The perceptions of both instructors and students who use C-print in the classroom will be highlight different. From research, we know that perceptions vary among Mainstream high school teachers. Many felt they could continue to teach 'their style' without interruption or making modifications. Many felt a strong positive impact in the classroom on C-print, while others found it a disruption, or were unsure of how to approach utilizing the service effectively. We also know that students who use C-print will benefit from the service in different ways. Some students will rely on it as a primary source for receiving all communication in the classroom, and others will use it to reinforce what they miss. Some students will still prefer ASL interpreting and other services as less intrusive, while some students feel that C-print is a more comfortable fit for their communication and accessibility needs. Research has also clearly shown that Assistive Technology serves as a huge boost for the general classroom, with universal design implications that can foster improved learning opportunities for all students, and that have a significant role in the classroom. From this research, what seems clear is that more trials, and more exposure is needed in the classroom to improve awareness and research of what the best practices are for utilizing speech to text services. C-print and speech to text services are still relatively new, and how students use these services, and how actively involved instructors are involved in its implementation can have a huge impact on the direction and role of C-print in K-12 Mainstream Education.
Timeline of events

The concept of this project was initiated in June, 2004. The first objective was to gain a sense of familiarity with the software, and the current practices of how C-print services is used. In June, 2004 I attended a workshop on C-print services, with the focus on improving practices and standards with the latest version of C-print software. Participants at this workshop traded ideas such as increasing self-advocacy among students who use C-print, improving the use of student study habits with C-print, and truncating supporting guides to make them less 'overwhelming'. Participants at this workshop included supporting staff at the high school and middle school levels across the country. Because studies of C-print services have primarily been conducted at the post-secondary level, and because C-print, Typewell, and other CART services are just now beginning in the last five years to become marketable at the secondary level, I began to narrow my research field to improving the practices at the k-12 demographics. I also began to formulate how I wanted to approach working with this project.

The second step towards development of this curriculum project involved the creation and distribution of surveys for college students in the Liberal Arts Department (Appendix 1). The advantage of this class was that C-print was utilized as a complementary service along with ASL interpreting for 8 deaf and hard of hearing students in a mainstream liberal arts history course. I had an opportunity to see when students preferred to engage in watching the interpreters, or when they preferred to watch the C-print screen. I also had a chance to evaluate first hand how the notes were being used by these students. A “pre-course” and “post course” survey were conducted and students provided feedback on the strengths and weaknesses of the service. The pre
course survey was conducted just prior to the first examination, and the post-course survey was conducted immediately following the last examination, and student results were collected to help assess student perspectives on C-print usage. Because Rochester has a very high number of Deaf and hard of hearing students, and many professors have exposure to support services, I was interested in having a contrast provided by a different institution. To supplement my research of how college students utilize C-print services, I had the opportunity to meet with two students (Personal Correspondence, March, 2005) at University of Milwaukee-Wisconsin. I also had the opportunity to sit with Captionist Coordinator Shannon Aylesworth, and assess how C-print has been utilized in that setting. Future implications and potential follow up subjects beyond the scope of this project from this step include discussion of the growing use of Remote Captioning Services have to support students in the college setting.

The next step before the development of curriculum materials was an attempt to assess and create a parallel set of expectations for the service of C-print compared to what service that ASL interpreters provide in the K-12 Educational setting. My goal was to understand how Educational Interpreters are being utilized inside the K-12 setting and develop similar appropriate standards for C-print Captionists. My first opportunity to assess the role of Educational Interpreters at the K-12 level was through personal correspondence during my student teaching practicum at Milwaukee Sign Language School. Through my observation and evaluation of how mainstream instructors utilized Educational Interpreters, I was provided a framework that was pragmatic, and went above research and legal expectations. Seeing the roles and expectations of Educational Interpreters helped shape what I wanted to see created for C-print support services. The
course survey was conducted just prior to the first examination, and the post-course survey was conducted immediately following the last examination, and student results were collected to help assess student perspectives on C-print usage. Because Rochester has a very high number of Deaf and hard of hearing students, and many professors have exposure to support services, I was interested in having a contrast provided by a different institution. To supplement my research of how college students utilize C-print services, I had the opportunity to meet with two students (Personal Correspondence, March, 2005) at University of Milwaukee-Wisconsin. I also had the opportunity to sit with Captionist Coordinator Shannon Aylesworth, and assess how C-print has been utilized in that setting. Future implications and potential follow up subjects beyond the scope of this project from this step include discussion of the growing use of Remote Captioning Services have to support students in the college setting.

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role of this experience will be discussed more in depth during my Observations section of this paper.

Supplementing my classroom practicum experience, I was given an opportunity to meet with content specialists in the field of educational interpreting, and in speech to text services. The first opportunity was at a March, 2005 conference on the role of educational interpreting in Literacy and Education, the findings of which are also discussed more in depth under the implementation/observation phase of this paper (please see references). Having had an opportunity to meet with Marilyn Mitchell and Marc Marsharek, research specialists in the field of Educational Interpreters, I began to look at the Department of Public Instruction and EIPA standards for Educational Interpreters, and utilized this data as I began to do field trials with the curriculum brochures that I developed. Future implementations beyond the scope of this project include developing a Code of Ethics for Captionists, but also developing an evaluation form similar to the DPI interpreting standards modified for C-print and Speech to Text Captionists, both of which are to be discussed in more depth under Discussion and Implementation.

The last step before revision of the materials was the implementation of the materials that I developed into trial classrooms. One trial classroom was selected based on convenience and availability. This classroom was Spencersport High School in Rochester, NY. This was set in a classroom with one student who was supported through the use of Captionists, ASL interpreters, and itinerant teachers of the deaf. The trial experience at Spencerport High School was my primary opportunity to test my materials in a real setting. This experience took place in April, 2005 and was a one week trial session, during which time I interviewed and provided my brochures to one T.O.D. one
mainstream classroom instructor for 9th grade history, and one Captionist. An initial meeting was scheduled with all parties on Monday of the trial week. A follow-up meeting was scheduled for Friday, during which time all parties provided feedback on materials, and engaged in a mock "evaluation" of C-print services, using one transcript, and the evaluation form that was created to correspond with the brochures. Further trials would be beneficial to maximize the types of questions asked, and refine the brochures further.

Key in revising my curriculum materials and providing follow-up evaluation of the brochures were my meetings with STSN president Denise Kavin, and with Captionists Gina Coyne and Cindy Ennocenti, both captionists at the K-12 level in Rochester Boces.

Implementation and Discussion

The brochures and evaluation were used with one student in a lecture-based history class for a time frame of one week. An initial interview was conducted with all members of the captioning team, and a follow-up post interview was conducted with all members of the captioning team. Each team member had a week to review and make changes to any materials that I provided. They were encouraged them to add questions, or to ask for clarification if answers provided were unclear. Some of the findings are discussed here.

Implementing a Survival Guide for Teachers of the Deaf/Supporting Staff

The Itinerant teacher of the Deaf (T.O.D.) felt that the brochure was "satisfactory" but mentioned that her role was primarily to reinforce learning for this student. She meets with this student 45 minutes at a regular interval five times a week, and her
primary responsibility with Derek is to review the notes and lessons from that day’s courses. She was unfamiliar with the use of the software, or with the use of the note-taking services, and was largely un-involved in the C-print support service. Her primary points of emphasis when commenting on the handout/brochure developed were on understanding and utilizing the C-print notes effectively. She was concerned about whether the C-print notes should be edited down to key ideas, or if it should be left ‘as is’. Because this Itinerant T.O.D. may be less experienced with C-print support services, it would be extremely beneficial to survey more Itinerant T.O.D.’s who have used C-print support services on a regular basis. Many T.O.D.’s have taken the time to learn how to use the software, receive and review the notes regularly, have become active partners in the C-print service, and have requested more support in technical issues related to this service (personal correspondence, Gina Coyne April, 2005). One of the more favorable interviews with a high school T.O.D stated that,

"I like the (C-Print) notes because the kids have access to every bit of information. 'If you came in late after the bell --blah, blah, blah.' Because I know my note takers don't take all that stuff down. They assume that if the kids are watching the teacher they are understanding what is going on. And sometimes the kids don’t --they come back to me and say, 'the teacher said something about after the bell, but I could not really understand it, it was too noisy.' Whereas if they have the laptop or even ...C-Print notes they get access to every bit of social and instructional information. (retrieved http://iset.unlv.edu/18.3/elliot/six.html)

Because of this, these questions are were largely left un-altered. Further follow-up with T.O.D.’s may provide a more useful and concise FAQ brochure that would provide future H.S. T.O.D.’s more readily available resources. In addition to adding to the list an FAQ related to the editing of note-taking services, one additional suggestion made was to provide links of interests. Providing links of interest such as ClassACT (http://www.rit.edu/classact) or MCPO’s website can give supporting personnel resources
to become more active advocates for their students' needs, especially in helping to provide assessments for whether C-print would be the right fit to their communication needs and environment.

**A Survival Guide for C-Print Captionists**

The Captionist Survive Guide brochure was the second curriculum-created material that was implemented in this trial. Because the requirements of Captionists vary depending on the institution, the students' needs, and a variety of other factors, I did not fill out an answer form to accompany the questions that I asked. These questions were mostly reflection questions – they asked the Captionist to evaluate the environment they would be working in, and provide some quick suggestions about how to modify their Captioning to make better decisions in a variety of classroom situations and teaching styles. The Captionist who worked with me to evaluate this brochure had the benefit of working in both post-secondary and secondary environments. Based on her experiences, she provided some answers that she felt would be helpful for future Captionists. Her answers helped to shape and modify the answers I would attach to the Captionist Survival Brochure. Suggestions as to when to defer to the deaf student, when to defer to the teacher, and when to make self-based judgments were key and were added to the final product. Some additional questions were also added based on feedback provided with this captionist (personal correspondence, Gina Coyne, May, 2005). Ethical situations that occur such as typing out sensitive or culturally inappropriate words said in the classroom, or modifying content of the lecture were added to the Survival Guide brochure as well in the final product.
A C-Print Survival Guide for Mainstream Classroom Instructors

The third brochure created was presented to the mainstream classroom instructor. This brochure was aimed at providing suggestions for very practical classroom situations, and addressed themes that would help the instructor be a more equal partner in the captioning services. Feedback from this instructor was very positive, and very few modifications were made. The instructor said that the captioning service did not impede or change his teaching style, which matches research findings on the impact of C-print in k-12 classrooms. Because the classroom in this trial was conducted in a lecture-based format, it would help to get feedback from more teachers in other disciplines, who use less traditional, lecture-based instruction methods to provide feedback. One key area that was addressed and amended based on feedback from the instructor was the use of captioning in the classroom. The primary concern of the instructor was what to do when captioned movies are not readily available. This instructor understood that asking the student to watch the movie and follow the C-print screen would be too conflicting. After meeting with the instructor, the brochure was modified to make it more 'user-friendly' but more resource-oriented. The revised brochure aims to provide instructors with basic resources of where they can get closed captioned movies, but also how they can request to have movies they know they will show in advanced captioned through independent companies. One more key is to help the teacher know when and how to delegate responsibilities; to ask the library/media specialist for support when equipment/captioning breaks down, or when needing to request materials to be captioned.

After implementation, some of the findings suggested were to emphasize closed and open captioning more and provide resources for this, and to emphasize websites
where more resources could be provided. ClassAct's website, MCPO's website, general captioning guidelines website (provided in reference section) were some suggested sources for teachers and support personnel. For the mainstream instructor, clarifying and emphasizing the Universal Design applications would be beneficial. Utilizing the C-print notes after class could be conducive to learning opportunities for the entire class. For the support staff, clarifying what the C-print notes are and clarifying how they should be used seems essential. Some districts may prefer to truncate notes down to the 'bare essentials'. This is a decision that should be discussed with the student and the Captionist first. Because C-print provides real time access to Communication, the student should make the decision how much editing he wants done. One of the ideas presented during my meeting with STSN president Denise Kavin (personal correspondence, May, 2005) was that this would help empower the support services and instructors to have a quick and easy method to find sources of support without trying to condense all of those sources onto one or two handouts. The library Media specialist could provide an outstanding source for assuming responsibility for captioning services. In the BOCES school district, all supplemental materials for captioning are provided in "digest/catalog" form. If a teacher wants to consider ordering a captioned movies, they can look to this digest form, but they are limited to all movies on this. Because of federal regulations exempting captioning requirements for independent films or educational films that often accompany textbooks, many movies are not captioned, and cannot be readily provided by existing media services. The solution commonly employed at Spencerport high school in the trial classroom was to have the student's FM microphone placed near the television, and use note-taking services to reinforce what is missed.
The three sets of materials described above provide a foundation for what this curriculum project hopes to accomplish. In addition to providing basic materials that proved to have merit in the classroom, this project shows a need for more resources to be made available for C-print captionists, and supporting staff at the K-12 level. Because speech to text services provides an important accessibility tool to students who otherwise would not receive full access, more materials could be developed that would enhance this project more. Materials for parents and supporting staff on requesting C-print and speech to text captioning, the growing opportunity of Remote Captioning, the need for ethical guidelines/code of ethics to be provided, and providing credentialing similar to what the DPI has developed for Educational Interpreters are all practical and need to be addressed to ensure that speech to text captioning provide equal accessibility for deaf and hard of hearing students.
Appendice

1 Sample Survey of College Students Perception, Modern European History
2 Itinerant/Supporting Staff FAQ brochure
3 Captionist FAQ brochure
4 Mainstream Teacher FAQ brochure
5 Itinerant/Supporting Staff FAQ brochure with answers/suggestions
6 Captionist FAQ brochure with answers/suggestions
7 Mainstream Teacher FAQ brochure with answers/suggestions
8 DPI Guidelines for Educational Interpreters
9 Closed Captioning Video Brochure for Instructors
10 Sample lecture highlighted by Spencerport H.S. student
References


C-Print Survival Guide for Teachers of the Deaf/Supporting Staff
Frequently Asked Questions and Tip Sheet for using C-print in your classroom

1. What is my primary responsibility when C-print services are offered to my student for classes?

2. How much support will my student need from me with the equipment setup, and technical issues when using the laptops and software?

3. How can I use the C-print service after class to help my student study and review?

4. How can I request and purchase the software?

5. How can I learn to use the software, and can I install the software on computers at school?

6. Can my student take the software home?

7. What should happen with C-print notes/services when my student is not in the classroom?

8. How can I get the notes from C-print after a class is finished?

9. How can I make sure the c-print notes are accurate?

10. How and when should I request the C-print service for my student?

11. What other resources are out there to help me better prepare for this service?
FAQ for Captionists

1. Who is my primary contact at this school?

2. Who is responsible for finding a substitute if I am sick and unable to go to class?

3. Which type of classroom will today be? - lecture-based, discussion-based, or independent practice? How can I obtain the materials and information I will need to provide C-print for today’s classroom?

4. What can I do if equipment breaks down for either my student or myself during class? What options do I have?

5. When is it appropriate for me to ask the teacher to repeat something, to slow down, or to review information if I missed something in the classroom?

6. What strategies can I use during group work to make sure my student can participate as fully as possible?

7. How can I best inform the student when the teacher has an announcement during class?

8. What should I do if my student is not paying attention, being disruptive, or ignoring the C-print lecture?

9. When should I modify the C-print text for my student who seems to be understanding the lecture material?

10. Whose responsibility is it to teach students how to use the software?

11. Is it ok to type vocabulary words that are considered culturally inappropriate if they appear during the class lecture?
C-Print Survival Guide for Classroom Instructors
Frequently Asked Questions and Tip sheet for using C-print in your classroom

1. Will Students who use C-print for your lecture receive the same information as their classmates?

2. Will all students use C-print services the same way?

3. How can my students participate and ask questions during class lectures?

4. How can I help students using C-print capture information such as diagrams, and visual displays?

5. The student doesn’t appear to be watching the screen or paying attention, what should I do?

6. I am showing a movie that isn’t captioned. How can the student watch the movie and follow C-print at the same time?

7. Can the whole class use or get a copy of the transcripts when class is over?

8. How can I make the student using C-print feel more comfortable in my classroom?

9. Will students be distracted from my lecture by using C-print?

10. What can I do to help students participate completely in classroom discussions?

11. What can I do to make sure the C-print message is the same as what other students are receiving, and is accurate?