HOW STANDARDIZATION SOLVES PROBLEMS IN CAPTIONING AND BEYOND

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ABSTRACT

The four fields of accessible media – captioning, audio description, subtitling, and dubbing – are ubiquitous worldwide but have been resistant to standardization. Service providers all do their work differently, resulting in inconvenience, confusion, and inaccessibility for viewers. Accessibility features can appear as afterthoughts rather than as integral components of programming. A lack of common interchange file formats forces broadcasters, producers, and service providers to redo the same work on the same programming. Standardization promises to alleviate or eliminate these problems. This paper explains the issues involved in a standardization program based on research and evidence; the cost of nonstandard practice; and the benefits of standardization to producers and broadcasters, practitioners, regulators, and viewers.

CATEGORIES OF ACCESSIBLE MEDIA

In film, video, television, multimedia, theatre, opera, and similar audiovisual forms, audiences may require accessibility provisions.

- They may be deaf or hard-of-hearing and require *captioning*, the rendition of dialogue and meaningful sound effects in written words.
- They may be blind or visually-impaired and require *audio description*, an added narration track that talks the viewer through the production, explaining visual details and events that are not clear from the main soundtrack alone. (Variant terms for this process include *descriptive video* and *video description*, though the generic term is *audio description*.)
- They may not understand the source language, requiring *subtitling* (written translation of the source dialogue and occasional visible text) or *dubbing* (a translated dialogue track). Sign-language interpretation can be considered a variant form of dubbing in certain contexts, as in theatre or television.
- Or they may have no disabilities and be conversant in the source language but use captioning, description, subtitling, and/or dubbing by choice.

These accessibility techniques can be considered *the four fields of accessible media*.

USAGE PATTERNS

All four fields are used, in various combinations, in most industrialized countries. Audio description is the newest and least common technique. while subtitling and dubbing are the oldest and most widespread.

The extent of usage of the four fields has not been reliably surveyed. It is possible to observe with confidence that many European countries use subtitling and/or dubbing extensively on foreign-made programming, and that captioning is widespread in Canada, the U.S., the U.K., and Australia. Here, programming actually delivered with accessibility is the issue rather than government or regulator requirements, which may or may not be met and which may have phase-in periods. Still, numerical data are elusive.

- Iversson and Caroll (1998:5–7) estimate that "eight Swedish non-paying TV channels broadast about 200 hours of first-run translated subtitled programs" in one week, and "at least 350 hours of first-run subtitled TV programs and films are shown per week in Sweden." Also, "Belgium subtitles virtually all foreign films" and "over 90%" of films are subtitled in Greece, among other countries cited.
- Jordan et al. (2003:2–3) surveyed 38 television networks and channels in the U.S. and found 62% were captioned. In another sample of five networks, captioning varied from 54% to 100%.

THE STANDARDIZATION LANDSCAPE

Accessible media at present are undertaken with relatively low standardization. The forms taken by the four fields vary according to service provider, country, language, technology, and client, among other factors. For example:

- Competing closed-captioning houses produce captions that look and behave differently.
- U.K. and Australian closed captioning, using teletext technology, differs materially from U.S., Canadian, and Japanese closed captioning using Line 21.
- French-language captioning in Canada differs from English-language, as by a French-language preference for mixed-case typography and the use of the accented-character set available in Line 21, however restricted (Robson 1997:48–51).

- DVD subpictures differ from both Line 21 and teletext closed captions even when subpictures are used for captioning.
- Some clients demand only the cheapest captioning available, while other clients use higher-cost captioning, up to and including multiple sets of captions on a single program (as with near-verbatim and easy-reader versions, or English- and Spanish-language captions).
- Accessibility is often required by broadcast regulators, but can also be provided voluntarily. A mandate to provide accessibility usually does not require standardized practice. See CRTC 1995; FCC 1997; Australia 1998 (where "standards" means "quantity standards"); HMSO 2003; RCQ 1983.
- No common interchange file format for captioning, audio description, subtitling, and/or dubbing has been developed. Some limited attempts have been made (Rogers and Coghill 2003; W3C 2003).
- Some broadcasters or broadcast consortia have published manuals on captioning, audio description, and/or sign language (ITC 1999, 2000, 2002; CAB 2003; Auscap 1999a).
- Some researchers or organizations publish manuals (Verlinde and Schragle 1986; CFV 1996).
- Individual service providers often maintain in-house *style guides* (Carlson et al. 1990; Dittman et al. 1989).
- Some materials on media creation (e.g., DVD authoring) provide minitutorials on captioning and/or subtitling (Taylor 2001:526–7).

TECHNICAL STANDARDIZATION

A distinction can be drawn between *technical* standardization (concerning data or file formats) and standardization of *practice*. Technical standardization is well established, even if ambiguities may appear in the specifications. Technical examples include Line 21 closed captioning (EIA 2002a), captioning for North American high-definition television (EIA 2002b), teletext (BBC et al. 1976), Digital Video Broadcasting (ETSI 2002), and DVD subpictures (DVD Forum 2003). Standardization of *practice* is the focus of this paper.

TRAINING AND CERTIFICATION

Training and certification programs for the four fields of accessible media are not widely available.

- The discipline of court reporting or computer-aided stenography, used in real-time captioning, is taught in an estimated 80 institutions in the U.S. and Canada (NCRA 2004), some of which offer actual specialization in captioning (Cantley-Falk 2003).
- The literature indicates a single course in *offline* captioning (that is, captioning of prerecorded programming) in recent memory, the CC University program offered by WGBH for other Public Broadcasting Service stations in 1991 and later (NCAM 2003).
- Audio description for theatre is taught by the Metropolitan Washington Ear (2003).
- Classes in subtitling are offered in Denmark (University of Copenhagen 2004) and the U.K. (University of Surrey Roehampton 2004; University of Wales 2004).
- Some description and dubbing providers require that narrators and actors hold memberships in relevant unions, such as the Screen Actors Guild or the American Federation of Television and Radio Artists (WGBH 2004).

These piecemeal training programs (some no longer even offered) do not address the training needs of existing practitioners, let alone future additions to the roster of practitioners. Even if existing training programs were expanded, the result would be a wider base of practitioners trained in nonstandardized methods.

It is no surprise to note that there are also no certification programs available. A review of English-language literature and online sources reveals no method by which to become a certified or registered practitioner of captioning, subtitling, description, or dubbing (whether writer or performer in the latter two cases), with the exception of court reporting for real-time captioning. By contrast, it is quite possible to become a certified sign-language interpreter in the U.S. (RID 2004; NAD 2003), Canada (AVLIC 1997), the U.K. (CACDP 2002), and Australia (ASLIA 2003).

ADVANTAGES OF STANDARDIZED PRACTICE

Some advantages of standardized practice can be identified for producers and broadcasters, practitioners, regulators, and, most of all, viewers.

Producers and broadcasters

0. Quality. Applicable to all interested parties, standardization based on evidence and fact brings assured quality to accessibility for the first time.
1. Greater confidence that spending on accessibility – often done to meet a requirement – actually results in value for money.
2. Assurance that programming exceeds strict minimal compliance (the presence of *any* captioning, for example) and provides actual accessibility to viewers.
3. Through common interchange formats, eliminate or reduce the need to redo the same work over and over again, as in recaptioning for a syndication reformat, a DVD issue, or a PAL version.

Practitioners

0. Quality.
1. Compete on a level playing field. Established service providers have lost market share to lower-cost competitors who may produce work of commensurately lower quality *in the established practitioners' view*. But without standard practices, there is no way to prove that any practitioner is better or worse; it's one practitioner's word against another.
2. Reduce the importance of feeling and opinion. Disagreements are legion in the accessibility field. Providers believe their methods are correct or at least are not worse than other methods, but almost none of those assertions can be proven without standardized practices.
3. Genuinely integrate into the production process. Captioning in particular has been discussed as an "integral" (Auscap 1999b) or "routine" part of the production process, but has seldom been treated as truly integral. Regulatory requirements that some but not all programming be captioned, described, subtitled, or dubbed leave the impression that such features are optional, since by definition they can be omitted. Standardized accessibility – with appearance and behaviours common across productions – turns accessibility into a true integral production component.
4. Provide guidance. Some practitioners, particularly those new to the field, seek reliable answers to variations on the theme "How do I handle this?"

Regulators

0. Quality.
1. Meaningful and effective public policy, based on evidence and fact.
2. Demonstrate actual knowledge of the fields being regulated.

Viewers

0. Quality.
1. End the confusion. Captioning would look and behave similar on similar programs, as would description, subtitling, and dubbing.
2. Respect. Accessibility becomes a field with defined and researched standards rather than simply a business.
3. Inclusion. Viewers are included in the collaborative development process.

INTRINSIC CHALLENGES IN STANDARDIZED PRACTICE

Since captioning and subtitling deal with the written word, and dubbing and audio description with the spoken, it may seem difficult or impossible to standardize their practice. How do you specify ways to write captions and subtitles, or ways to write and record dubbing and description tracks?

In reality, the four fields of accessible media are already semi-standardized, at least at the level of individual practitioners. Each service provider has its own practices, which, in the more established organizations, are codified in written style guides. That term leaves the impression that we are talking about matters of "style," that is, something insubstantial, superficial, expendable, or decorative. In fact, style guides of this sort are based on the premise that similar phenomena *recur* in audiovisual media and that they can and should be dealt with in the same way.

To give a few examples:

- A captioning service provider may use italic type for all utterances or sound effects whose source is not visible at onset.
- An audio-description service may specify that, if time does not permit full reading of opening credits, unread credits may be appended to closing credits, which may themselves be abridged.
- A dubbing house may dub into British rather than Canadian or U.S. English.
- A subtitler may choose not to subtitle song lyrics.

Full standardization of the four fields of accessible media is merely an extension of the process of establishing in-house style guides. The fact that existing service providers already have practices in place demonstrates that practices *can* be put in place. A project of full standardization merely extends this existing process.

To date, no one has attempted *cross-industry* standardization of this sort. It's already happening at the micro level of individual practitioners; it is now beneficial to expand standardization to the macro level of all four fields of accessible media.

STANDARDIZATION MODELS

Since standardization is actually possible, the question becomes: How do we do it? We can already observe a few models for standardization in accessible media, with pros and cons.

Industry bodies

In this model, a lobby group or other industry association writes specifications with input from its members and, infrequently, outsiders. Examples: CAB 2003; CQI 2003

Pros

Standards committees likely to be composed of experts with hands-on experience; costs implicitly borne by members' day jobs; consensus often readily reached; can be fast

Cons

Tendency to reiterate and reify existing practices; often secret; no review or errata-correction mechanism; testing periods rarely provided before implementation; tendency to underuse published research; little use of custom-commissioned research; dominated by incumbents; voluntary

Standards bodies

A multi-sector organization, whose main purpose *is* the writing of standards, develops a specification. Example: W3C 2003

Pros

Increased openness; public documentation of development process; mechanisms in place for review and errata correction; costs implicitly borne by members' day jobs

Cons

Standards body may limit contributions to paid members; body may overrule some contributors; consensus hard to reach; slow; testing periods rarely provided before implementation; tendency to underuse published research; little use of custom-commissioned research; can be overrepresented by incumbents; voluntary

Government

A government agency writes the specification. Examples: Access Board 1998; Treasury Board 2003

Pros

Mandated public consultation; indisputable minimum standards

Cons

May represent the state of yesterday's art; may apply solely to public sector; though mandated, may nonetheless be ignored; slow; testing periods rarely provided before implementation; little use of custom-commissioned research; can be isolated from grassroots practice; may include loopholes

PRINCIPLES FOR A NEW DEVELOPMENT MODEL

An accessibility research and standardization program could adopt a new model in which anyone may contribute and collaborate, with decisions made by research staff based on available evidence and fact. Such a process is not a vote and is not consensus. It is open to all interested parties, none of whom can dominate the proceedings, and it results in fact-based standards.

For a project with the ambitious aim of standardizing four wide-ranging disciplines, development principles can be articulated as follows:

Accessibility

Make the specification accessible to people with disabilities and others.

Availability

Publish and distribute the specification as widely as possible.

Contribution & collaboration

Allow contribution and collaboration from all interested parties.

Decisiveness

Make decisions quickly based on evidence and fact.

Representation

Ensure that involved parties are drawn from a fair cross-section, without imbalance.

Evidence and fact

Rely on evidence and fact, even if somewhat in dispute, rather than opinion and feeling.

Research

Where evidence and fact are lacking or in dispute, commission custom research.

Best trumps current

With a basis of evidence and fact, prefer demonstrably best practices even if at variance with current practice.

Localization

Ensure that specifications function well, and are customized for, languages, cultures, audiences, and technologies.

Testing

Provide a beta period in which the specification can be torture-tested in the real world.

Errata and revision

Make it possible to correct errors in the specification, and develop a program to revise the spec as new technologies arise.

Training and certification

Provide a means of training and certifying practitioners.

The cost of consensus

Consensus is specifically excluded from this model because it is effectively impossible to obtain in the four fields of accessible media.

1. Captioning has been produced for TV and home video for 30 years, audio description for almost 15 years, and subtitling and dubbing for nearly a century, yet practitioners still do things differently. While much of this variation can be explained by competitive pressures – provider *X* feels its work needs to be noticeably different from provider *Y*'s – it also indicates an industry-wide unwillingness to agree.
2. In the existing development models where consensus is found, it comes at a cost. (In fact, "Consensus *costs*" is a catchphrase in

standards development [May 2003].) Outside collaborators who might have registered dissent can simply be excluded from the process. Or the consensus document represents too many compromises.

3. Consensus can be synonymous with mediocrity. Apart from excessive compromise, consensus may favour existing familiar practices rather than practices that research and evidence can show are better.
4. Research into viewer preferences tends to result in split verdicts (ATVWG 1997). Consensus, even in viewer surveys, is rare.

BARRIERS TO DEVELOPMENT

An ambitious program of standardization faces barriers that are significant but not insurmountable.

Custom research

Research can be expensive. However, past research has tended to be fashioned to fill the available budget, particularly when funding comes from government. It's possible to assess the actual needs of a research project first off rather than the money available to spend. Some evidence suggests that even small subject cohorts can produce meaningful data (Nielsen 2000). The claim is disputed (by Woolrych and Cockton 2001, among others) in its original context of computer usability testing, but it may yet be applicable in accessibility testing. When the research objective is to differentiate between two practices or plug a hole in previous research, large cohorts are not necessarily needed.

Buy-in

Producers and broadcasters, practitioners, regulators, and viewers (including viewers used as test subjects) have to want standardization. The cost savings alone may be persuasive. But a standardization project does not need universal buy-in if it is based on evidence and research. Collaborators can contribute, and the work of noncollaborators can simply be observed. Doubters *help*: We can include their criticisms and have them beta-test the standards. If the spec is solid, it will hold up.

Localization

Making a specification that works in multiple languages and in different technologies complicates the task. It then becomes necessary to limit the initial specification to certain languages, though all prevailing technologies should be covered.

TRAINING AND CERTIFICATION MODELS

Of especial interest are training and certification, since, as aforementioned, both are virtually nonexistent in accessible media.

With increasing use of broadband Internet, it finally becomes possible to teach captioning, audio description, subtitling, and dubbing as a form of distance education or continuing education. Students have the ability to work on actual video segments – at home, if desired – and submit them for critique and marking.

Still, hands-on training, which can be provided in classrooms worldwide, may produce the best results. Nothing beats doing, watching, listening, testing, and learning in a face-to-face class. The barriers to such hands-on training are:

Cost

Hardware and software for accessible media can be expensive. (For dubbing and audio description, usually some kind of recording studio is needed, though some systems let the narrator record directly [Softel 2001].) On the other hand, different fields of study – e.g., music production and film editing – also have high per-seat costs.

Undervaluation

Film and media training schools may view the four fields of accessibility as extraneous or as low-level postproduction topics. A research project may be able to wear down this undervaluation over time. Only a few actual classroom partners are needed to teach the recommended practices effectively.

Irrespective of delivery medium, it is possible to develop accredited courses in the recommended practices.

Apprenticeship and mentorship are important components. The difficulty lies in the fact that apprenticeship and mentoring can only take place once recommended practices reach maturity. Perhaps during the beta-testing stage, some testers could collaborate to develop such programs.

The question then becomes one of certification, for which a few models are already available.

- Practitioners could be certified on consideration of a combination of education, portfolio evaluation, and a test. This model emulates the approach of the Registry of Graphic Designers of Ontario (RGD 2004). "Education" in this context could mean successful completion of an accredited course and/or relevant degrees (as in court reporting; interpreting or translation; English or other language; or linguistics).
- Practitioners could undergo a written test plus a practice test, similar to the approach used by the Registry of Interpreters for the Deaf (RID 2004).

The latter model is clearly simpler, while the former model seems more thorough. It also has the unusual advantage of government imprimatur: Ontario is the

only state, province, or territory in North America in which it is possible to join a registry of graphic designers created by law (QPO 1996).

With the creation of these training and certification programs, it will be possible for a student to earn a certificate demonstrating that he or she has learned standard methods of captioning, audio description, subtitling, and/or dubbing.

RELATIONSHIP TO OTHER RESEARCH BODIES

Some researchers are already involved in accessible media, including the Adaptive Technology Resource Centre at the University of Toronto; Centre for Learning Technologies at Ryerson University; the Trace Center at the University of Wisconsin; the Technology Assessment Program at Gallaudet University; the Centre for HCI Design at City University London; the World Wide Web Consortium; and of course the National Center for Accessible Media. These researchers are able to contribute and collaborate on an equal footing with everyone else. Cooperation agreements could be reached with some researchers.

CONCLUSIONS

Making use of a new way of doing things, it is quite possible to: Standardize the four fields of accessible media; train practitioners in the standardized methods; and certify the trained practitioners. Standardized practice is of benefit to producers and broadcasters, practitioners, regulators, and, most of all, viewers. The plans described in this paper are not hypothetical: The Open & Closed Project intends to carry out a research and standardization project in accessible media, inviting contributions and collaboration from all interested parties.

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