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THE ESSENTIAL HIGHER ED CLOSED CAPTIONING GUIDE

What Technology Managers, Accessibility Coordinators and Campus Executives Must Know About the New Regulations, Benefits, Solutions and Best Practices

By Kevin Erler, Ph.D.
Automatic Sync Technologies

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ABSTRACT

The proliferation of new media, ubiquity of lecture capture, increased enrollment of ESL learners, and growing regulations and litigation over accessibility has most higher education campuses renewing their focus on closed captioning. This white paper is intended to provide a guide to offer campus executives, technology managers, accessibility coordinators, and other decision makers the information they need to make informed decisions.

CONTENTS

INTRODUCTION

Whether your search began like most, with a last-minute call from disability services or you've received a campus-wide mandate to increase accessibility, most campus executives, technology managers, and other decision makers are faced with many challenging questions:

- What do I need to caption?

- What alternatives are available?

- How can I create a captioning solution in a cost-effective yet timely manner?

- How do I know if my solution is compliant with federal and state regulations?

- What additional benefits can I expect?

- Where do I find funding?

This white paper will explore the modern captioning landscape and provide decision makers with the information they need to make informed choices.

THE OLD ACCESSIBILITY LANDSCAPE

One of the first questions that is often asked by campuses is, "What media needs to be captioned, and when?"

The proliferation of lecture capture systems and new media on campuses has made this question more difficult to answer. To understand how your campus is affected, it's useful to provide a quick overview of laws that govern accessibility.

Before the Internet and new media, closed captioning was once a concern only for broadcast television providers. Beginning in the early 1980s, with the creation of the FCC's National Captioning Institute, major networks such as ABC, NBC, and PBS began to voluntarily broadcast some of their programs with closed captions.[1]

Closed captioning used to be important only to major television networks. The proliferation of new media has made it a major concern for college campuses.

In 1990, Congress passed the first law governing closed captioning. It required televisions with screens larger than 13 inches to contain the circuitry that is necessary to display captions. Since January 1, 2006, all new English-language video programming, including live broadcasts (with a few carefully carved-out exemptions), must contain captions. The introduction of new media has shifted the landscape. Today captioning is far more complex.

◆◆ THE NEW MEDIA ACCESSIBILITY DILEMMA ◆◆

As the Internet has become the unifying medium for the access of almost all information today, federal and state governments have begun to create regulations surrounding closed captioning of online and IP-delivered video.

To begin, institutions that receive federal funding are subject to Sections 508 and 504 of the Rehabilitation Act.

These regulations mandate that any U.S. federal agencies or any programs or activities that receive federal funds must provide equal access to any data, communication, and technology in comparable fashion to that which would be accessible to those without disabilities.[2]

Expanding the scope of accessibility standards for online video, in 2010 Congress passed the Twenty-First Century Communications Video Accessibility Act (CVAA). New FCC regulations that were put into place under this act mandate that "all video devices that receive or display video programming transmitted simultaneously with sound, including those that can receive or display programming carried over the Internet" must provide closed captioning capabilities. The CVAA specifically applies to video that was originally broadcast on television, but it has broad implications for hardware and software manufacturers because it stipulates that any IP video player must now be capable of displaying closed captions in a standardized way.

Most recently, Title III of the Americans with Disabilities Act (ADA) has been expanded to include online places of public accommodation. Title III of the ADA provides that "no individual shall be discriminated against on the basis of disability in the full and equal enjoyment of the goods, services, facilities, privileges, advantages, or accommodations of any place of public accommodation," and guidance from the Department of Justice indicates that this includes Web sites and the online delivery of education.[3]

For an ever-increasing number of higher education institutions, local and state laws will further expand upon federal laws. At least sixteen states (including NY, TX, MO, NC, VA, IL, OK, and CA) already have comprehensive policies.

> **From these laws it is clear that lecture capture recordings and other critical academic materials must be made available to students with disabilities in a way that is equal to those students without disabilities – for hearing impaired students, this means closed captioning.**

But what about other content, such as Web site videos or other forms of new media?

Recent litigation demonstrates that institutions of higher education may be responsible for captioning an increasing volume of content.

ACCESSIBILITY SCRUTINY AND LITIGATION IS INCREASING

Recent lawsuits demonstrate a trend towards litigation against public accommodations that fail to meet accessibility standards – this can be a major concern for higher education institutions.

Groups such as the National Association of the Deaf "encourage [their] members to complain… whenever captions are absent or unreliable."[4]

In 2010, Penn State was the subject of an accessibility lawsuit because of "the widely inaccessible nature of technology used on the campus."[5] More recently, Netflix has been the subject of a lawsuit that has raised concerns for many higher education campuses.

The National Association of the Deaf filed a suit seeking to force Netflix to add captions to videos on its "watch instantly" streaming Web site.

Under ADA regulations, a "place of public accommodation" must meet certain requirements for access and use by people with disabilities. Netflix attempted to have this suit dismissed, arguing that it is not a public accommodation such as a physical video rental store, and that because its service is offered to people inside their homes, it is under no obligation to provide special services to people with disabilities. U.S. District Court Judge Michael Ponsor disagreed and upheld the suit, stating in his ruling that it was incorrect to argue that Netflix was not a place of public accommodation simply because of the digital nature of its products.[6]

For higher education campuses, this means that there is increasing concern over what content must be captioned, as campuses are becoming increasingly digital in nature. What about Web content? What about VoD content? What about presentations at school events or commencement addresses?

Recent litigation, and opinions of expert disability rights attorneys, demonstrates that any school-controlled content portal must be made accessible to all students.

Charlotte Lanvers, a Staff Attorney for the Disability Rights Education and Defense Fund, explains that:

> *"As colleges and universities manage the content on their Web sites they have an obligation to ensure it is accessible. Anything that is being actively used in class or available to the student body at large must be equally accessible to one and all – this obviously includes tools such as lectures and associated slides. For audio visual components of Web sites, the captions must be available all the time, not just on request only. It also means that other school controlled content portals must be accessible as well."*

The good news is that, while litigation and regulations have increased, new captioning solutions have emerged. Today, the benefits to captioning material extend far beyond simple governmental compliance – and provide an opportunity for increased campus revenues and extraordinary ROI.

◆◆ THE EXTRAORDINARY BENEFITS OF CAPTIONING ◆◆

Today higher education institutions are faced with the extraordinary challenge of delivering content and information across an ever-expanding number of channels to an increasingly diverse student body that demands instant and ubiquitous access to their content and learning materials. This means delivering content:

- that is increasingly rich media to an audience that is increasingly remote;

- in new formats that are penetrating new audiences increasingly quickly;

- that is consumed by an audience that must absorb and comprehend information at an unprecedented rate;

- to audiences that are increasingly likely to be non-native English speakers; and

- That may use English terms that are not familiar, even to native speakers.

Captioning critical academic materials, when used in conjunction with a lecture capture solution, provides solutions to nearly all of these challenges.

Improved Student Comprehension

The benefits of using captioning to improve student comprehension, engagement, and performance have been proven in a multitude of studies. In his book *The Closed Captioning Handbook*, Gary Robson explains that "augmenting an auditory experience with captions more than doubles [student] retention and comprehension levels."[7]

In 2007, a study conducted by San Francisco State University delivered instructional video materials to students – 50% of the students received captions while 50% did not.

When students were given instructional video materials with captions, they were found to be more engaged and responsive to questions, were better able to relate the information to their everyday lives, and demonstrated an improvement of one full grade point versus those students who were not exposed to captions.[8]

Videos with Captions are Watched Longer

A study conducted by Knopf found that videos with captions are viewed 38% longer than videos without.[9]

Captioning Supports Learning for ESL Students

Second-language learners can more quickly assimilate material in written, rather than oral, form. Captioning also gives them the opportunity to review confusing materials or reference difficult or complex scientific terms that they may have had trouble translating without a written reference.

Allows for More Flexible Access to Learning Materials

The ubiquity of wireless environments means that students demand everywhere access to their core course materials. Coffee shops, libraries, and other environments may not be conducive to sound. Captions mean that students can access their material in any environment.

Ability to Increase Revenues and Learning Outcomes from Distance Education

The number of students who choose distance education over formal classroom instruction grows every year, yet many institutions fail to make their distance education programs fully accessible to a wide-range of students. Captioning distance learning means that students better comprehend critical academic materials, and the programs are more accessible to disabled and ESL students.

> **As these cases demonstrate, captioning video content improves learning outcomes, improves student retention, and can help your institution attract a broader student population. As a result, the benefits of captioning extend beyond learning outcomes to the actual bottom line of higher education institutions.**

CAPTIONING INCREASES REVENUES AND IMPROVES PUBLIC RELATIONS

Giant leaps in technology, processes, and the potential uses of captioning means the ROI of captioning for higher education campuses is greater than ever before.

In years past, broadcast captioning generally cost $500 to $1,000 per hour of content. Today many excellent solutions exist for less than $200 per hour.

Many higher education institutions also find financial support for their captioning programs from an ever-increasing number of state and federally funded grant programs. For example, California colleges can seek funding from the Distance Education Captioning and Transcription grant (DECT), which provides California community colleges with funding for live and asynchronous captioning and transcription.

Not only have costs come down and alternative sources of funding emerged, but captioning can also create a direct impact on an institution's bottom line.

> **Improved learning outcomes, the ability to enroll additional distance-learning students and the ability to accommodate students with different kinds of learning preferences means that institutions benefit from increased enrollment and student retention.**

Captioning commencement addresses and other public lectures further enhances an institution's reputation by displaying an outward message of commitment to accessibility and diversity.

However, in order to capitalize on the tremendous benefits of captioning, it is critical to choose the right captioning solution.

◆◈ THE PARAMOUNT IMPORTANCE OF ACCURACY ◈◆

More than any other feature, a near-flawless degree of accuracy in a captioning solution is of the highest importance. ADA guidelines specifically state that persons with disabilities must be given "effective communication that offers full and equal enjoyment." The quality of information that is provided must be of equal quality to that offered to people without disabilities.

While the ADA is careful not to provide any hard and fast rules, **Charlotte Lanvers, a Staff Attorney for the Disability Rights Education and Defense Fund, explains that "given the ADA's regulations, a very high standard of accuracy will be required, particularly given the requirement of accurate information in the context of good pedagogical practice."**

ADA guidelines mandate that persons with disabilities must be given "effective communications that offers full and equal enjoyment" to all content. This means that an extremely high level of accuracy is required in captioning.

Research conducted by Automatic Sync Technologies, which was initially funded by a Small Business Innovation Research (SBIR) grant from the Department of Education, demonstrates that even small changes in the accuracy of information severely affects comprehension.

The following is a sample document with no errors.

> Everyone loves a booming market, and most booms happen on the back of technological change. The world's venture capitalists, having fed on the computing boom of the 1980s, the Internet boom of the 1990s, and the biotech and nanotech boomlets of the early 2000s, are now looking around for the next one. They think they have found it: energy.

This passage demonstrates a 10% error rate.

> Boot hoses a booming market, gloved capote booms happen heart the back of technological change. The world's venture capitalists, house fed gem's the computing boom of the 1980s, the Internet boom of the 1990s, and the biotech and nanotech boomlets of the early 2000s, are now looking around for the road one. They gaunt they have found bubonic: energy.

This passage demonstrates a 20% error rate.

> Kazakhstan banter a booming estate, and most systemically happen on the back of technological bleed. The world's venture capitalists, Italians fed on seltzer computing boom kingdom the 1980s, the Internet levy of paddy 1990s, and the harder and nanotech boomlets of the early 2000s, eroded now looking around for the buckle one. They think they limitless methodology it: energy.

Analysis on comprehension and attention focus indicates that with an error rate greater than 3%, readers are barely able to comprehend the main concepts and facts presented. At 10% or greater, the text is largely unintelligible.

After reviewing the passages, the effect on comprehension is obvious.

The precise impact on comprehension rates is demonstrated in the following chart.

Intelligibility vs Error Rate

Y-axis: Intelligibility Score (0–10)
X-axis: Error Rate (%) — 0, 1, 2, 3, 5, 10, 20
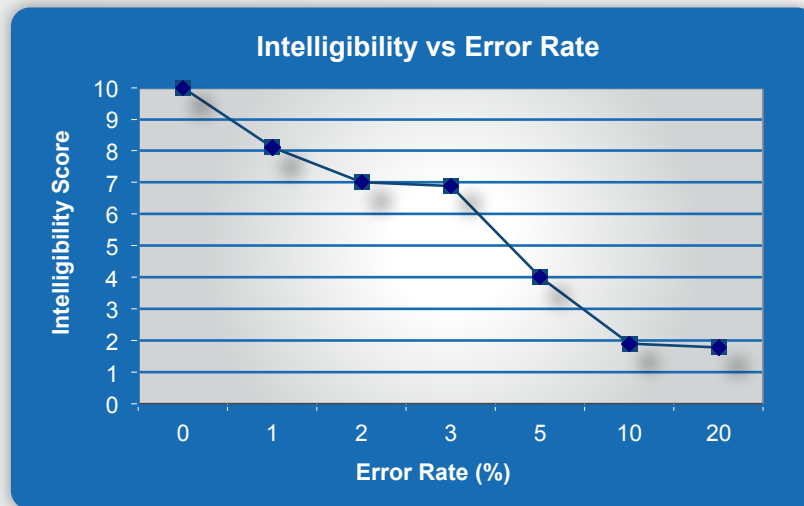
At error rates greater than 3%, comprehension is severely compromised.[10] To ensure maximum accuracy and compliance with governmental regulations, a high level of accuracy is necessary in your solution.

❖ AVAILABLE CAPTIONING SOLUTIONS ❖

Campuses that are evaluating potential solutions have several options to consider.

Create an Internal Captioning Department

When faced with the need to provide a comprehensive captioning solution, George Mason University decided to create an internal captioning department. George Mason's department is a combination of server-based lecture capture systems, voice-recognition solutions, and student transcript editors.[11]

George Mason's program is still in its infancy, so its efficacy and cost effectiveness has yet to be proven; however, in most cases, creating an internal captioning department is far more expensive, logistically complicated, and unreliable than other existing solutions.

In rare cases, for campuses that have large budgets, excess human resources, and large volumes of content, creating an internal department is worth a discussion.

Speech Recognition Software

Speech recognition software is sometimes used by universities that are looking to cut costs; however, the inaccuracy of these solutions makes them a poor choice for an academic environment in which correct captioning is critical.

Even trained speech recognition solutions have extremely high error rates - and are generally considered beyond the threshold of acceptability for academic environments.

The best of these solutions still displays a high degree of inaccuracy. In the academic environment, this inaccuracy is often exacerbated by ambient noise, topic-specific vocabularies, and speakers with accents. Research conducted by the National Institute of Standards and Technology (NIST) confirms that even the best speaker-independent speech recognition systems do not approach the accuracy of human transcribers.[12]

In addition, Automatic Sync Technologies' Small Business Innovation Research (SBIR)-funded research demonstrates that even the 3% – 5% error rates produced by speaker-trained speech recognition systems are significant enough to dramatically impede comprehension. The reality is that, in most cases, training a speech recognition system with speech profiles for all faculty members that are involved is expensive and impractical.

With the error rates for speaker-independent speech recognition systems in the 20% to 40% range, money and time spent on these systems is basically wasted. In fact, exposing captioned content with such high error rates to students or the public could become an expensive embarrassment, projecting a public image that is inconsistent with the image that higher education institutions strive to maintain.

While editing inaccurate captions is always an option, it has proven to be more expensive and time consuming in the long run. When editing transcripts with more than a 5% error rate, the cost of editing and correction is higher than simply starting over.[13]

Use Students

Some campuses have experimented with using students to caption lecture capture and other materials; however, the quality of transcriptions and availability of students have proven this approach to be largely ineffective. **Les Balsiger, Director of the Center for Learning Technologies for Laramie County Community College, explained, "Using students for transcription and captioning of video is not a good approach. It's nearly impossible to train them to do it accurately and efficiently, and turnover is too high. It's better to pay trained professionals, get it done quickly, and get it right the first time."**

In addition, many campuses don't initially realize all of the costs involved in "in-sourcing" closed captioning. At a minimum, the costs include management and support staff, equipment, space, overhead costs, and training and equipment costs; this all in addition to the cost of labor for transcription and captioning.

Eight Critical Questions to Ask Before Choosing a Captioning Solution

1. Does the vendor use speech recognition in the process? What steps are taken to ensure high quality captions?

2. How easily will it integrate with my lecture capture platform and my departmental workflow?

3. How long does it take to provide captions?

4. How easy is it to get up and running?

5. Is the captioning service provider reliable and easy to work with?

6. What is the cost per hour?

7. Are there any setup charges or extra fees for special content?

8. What media formats and caption output formats are provided?

For example, it typically takes student transcribers five to eight hours to transcribe and caption one hour of video content. Students are typically available only 10 - 12 hours per week. As a result, schools must juggle multiple students in their transcriber pool in order to keep turnaround time acceptable and consistent. Schools must also provide infrastructure such as computer workstations and office space for each student, along with supervisory staff and technical support staff. Benefits, taxes, and other overhead typically add 30% – 40% to the costs. By the time the total cost has been calculated, most campuses find that in-sourcing is more expensive than outsourcing, and provides much lower quality results.

Source	Typical Error Rate	Typical Error Rate
Trained Stenographer	0.5% to 1%	No problems
Student Transcriber	Variable	Expect to be worse than stenographer
Speech Rec: trained	3% to 5+%	Varies from acceptable to poor
Speech Rec: untrained	20% to 40%	Unintelligable

Third-Party Solution Providers

In order to ensure accuracy, compliance, and ease of deployment, many schools will turn to third-party providers; however, not all providers are created equal. **Many companies use a hybrid approach, combining error-prone speech recognition software with the oversight of an editor to monitor accuracy. This hybrid approach, while economically beneficial for providers, introduces the potential for inaccurate closed captions.**

Consider the game of telephone, in which each player whispers a selected sentence to the next player. Each time information is passed, the opportunity for errors increases. When beginning the editing process from an inaccurate document, the opportunity for additional errors is introduced and amplified.

The most accurate solutions utilize trained transcriptionists to ensure that not only are the correct words transcribed, but that the original intent of the speaker is also captured.

It was in response to this need that Automatic Sync Technologies introduced its landmark captioning technology, CaptionSync, which was developed specifically for higher education campuses.

COMBINING TEGRITY AND CAPTIONSYNC MEANS SPEED, ACCURACY, FLEXIBILITY, COMPLIANCE, INDUSTRY-LEADING ROI, AND IMPROVED LEARNING OUTCOMES

CaptionSync by Automatic Sync Technologies was developed by Kevin Erler, Ph.D., and Brent Robertson, in collaboration with a team of expert advisors from higher education and with funding from a grant from the U.S. Department of Education.

CaptionSync was specifically developed to address the unique needs of higher education.

Near-Perfect Accuracy

The need for accuracy in the academic environment is a primary concern. CaptionSync addressed this need by utilizing trained stenographers to transcribe all materials. In order to work with Automatic Sync Technologies, stenographers are recruited from the most demanding environments, such as court reporting. They must then pass a rigorous evaluation and are subject to constant quality control reviews. The result is industry-leading accuracy and captions that are 100% compliant with all closed captioning laws and regulations.

"Out of 10 high ranked caption vendors, only CaptionSync met all criteria for cost, format, fast turnaround, online submission, and support. It streamlines the process of captioning our public-facing materials and gives us the assurance it will be accessible."

Dean Brusnighan
Assistive Technology Specialist
Purdue University

Simple User Interface

Administrators, educators, and campus technology staff don't have time to manage complicated systems and processes. The Tegrity/CaptionSync integrated workflow boasts a highly streamlined interface that requires almost no management or upkeep from professors or technology managers. When professors want to caption a lecture, they simply click a few buttons in the simple Web-based interface. Less than three days later, the lecture streams with captions included.

No Long-Term Commitments

There are no license or setup fees and no long-term contracts. Pay for captioning only when you need it.

Cost Effective

Automatic Sync Technologies' organizational efficiency and proprietary processes mean that CaptionSync is not only extraordinarily accurate, but also highly affordable.

Easily Fund Captioning

All billing can be easily organized to bill directly back to the appropriate departments so there is no trouble with procurement or funding.

Industry-Leading Speed of Service

Captions are provided within three days of the request, guaranteed. When speed is of critical importance, 24-hour service is available. **Michael Levin, Director of Sales Operations at NBC Learn boasted, "CaptionSync is a great solution for our needs, allowing us to caption a vast amount of material in days, not months."**

Pre-integrated with Tegrity

Tegrity users have no software to install. In less than five minutes, your captioning solutions can be operational.

"We have used AST for many years because of their high quality and speed. To have CaptionSync integrated into our system is an enormous benefit."

J. Ian Weber
Senior Manager Academic Technology and Media Services RIT

Free Closed Captioning Consultation

To learn how CaptionSync can provide your campus with turn-key, cost-effective, industry-leading closed captioning, call or click today for a free closed captioning consultation.

Web site: www.automaticsync.com/captionsync
Email: info@automaticsync.com
Phone: 1-877-AST-SYNC

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About Automatic Sync Technologies

Automatic Sync Technologies, the leading provider of automated captioning for thousands of clients around the world, created the CaptionSync process. Funded in part by an SBIR (Small Business Innovation Research) grant, Automatic Sync Technologies pioneered the most cost-efficient, high quality, automatic captioning service available today. CaptionSync delivers all time-coded captioning file formats to you in minutes...all from one single submission.

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About McGraw-Hill Tegrity

McGraw-Hill Tegrity provides award-winning lecture capture solutions that improve learning outcomes, impact retention, and increase enrollment at numerous academic institutions. McGraw-Hill Tegrity, headquartered in Santa Clara, California, is led by a forward-thinking team that is dedicated to impacting education worldwide with the creation of advanced teaching and learning systems.

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