Beyond Braille: Examining Publishers' Use of Technology to Make Periodicals Accessible to the Blind

by

Crystal Dawn Steeves

Submitted to the Faculty of Extension

University of Alberta

in partial fulfilment of the requirements for the degree of

Master of Arts in Communications and Technology

25 August 2010

I want to gratefully acknowledge my research supervisor, Dr. Fay Fletcher, for her insight and unending patience throughout this project. Without your thoughtful questions, open mind and giving spirit, these pages would be blank.

I also thank my family. Kyle and Maddie, you've shared your mom with a computer for a long time, but I'm all yours again now! Thank you for being everything you are. And to the rest of the crew, you know who you are, you're support is not forgotten. I love you.

And to my army of friends, you who stand beside me day by day, it is from you that I gather strength to face all of life's challenges. I am honoured to have you in my life.

Abstract

There has long existed the technology (Braille) to produce print material in a format accessible to the blind, and new assistive technologies (screen readers, audio books, etc.) are being introduced frequently, but obtaining and employing these tools has been the responsibility of the disabled individual. However, as print publishers scramble to relate to the digital age, transforming into web-based publications or supplementing their print media with online features, they increasingly find themselves in possession of technology that lends itself to service of the blind and visually impaired. These multimedia technologies are becoming prolific in the industry. Even with their widespread distribution, however, they remain underutilized in service to the blind. Using a case study approach, this study examines publishers' current use of multimedia technologies in providing printed materials to the visually impaired and suggests reasons for the slow diffusion of this innovation among publishers.

Introduction

Among the many changes ushered into our lives during this digital age is a complete alteration of the publishing industry and the ways in which humanity interacts with printed text. Where the printing press once changed civilization by bringing the printed page to the general populace, the personal computer has once again changed civilization by allowing those pages to morph according to user experience, to travel instantaneously around the globe, to become conversations. Now, the latest iteration of computerized devices, e-readers, allow for even more change. Newspapers and magazines as well as books are delivered wirelessly, not to our front door, but to wherever we've most recently set our Kindle. The very nature of literacy is different today than it was at the birth of the printing press, with children being taught online commenting and blogging as they learn the ABCs.

There is one segment of society, however, that has lagged behind the rest in terms of technological advancement relating to literacy. Considerable attention has been given to developing technology that would service the visually impaired, so that the range of available assistive devices, once limited to the famous white cane and seeing-eye dog, now includes such things as described video to allow the blind to watch television and movies (Pinkwas & Antonoff, 1995), screen readers that permit the blind to use personal computers and the internet (Diamantino & Kouroupetroglou, 2008), and tactile maps to help the blind to navigate and even drive ("New car," 2009) to name just a few of the more mainstream technologies. Comparatively little, however, has been done in the specific area of making print material accessible to the blind. In the day to day lives of

many blind and visually impaired individuals, literature is “old school,” especially in comparison to the technological gadgetry that the sighted reader can enjoy.

The most recognizable and well-known means of bringing print material to the blind is Braille. Braille was first developed by Louis Braille in 1821, and it remains a standard method of making printed material available to the blind more than 150 years later. Although the means by which Braille is produced has been modernized somewhat, with many braillists now transcribing from a publisher’s digital file rather than from the printed page (Emerson, Corn & Siller, 2006), the basic system of embossed dots in meaningful patterns remains unchanged by technology almost two centuries after its inception. Many would see the stability of the language as a positive attribute, allowing time for the development of teaching materials and the widespread adoption of the system around the world. Recent studies, however, show that Braille literacy rates are declining around the world and in North America in particular (American Printing House for the Blind, 1996; McCall, 1997). It seems that, in spite of its undeniable usefulness in the personal and professional lives of many (Wells-Jensen, Wells-Jensen & Belknap, 2005), increasing numbers of blind individuals are not learning the language. A myriad of reasons for the decline in Braille literacy have been brought forward (Ryles, 1996; Spungin, 1996). Some scholars cite a rise in the number of blind children who have additional disabilities—often learning disabilities or mental handicaps—that makes Braille, or any language, difficult (Rex, 1989). Some document a general but pervading feeling that Braille is simply too complex for everyday use (Johnson, 1996). Perhaps an explanation as good as any is that the human population is aging overall, and that loss of eyesight is occurring later in life for more and more people. It is known that

adventitiously blind individuals—those not born blind but who lose their sight later—do not often learn Braille as it is commonly taught in schools for the blind attended during childhood.

As it relates to the publishing world, Braille production of print material has rarely been undertaken by publishers themselves, but is viewed as an additional process outside of the publishing industry. It is the domain of transcribers and librarians to plunk out Braille pages, often on antiquated machinery and often on a volunteer basis. In North America, because of the legislated rights of the visually impaired to equal opportunities, the push to produce blind-accessible formats has largely been driven by the education sector so emphasis is placed upon transcribing textbooks and other learning materials to the neglect of books and magazines meant for entertainment and diversion. So, while Braille is an efficient and important skill for many blind individuals, its use as a standard means of publishing for the blind was never fully explored outside of the production of educational materials, and even in that sector its usefulness is decreasing as Braille literacy rates decrease. For publishers who wish to reach the blind with printed material, Braille is no longer the answer, if it ever was.

Other technologies have been utilized in service to the blind, of course. Continued reliance upon Braille is not due to a lack of available technology. Starting with cassette tapes, and even occasionally records, several decades ago, audio recordings of books have been produced for use by the blind. More recently, such recordings have been carried on CDs or DVDs. Even today, many libraries offer books on tape or CD to blind members. As the sighted have co-opted the technology for their own use, more emphasis seems to have been placed on production of audio books, and now the internet holds

hundreds of well-developed websites where readers can buy or borrow audio books on a digital (mp3 or similar) platform. DAISY talking books have become an increasingly common means of distributing printed material to the visually impaired in more recent years, and the DAISY platform and protocols are significantly more advanced in terms of their utilization of technology than is Braille.[1]

While there have been advancements for the service of blind and visually impaired and their ability to access printed material, there are several concerns that persist. First, even with the various means employed to reach the blind and visually impaired with printed material, there is a great deficiency. It is estimated that, in the United Kingdom, fewer than 5% of all British books are formatted in ways accessible for the blind and visually impaired (Whitehouse, 2008), and, according to Lockyer, Creaser and Davies (as cited in Carey, 2007), "so little nonbook material is thus rendered that it corrects to zero percent in a statistical analysis." Anecdotal accounts suggest that the percentage is higher in the United States and Canada where legislation exists to prevent discrimination upon the basis of disability and to emphasize a reader's right to read over an author's write to copyright, but even here there are considerable deficits. Publishers who attempt to produce accessibly formatted material tend to focus their efforts on large-print material which, while very useful to low vision individuals, is useless to the blind and almost insulting to individuals whose vision problems derive from retinitis pigmentosa and would benefit from smaller than standard print. Second, many of the platforms for reaching the visually impaired community with printed material carry an unfortunate commonality in that they put the onus upon the reader, the handicapped

[1] DAISY, or Digital Accessible Information System, talking books are audio narrations of printed material that are produced digitally with markers embedded within the recording so that the book is navigable by the listener.

individual, to learn an alternative system, like Braille, or to acquire (often extremely costly) assistive devices, like DAISY readers. While this may have, at one time, made sense, an explosion of multimedia presentation technology across the publishing industry has put tools into the hands of publishers that, if used thoughtfully, could eliminate the need for extra measures being taken by the blind individual. In the digital age, multimedia presentation is almost a given in every facet of life, including publishing. Virtually every magazine in print is also available online and often utilizes some form of multimedia, such as video, audio, or flash animation. The tools employed to create such e-zines provide the means to nearly level the playing field between blind and sighted readers online. The technology required to make printed material available to the blind not only exists but has penetrated so deeply into our the publishing industry that many possess it without knowing it. This paper looks at the principles that underlie the process of the diffusion of innovations and, using a case study approach, suggests what roadblocks may be preventing publishers from adopting available solutions in assistance to their visually impaired readership.

Literature Review

Research regarding the process whereby innovations are diffused throughout a population began in earnest in 1943 when Bryce Ryan and Neal C. Gross published “The Diffusion of Hybrid Seed Corn in Two Iowa Communities” (1943), an article in which they detailed the rapid rate at which farmers in two small Iowa towns adopted a newly-developed type of seed corn. The goal of that study was to gain an understanding of the factors that led to the rapid diffusion of that seed corn within those smaller localities in hopes that those factors could be replicated on a wider scale and bring about rapid

diffusion of the seed in other, larger populations. While Ryan and Gross were successful in analyzing the factors in the Iowan seed corn situation, they were far more successful in laying the foundation for a new theory: the theory of diffusion of innovations.

Researchers from many fields saw that the diffusion of innovations theory was, at its core, a theory on enacting social change. The implications were so widespread that diffusion theory became the purview of almost every discipline of study. "The diffusion process has been the focus of scholarly research in a wide range of disciplines, including agriculture, sociology, psychology, communications, anthropology, marketing, epidemiology, economics, and organization science" (Ashley, 2009).

As interest in diffusion theory grew across disciplines, so too did the number of diffusion studies conducted, jumping from approximately 100 in 1952 to approximately 28,000 in 1978 (Rogers & Adhikarya, 1979). The popularity of research on the diffusion theory helped to refine the theory itself. Criticisms of the theory were put forward, most notably as it related to diffusion between organizations instead of individuals (Warner, 1974) and in regard to utilizing the quantitative methods that had overtaken the field (Rogers, et. al., 1977). These and other significant criticisms served to send diffusion theorists back to the beginning and to challenge assumptions that had been in place from the start of Ryan and Gross's study—assumptions like communication alone would ensure the diffusion of an innovation and diffusion of innovation was always a desired outcome.

The theory defines diffusion as "a process by which an innovation is communicated through certain channels over time among members of a social system" (Rogers, 2003). This definition clearly delineates four main components of diffusion

theory: (1) innovation, (2) communication, (3) time, and (4) population. When studying the innovation-decision process, researchers examine each of these components in the light of various criteria.

Innovation. An innovation is "an idea, practice, or object perceived as new" by a potential adopter (Rogers, 2003). Most technologies have two components: hardware, or the material object of innovation, and software, the knowledge base for the tool. When investigating adoption rates, an innovation is analyzed according to its five attributes: relative advantage, compatibility, complexity, trialability and observability.

Communication. Diffusion theory addresses itself to the channels through which news of an innovation travels through the given population. Typically these channels are mass media or interpersonal, though in more recent literature interactive internet communication has been discussed as a third category. Research has found that the innovation-decision process is a highly social one at least as dependant upon the subjective evaluation of opinion leaders within one's interpersonal network as upon the objective analysis of the innovation's consequences.

Time. It is recognized that the innovation-decision process is a process rooted in time and that there are five steps involved. The individual must (1) attain an awareness of the innovation, (2) attend to some amount of persuasion relating to the innovation, (3) decide to adopt or reject the innovation, (4) implement the decision, and (5) confirm or question the appropriateness of the decision. Time enters into discussions of diffusion in other ways than the innovation-decision process, however; it is also a factor in determining the innovativeness of an individual. Members of the target population are

often labelled according to their adopter category. They may be innovators, early adopters, part of the early majority, part of the late majority, or laggards.

Population. In diffusion theory, the population researched is assumed to be a social network, or "a set of interrelated units that are engaged in joint problem solving to accomplish a common goal" (Rogers, 2003). Within that system, some individuals are more able to influence the attitudes and behaviours of others and form the opinion leadership of the network. Discussion of the population often centers around this issue of opinion leadership in diffusion studies, but it also enters into a consideration of the consequences of diffusion. Whether an innovation is adopted or rejected, change will occur for the individual and for the population as a whole; this consideration of consequences is a new area of study for diffusion researchers.

This study is, at its heart, a study of the diffusion of emergent technologies in service to the blind (the innovation) among publishers (the population). It differs from typical diffusion studies in at least one significant way. Traditionally, diffusion studies utilize empirical methods to plot adoption rates on a graph (and invariably end up with similar looking S-curves for their trouble), but "Rogers et. al. (1977) [has] called for a turn away from highly-structured and quantitative methods" (Rogers & Adhikarya, 1979). The goal and design of this study is not to measure the levels of diffusion, but rather, to explore and analyze the factors that have contributed to the lack of diffusion of an innovation that has the potential to make non-instructional text materials more readily accessible to the visually impaired.

Methodology

Intended to function as merely a starting point for a larger discussion of the issue of accessible publishing, this study does not attempt to examine the population as a whole, but rather recognizes the need for a limited scope which may be expanded upon in future study. An arbitrary decision was made, because of my own positioning within the larger population, to limit the field to religious publishers within Canada. In order to make the scope of this exploratory study of the diffusion of innovations 'doable,' I chose to take a case study approach, focussing on a single case, that of the Canadian Adventist *Messenger*. The *Canadian Adventist Messenger* recently attempted to reach out to its blind and visually impaired constituents by creating an audio version of its print publication on CD. As the publisher/editor of the *Messenger* and researcher, I have intimate knowledge of the case study itself and employed auto-ethnographic tools such as narration and self-reflection to do an in-depth analysis of the factors that have been critical to our innovation adoption process. In addition, key informants at the case study organization, having first given written consent (see Appendix 1) were interviewed to expand the knowledge base. Key informants included the president of the parent organization ("Richard") who answered questions regarding relevant organizational values, the *Messenger* secretary ("Lois") who answered questions regarding the practicalities of the audio magazine project, the production/art director for the *Messenger* ("Erin") who answered questions about particulars of the project launch, and the director ("Chris") of the ministry for the blind and visually impaired that is operated by the parent organization, Christian Record Services, who answered questions about organizational support specifically relating to the visually impaired. As a final research tool, a survey

was created and distributed with the intention of positioning the experience of the case study to that of the population of Canadian religious publishers as a whole.

A case study model was chosen for this research because it, by definition, is "an inquiry that investigates a contemporary phenomenon within its real-life context when the boundaries between phenomenon and context are not clearly evident" (Yin, 1984) and was thus well-suited to the research question. Although the case study as a research method has been argued to be too subjective to be useful, even the most cautious literature admits that a case study approach may be useful in three situations: (1) where the knowledge gained through the study will be utilized by the studied individual or group, (2) where the case study may exemplify a validated theory at work, and (3) where it is employed as an exploratory tool to generate theories for the question at hand (David, 2007). This project is well-suited to a case study approach for exactly these reasons. It will address the needs of the studied group in a way that may guide their practice; provides an opportunity to test the tenets of diffusion theory; and it has the potential to generate some possible strategies for overcoming challenges to the use of multimedia technologies in providing printed materials to the visually impaired.

There is an undeniable personal tie between the researcher and the case study site, as I hold a leadership role at the *Messenger* and spearheaded the creation of an audio version of the magazine. Academic purists might see the personal tie as a bias or conflict of interest. In contrast, I believe that my position has strengthened the research. I offer an "insider's look" at the publishing world and am able to detail the challenges that have prevented the *Messenger* from adopting the innovations that this very project supports—the adoption of assistive technologies by publishers in aid of the blind. The case study

model, with its emphasis upon observing a phenomenon in context, meshes well with such auto-ethnographic research, which is, by definition, a research method that "describes the writer's personal experiences and places those experiences in their social and cultural context (Uotinen, 2010). Autoethnography is a qualitative research method chiefly employed by social scientists to examine contemporary situations for the purpose of analysis and change. It is well-suited to addressing "why" and "how" research questions.

A single-case case study of the publishing industry is presented using autoethnographic tools. This hybrid of research methods was chosen because it fits with the unique access and perspective made possible by my position in the industry. But case study will not allow for answers to this research query if the case is unique and singular in its experience rather than representative, at least to some degree, of the experience of the population. To assess the validity of positioning the case as representative, a brief and basic survey (see Appendix 2) was designed and distributed online to religious publishers in Canada through the Canadian Church Press, a professional organization to which many such publishers belong.

Case Study

The *Canadian Adventist Messenger* is a publication of the Seventh-day Adventist Church in Canada (SDACC). Its mandate is to serve as the means of communication between the national headquarters of the denomination and its members scattered throughout the country. The content of the magazine is, firstly, church news. The flow of information is meant to come from the field (individual congregations across Canada) to the *Messenger* office where it is processed and distributed via the magazine to a national

audience. The editor is meant to also glean news and information generated at the national headquarters itself for disbursement in the magazine, as well as to monitor the Canadian readership. The *Messenger*, then, is meant to function as the hub of communication for adherents of Seventh-day Adventism in Canada. According to the president of the SDACC, the distribution of such news to the membership has a two-fold purpose: first, the edification of the members, who, as financial supporters are seen as a stakeholder group with the right to know what is going one; second, the "cross-pollination of ideas from one congregation to the next, each learning from the failures and expanding upon the successes of the other" to create a stronger organization overall (personal interview, 2010).

The *Messenger* is the only publication of the SDACC. Regional headquarters like the SDACC, known inside the denomination as "unions," exist throughout the United States, however, and each of these eight sister unions produces a monthly periodical similar to the *Messenger* for their constituents. In addition, higher administrative branches of the denomination (ie. the North American division, the world headquarters, known as the General Conference) sponsor and operate many other publications, some with mandates similar to that of the *Messenger* and some very different. Publishing has been a key ingredient in the denomination's growth throughout its approximate 200 year history. Its first leaders, James and Ellen White, personally established denominationally owned publishing houses in the United States in the mid-1800s with the express purpose of proselytizing through the literature produced. In addition to tracts and books, they established the denomination's first publication, *Present Truth*, in 1849. Today, the denomination owns several publishing houses all over the world, with the two original

houses still being among the largest and busiest. While their products are no longer for evangelistic purposes only, that continues to be a major thrust, and it is common to hear adherents speak glowingly of “the publishing work.” There is no indication that any of the material is rendered by the publisher into blind- or visually impaired-accessible formats though various volunteer-based projects exist to transcribe their published works into Braille outside the purview of the publisher.

As a publication of the denomination and of the SDACC specifically, the *Messenger* is meant to reflect the values of organization as it presents news and inspirational articles to the members. A concise proclamation of these values is the vision statement of the national headquarters: “Proclaiming Christ, Nurturing Believers, Serving Humanity” (http://www.sdacc.org/en/main/mission.php). The mission statement expands upon ideals that are important to the organization. It states, “In our leadership role, we will innovate, influence, impact, and foster unity” (http://www.sdacc.org/en/main/mission.php). It is especially important to bear these organizational values in mind as we consider the tenets of diffusion theory and the specific issue of compatibility of an innovation are considered. As editor of the *Messenger*, I have taken each piece of the vision and mission statements to heart and incorporated them into each piece of the magazine’s operation. Of particular note has been my attention to the directive to “innovate.” It is exactly that directive, that expressed value of the publisher, that led the *Messenger* to undertake the pilot project that forms the action of this case study.

It would be nice if the story of the audio *Messenger* project was born out of a burst of altruism or a burning sympathy for the plight of blind. It would be fitting if that

were the case, particularly since the magazine is the domain of the Church where charitable acts are the *raison d'etre*. But as the editor I must confess that such is not the case. The story of the audio *Messenger* project begins instead with intense frustration. How many times had I stared at the computer screen and lamented the pathetic online representation of my magazine? Too many! Since long before I came to the editor's chair in 2006, the *Messenger* had been posting plain .pdf files of their printed pages on the SDACC website—www.sdacc.org/messenger. They weren't searchable. They weren't interactive in any way. They weren't even particularly attractive, even though they were copies of pages that were quite appealing in printed form. Tending to be an early adopter personally, I was irritated to see beautiful and innovative e-zines becoming more and more common on the internet and "my" magazine's online version looking worse and worse by comparison. But human resources and budget didn't seem to allow for anything more.

It was that frustration that led to a search for software that would serve as an in-between step. The website I dreamed of for the *Messenger* was years away from being a possibility, but what we had was, in my opinion, years past being acceptable. At least, I thought, we could add a few links, maybe a small video clip sometimes, and add that slick animation that made it look as if the pages were really turning as someone browsed through. My production assistant, "Erin," caught a glimpse of what I was looking for and spearheaded the search. "I thought you were crazy," she later confessed. "You were fairly new on the job and I knew, even if it seemed like you didn't, that there was no time for anything extra. Maybe I shouldn't tell you," she laughs, "but there were some programs I came across in my looking that I just didn't tell you about because they looked too time

consuming" (personal interview, 2010). Between "Erin" and me on the *Messenger* staff and the Information Technology department of the SDACC, with whom we were always at odds, a solution was eventually found and purchased that would do all that I asked: give the reader a slightly better online presentation of the magazine without requiring an investment of much time or money. The issue of accessibility never came up.

To an early adopter such as I, there is a thrill to installing new software and taking it out for a spin. At the *Messenger* office, I was no different. When our online solution was rolled out, "Erin" and I hovered at her desk and clicked buttons and perused menus for a long time. Oh look, we remarked, it automatically found all the websites and email addresses in the magazine and converted them to links! I was excited. Oh look, we said again, we can zoom in on the page with one click and make the print really large! My mind began to churn on a vague notion. Oh look, we can attach audio files to each article and have them begin to play as soon as that page is opened! "Wouldn't that be great for people who complain they can't read our typeface," I remember Erin saying. And the idea was born.

Without intending it, the *Messenger* had received a tool that could make its printed pages readily accessible to the blind and visually impaired, or at least those blind and visually impaired individuals who had a computer and internet access. It only took a moment for the project to form in my head and become a plan of action. The required components were simple enough to get and included a microphone, some kind of recording software, and volunteer readers. A quick trip to the electronics store provided the first two, while an email to the staff of the SDACC office and its related entities soon provided all the voice talent we would need for at least the first few issues of the audio

Messenger that I was now keen to produce. It had taken no time at all to expand upon the decision to add audio files to the online version, burning those files onto CDs or DVDs for distribution to the visually impaired who would prefer that method of delivery or who did not have internet access. These minor expansions to the domain of the project were slight, in my mind, and the resultant increased level of complexity went unnoticed.

Even though the *Messenger* was purchasing cases of CDs and mailing folders and volunteers were recording the audio tracks, it hadn't occurred to me or anyone else involved to contact the intended audience to ensure we were meeting a felt-need with the product we were intent upon producing. In fact, an announcement in our print magazine inviting individuals who would like to receive our audio version to contact us produced a distribution list of nine respondents. We were about to roll out a product in which we'd invested a lot of time and a little bit of money to a very small audience indeed. At this point, very close to our distribution date, I contacted "Chris" at *Christian Record Services* to pitch a partnership; the *Messenger* would supply the material, if *Christian Record Services* would provide the mailing list. Chris seemed more than eager to participate but three months passed and we did not hear from her again, in spite of our arrangement that she would send the list that week.

In March 2009, approximately four months after the idea was born, the first audio *Messenger* rolled out of the SDACC publishing office. Eleven CDs were mailed to the constituents who responded to our magazine invitation to subscribe and as many were distributed to denominational administrators as samples. Disappointingly, the distribution list from *Christian Record Services* never arrived, and their clients, whom we'd developed a desire to serve, never received the magazine. In addition to the CDs,

however, audio recordings were attached to the *Messenger*'s online version for that issue and were accessible to any internet user who stumbled upon them. Discouraged by the low circulation, unhappy with the sound quality of the recordings, daunted by the amount of work involved, and challenged by apparent indifference from the church's own agency for the blind, I regretfully cancelled the audio *Messenger* project.

It is important to note, however, that while the one audio issue had some deficiencies, it also had some strong potential. Since March 2009, the CDs have been stored away and no more recordings have been made, but it is the intention of the *Messenger* and the SDACC that the audio magazine will return again in some form. The March 2009 issue of the audio *Messenger* is an example of the importance of trialability in the innovation adoption process in that the organization has chosen to view it as stage one in a developing project, rather than a failed project. It now recognizes that there are specific areas relating to the product itself that need improvement if the end result is to meet acceptable standards. Currently, it is planning the establishment of infrastructure to support the project; a separate audio recording studio is being planned independent of *Messenger* office space, to be outfitted with its own computer, audio equipment, and noise reduction measures. This would increase the quality of the product but also reduce the level of complexity of the overall project, something diffusion theory recognizes are important to the innovation adoption decision. The organization also now realizes that there must be better planning in regards to the distribution of the product. If a working relationship with Christian Record Services continues to be problematic, the *Messenger* is prepared to abandon the portion of the project that is the mailing of CDs but continue with embedding audio files into its online version. Of note is the fact that, again showing

itself as either an early adopter or part of the early majority, the *Messenger* has begun the creation of a fully interactive e-zine, with interactivity built in and content that goes far beyond that offered in the printed magazine. Within this new online publication will reside audio files that will enhance the experience of the blind, perhaps not for all articles but for stories of greatest import.

Findings and Discussion

The theory of diffusion of innovations, as stated earlier, is a generally accepted means for evaluating the spread of a particular technology or idea throughout a population. The four basic ingredients of diffusion theory—innovation, communication, time, population—provide a framework upon which to hang the analysis of the experience of the *Messenger* as it sought to engage visually impaired individuals as part of their readership.

Innovation. Diffusion theory states that there are five attributes of an innovation that are significant to its adoption. These are relative advantage, compatibility, complexity, trialability, and observability. Innovations with a greater degree of relative advantage, compatibility, trialability and observability and a lower degree of complexity are more likely to be adopted early and have a higher rate of diffusion across the population. It is advantageous and appropriate to examine the case of the audio *Messenger* as it relates to these points.

Relative advantage is the degree to which the innovation is perceived as better than the system preceding it. In the case of the *Messenger*, the innovation would need to be perceived as being better than nothing, as there was no previous attempt to make the magazine accessible to the blind, and in my editorial mind there was no question that

serving our blind and visually impaired constituents was a desirable thing. I had been the recipient of several letters from readers who were finding the typeface of the print magazine difficult to read. My secretary, whose responsibility it is to maintain the mailing list, had also reported receiving complaints and even cancellations from members who, because their advancing years were taking their eyesight, could no longer read the printed page. The SDACC's statistician reports that they do not keep a record of the average age of members but believes it to be getting older in recent years, another reason I felt sure that audio magazine was a desirable innovation.

The opinion of other key players throughout the organization regarding the relative advantage of an audio *Messenger* was very positive. At the year end luncheon where the project was unveiled to regional directors, the director of the denomination for British Columbia remarked that he couldn't believe that "no one thought of offering this service before. It is certainly something whose time has come, particularly if we can offer it without much added work to the *Messenger* team or expense to the Church." The director for the Maritime provinces declared that he saw this as "a beginning of great things to come" and hoped that "more and more Church materials [would] be made available to blind members and friends" in the future.

Compatibility as it pertains to diffusion of innovations theory is "the degree to which an innovation is perceived to be consistent with the existing values, past experiences and needs of potential adopters" (Rogers, 2003). The creation of an audio *Messenger* certainly appeared to me to be consistent with the stated values of the SDACC and, thereby, the magazine. The emphasis on service and support in its value statement and the clear directive to innovate and impact in the mission statement seemed to me an

indication that a deliverable product such as the audio magazine in service to a disenfranchised segment of the population was consistent with the attitude of the church.

Faced with the reality that the project as designed had not immediately developed as I had hoped, in terms of its distribution and potential impact, I interviewed the director of *Christian Record Service*, another subsidiary of the SDACC whose mandate is specifically to reach out to the blind and visually impaired. When questioned about the value of the blind to the denomination, she stated

> There seems to be a feeling that the blind aren't part of the Church…There are members who the Church supports, non-members who the Church evangelizes, and then there are the blind. It doesn't seem like the Church recognizes that the blind fit into both of those categories or that the mission and vision of the Church has anything to do with them. ("Chris" personal interview, 2010).

While she agreed that maintaining a ministry for the blind was indicative of a caring attitude toward the blind in general, she commented, "but we aren't a priority." Indeed, the financials, often the true tale of organizational priorities, back up her claim. *Christian Record Services* does not receive any funding from the SDACC for its operations and only approximately $40,000 annually for support to its employee pension plan. This arrangement doesn't sit well with the director, who also hastens to note repeatedly throughout her interview that "they are so good to us in other ways, though." It appears that there may be some variation between the stated values of the organization and how those play out in practical terms, at least regarding blind and visually impaired members.

The degree to which an innovation is perceived as difficult to use is a key ingredient when analyzing the likelihood of its adoption. In the case of the audio *Messenger*, this certainly seemed to me to be the downfall of the project. While the rudimentary actions required were simple enough—reading articles into the computer, saving files, burning them to a CD—the ancillary actions, the system itself, was cumbersome. We sought to have the writers themselves read their works, when possible, but the regular contributors were not local and the recordings they made varied so widely in quality and format that to my critical ear, they often seemed like they did not belong on the same CD. Writers who contributed only occasionally seemed reluctant to record themselves—some citing lack of time and technology as an issue, many saying that they hate the sound of their own voice. It became necessary to find volunteers who would come into our office to record articles, which then turned into a scheduling problem as noted by the *Messenger* secretary who was responsible for the task:

> People would just stop by to make a recording, and of course I had to drop what I was doing to set the computer up for recording. The only computer we had to use was the one in the editor's office, so if she was in that day, she had to leave her work while the recording was being done. And there was always the chat. When someone came in, there would be small talk—how everyone was doing and all that—then the instructions on what we wanted and how to use the recorder, then there would often be chat afterwards. Sometimes recording one article could take me off the job for an hour or two. Plus [the editor] not being able to use the computer. It was time consuming in a big way. ("Lois" personal interview, 2010)

Added to the issue of complexity was the challenge of producing a product that was of a quality that we were satisfied to put our name on. While I felt and stated many times that, for the blind constituents we were trying to reach, “something is better than nothing,” I also felt that the reputation of the magazine, the reputation I’d fought for three years to build up, was on the line and could be damaged with a bad outcome. The secretary rightly commented in her interview

> We didn’t have a proper sound booth, or anything even close to that. So in the middle of a recording, the office air conditioner might come on and create background noise, or out on the street a horn would blow, or the telephone would ring. Sometimes we could work the recording software well enough that the reader could just back up a few words and start again, but often we couldn’t figure it out that well and they would have to start over from the beginning. It was very frustrating. (“Lois” personal interview, 2010)

Diffusion theory maintains that the ability to experiment with an innovation on a limited basis will encourage the adoption of the innovation. The audio *Messenger* project was such an experiment in itself. Many lessons were learned during the trial project, and while it was abandoned in the short term, the final decision to adopt or reject the innovation has not been made. At present, the audio magazine is likely to be integrated into the *Messenger*’s new website, with some audio recordings being made and embedded into the e-zine, but on a limited basis as time and human resources allow. The lessons learned from the pilot project have, in this case, not only informed the innovation adoption decision but sharpened the vision of what is possible.

Diffusion theory also holds that the degree to which the results of the adoption of an innovation are observable to others is significant. At the *Messenger*, the results of the audio magazine project would be, of course, most readily observable to the blind and visually impaired for whom the project is intended, but it is also significant that others could take note of the project. As stated, it was important to me, as *Messenger* editor, to build the reputation of the magazine, and part of my interest in the project stemmed from the possibility that it would be noted by denominational leaders and others in the religious press community. So important is observability, in fact, that it played a major part in the decision to not completely cancel the audio magazine project but to continue it in another form; more than a year after the distribution of one audio issue, our offices still receive comments like "didn't you guys start an audio magazine or something one time?"

Communication. According to the theory of the diffusion of innovation, the decision to adopt or reject a particular innovation or technology is a social process, communication between members of the population regarding the innovation under consideration being a key component. This is a notion that we see on a daily basis in our personal lives—for example, I want an iPad because my friend has told me about what he uses his for and how much he enjoys it—but do not so readily recognize to such a degree when it comes to the business place. Communication between members of corporate or business sectors often takes place through professional associations and at workshops or conventions. The *Canadian Adventist Messenger* has held membership in several professional agencies in recent years; three in 2006, four in 2007, and six in 2008. In the year the pilot was created, 2009, the *Messenger* held membership in eight professional organizations, all designed specifically to unite and support publishers, editors and

communicators of various stripe. During that time period, there has not been any workshop, classes, keynote address, article or any type of communication regarding the accessibility of printed materials for the blind and visually impaired. The communication simply has not occurred. During the time since the audio *Messenger* pilot project, I have become increasingly involved with these professional development groups, even sitting on the board of directors of two of them—the Society of Adventist Communicators and the Associated Church Press. My many interactions with colleagues at that level has revealed some level of universality of what I know to be true of my own experience at the *Messenger*: it simply does not occur to us that, as publishers, we can bring our printed materials to the blind in a meaningful way with the technologies we already use for other audiences. Professional development groups do not offer workshops or bring in keynote speakers on the subject simply because it has not occurred to them to do so.

A survey distributed to sixty Canadian religious publishers belonging to the Canadian Church Press indicates that some publishers have realized a need and are reaching out to the visually impaired, at least to some degree, for a means of being relevant to their blind and visually impaired constituents. Forty-three percent, or six out of 14 respondents, indicated that their publisher had made some attempt, historically or currently, to produce their publication in a form that was more easily accessible to the blind or visually impaired; sixty-six percent of these used audio-only methods (CD, cassette)—the only assistance for fully-blind individuals—while the remainder made adjustments to their printed form (matte paper, large typeface). These adopters represent a valuable pool of knowledge for initiatives like the audio *Messenger* project. What recording software did they use, if any, and would they recommend it? The survey

showed that those few who had tried to produce audio formatted works relied upon volunteers to provide voice talent, and I would have liked to ask them from where did they gather volunteer voice talent? Were there resources to support their efforts that I hadn't discovered? Had anyone spoken with the Canadian National Institute for the Blind (CNIB) or similar advocate groups to engage their participation? I can't help but wonder if learning from their experience would have better prepared us for the challenges and increased the likelihood of our success and adoption.

The experience of the *Canadian Adventist Messenger* attempting to relate to its blind and visually impaired constituents is, in some ways, quite unique. A particular mix of personalities and technologies came together to create the environment in which the audio *Messenger* project was born, and those circumstances are not likely to be replicated in the offices of any other publisher in exactly the same way. As an early adopter, I pushed for the change. The interest of key members of the organization, recognizing the compatibility of the project with the goals of the Church, created a favourable environment for the adoption of this innovation at the *Messenger*. However, the case study is as representative as it is unique. The majority of survey respondents were like the *Messenger* in that they were monthly publications (36%) with distribution focussed in Canada (71%). Most, 57% were small, by publishing industry standards, in terms of their circulation—less than 15,000.

The similarities between the *Messenger* and survey respondents go beyond mere demographic data. Like the *Messenger*, 86% of survey respondents have their periodicals available on the internet, but 70% of those post only pdf versions of their printed pages. As publishing becomes more and more internet based and technology focussed,

publishers are getting one message loud and clear: digitize or die. So, one might assume that these survey respondents, who appear to be where the *Messenger* was two years ago, will also be looking to enhance their web presence in the near future. If so, many, whether or not they realize it, already have in their possession, a means to bring audio material to a wider audience. On all these points, the *Messenger* is representative of a larger population and, as such, a relevant case study, the findings of which may serve as a communication tool, fostering innovation adoption.

Conclusion

Considering the fact that survey results show a number of small religious publishers in Canada beginning to awaken to the possibilities of producing blind-accessible material, it is useful to consider the factors that may be inhibiting adoption of the innovation at their fingertips. The diffusion of innovation theory clearly delineates four main components, all critical to adoption: (1) innovation, (2) communication, (3) time, and (4) population. The innovation itself, both for recording and distributing accessible material, is readily available. The population of religious publishers, as well, seems to be poised and ready to make use of the technology. They are facing major changes in the publishing industry and will need to digitize or die, according to the commonly quoted mantra of the field today. Like the *Messenger*, many will come to be in possession of tools to assist in the distribution of material for the blind if they choose to do so.

The availability of technology, however, is not all that is required. In considering the possibility of adoption of innovation, we must consider the issues of relative advantage and complexity. Relative advantage appears to be inhibiting the growth of

publishers creating blind-accessible materials. What must be asked and answered is the fundamental question, “Why bother?” As noted previously, catering to the needs of the blind has not historically been a priority for publishers. As a result, the number of publications available to the blind in the United Kingdom is statistically zero. In the population of study here, compatibility would seem to be the answer and provide the relative advantage. The values of the organizations, usually churches, operating religious magazines are such that serving the disenfranchised in as many ways as possible would be a given. They cannot be expected to do so, however, if the complexity level is perceived as being too great. These small publishers work with very limited budgets and staffs and would not be likely to take on a project that will be seen as draining those resources. As more software is developed that applies to this field, ease of use should be very high in the minds of developers, and training should be offered to assist those who adopt.

Trialability is another factor relating to the innovation that continues to be a significant consideration. It is important to note the decision of the SDACC and the *Messenger* to view the audio *Messenger* project as a first step in an iterative process. This speaks directly to the notion of diffusion theory that says that trialability is important to the adoption of technology. Although it is unlikely that many publishers, especially the small religious publishers upon which the study is focussed, would take on a project such as this on a trial basis because of the demands upon their typically already understaffed offices, it is possible that the *Messenger* could come to be viewed as a sort of pioneer in this specific field, one who learned by trial and error. And, building upon the theory again, this case study provides an opportunity to communicate the lessons learned

through the experience of the audio Messenger ant to encourage late adopters to consider factors such as compatability and trialability.

Population and innovation being considered in these ways, then, it then becomes extremely important to discuss the role of time and communication to the diffusion of this innovation. Time is important in that it allows for the steps of the adoption decision process to take place. Awareness is central to that process. The field would benefit from future studies into the level of awareness and consciousness that publishers have regarding the accessibility for the visually impaired. Based on the findings of this study, it is my firm belief that a lack of awareness is the most significant impediment to the adoption of this innovation at this time. As publishers, our work is to produce the printed page for our audience, our consumer. We do not contemplate those individuals who do not fall neatly into the category of readership. We do not consider the existence of individuals who simply cannot relate, by no fault of their own, to the work we devote our lives to producing. These findings show that many are also are unaware of the emerging technologies that make producing blind-accessible materials feasible for even the smallest publishers.

Communication works hand in hand with awareness, and in the case of this innovation, could be facilitated in several ways. It would also be useful for publisher's professional associations, such as the Canadian Church Press, as they become aware, to cultivate discussions between members so that specific lessons can be passed on from trial to trial until a majority of publishers have adopted and an industry 'best practice' develops. How much communication, if any, has there been within the publishing

industry on what kinds of materials would be useful to the blind and what tools are available to us to create those?

Of greatest need is the participation of service groups whose mandate it is to champion the cause of the blind and visually impaired. It would be useful for advocate groups, like the Canadian National Institute for the Blind, to expand their work from providing support directly to the blind and visually impaired to providing information and support for publishers who might be willing to improve their service to that community if they knew it was possible for them to do so. As noted in the case study of the *Messenger*, it simply had not occurred to us prior to the arrival of new technology with audio abilities that there was an entire sector the people that we were not reaching nor could hope to reach with our print magazine.

For the blind and visually impaired, the printed page has long been out of reach and largely irrelevant. Those who have connected with it have done so without support from publishers whose very purpose it is to produce those pages for its readership. However, it is increasingly possible for publishers to bring their work to a broad audience that includes the blind and visually impaired with the thoughtful application of readily available technology. Many, like the *Canadian Adventist Messenger*, are seeking ways to make it happen while many more simply are not aware of the need or the possible solutions. Time and communication are required if this innovation is to be widely diffused across the publishing industry—time for awareness to be raised, for trials to be conducted, for complexity levels to drop; communication for publishers to work together, to work with advocate groups and to work with the blind themselves to focus the work efficiently to meet the needs.

References

American Printing House for the Blind. (1996). Distribution of federal quota based on the January 3, 1995 registration of eligible students. Louisville, KY: American Printing House for the Blind.

Carey, K., (2007). The opportunities and challenges of the digital age: A blind user's perspective. *Library Trends*, 55 (4), 767-784

DAISY Consortium. (2010). *About us*. Retrieved from http://www.daisy.org

Dakopoulous, D., Tyflos: A wearable navigation prototype for blind & visually impaired; Design, modeling and experimental results. Ph.D. dissertation, Wright State University, United States—Ohio, Retrieved January 12, 2010 from Dissertations & Theses: Full Text. (Publication No. AAT 3371020).

David, D. (2007). Case study methodology: Fundamentals and critical analysis. *Cognitie, Creier, Comportment/Cognition, Brain, Behavior*, 11(2), 299-317.

Emerson, R. W., Corn, A., & Siller, M. A. (2006). Trends in braille and large-print production in the united states: 2000-2004. *Journal of Visual Impairment & Blindness*, 100 (3), 137-151.

Freitas, D., & Kourouopetroglou, G. (2008). Speech technologies for blind and low vision persons. *Technology & Disability*, 20 (2), 135-156.

Goodrich, G. L., Kirby, J., Wagstaff, P., Oros, T. & McDevitt, B. (2004). A comparative study of reading performance with a head-mounted laser display and conventional low vision devices. *Journal of Visual Impairment & Blindness*, 98 (3): 148-59.

Lagerfeld, S. (2009). The luxury of reading. *Wilson Quarterly*, 33 (4), 2/3p.

McCall, S., (1997). The development of literacy of literacy through touch. In H. Mason & S. McCall (eds), *Visual Impairment – Access to Education for Children and Young People* (149-158). London: Fulton.

New car for mr. magoo. (2009). *Popular Mechanics*, 186 (11), 15-15.

Pinkwas, S., & Antonoff, M. (1995). When words say more than pictures. *Popular Science*, 247 (2), 29.

Rogers, E. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press.

Rogers, E. & Adhikarya, R. (1979). Diffusion of innovations: An up-to-date review and commentary. In D. Nimmo (Ed.), *Communication yearbook 3* (67-81). Washington: International Communication Association.

Schroeder, F. K. (1996). Perceptions of braille usage by legally blind adults. *Journal of Visual Impairment & Blindness,* 90 (3), 210.

Wells-Jensen, S., Wells-Jensen, J., & Belknap, G. (2005). Changing the public's attitude toward braille: A grassroots approach. *Journal of Visual Impairment & Blindness*, 99 (3), 133-140.

Whitehouse, G. (2008). The blind reader's right to read. *Logos*, 19 (3), 120-125.

Yin, R. K., (2009) *Case study research design and methods* (4th ed.) Thousand Oaks: SAGE.

Appendix 1

Letter of Information & Consent

UNIVERSITY OF ALBERTA
Communications and Technology Graduate Program
Faculty of Extension

10230 Jasper Avenue NW
Edmonton, Alberta, Canada T5J 4P6
www.mact.ca
mact@ualberta.ca
Tel: 780.492.1538
Fax: 780.492.8265

INFORMATION

This project is a limited exploration of how publishers use emerging technology to make their printed material more accessible to the blind. Its focus is upon publishers of religious periodicals in Canada, and it takes as a case study the experience of the *Canadian Adventist Messenger*.

This research is being conducted by Crystal Steeves, a graduate student in the University of Alberta – Masters of Arts in Communication and Technology (MACT) program. It is undertaken as partial completion of the requirements of the program.

Crystal Steeves, principal investigator on this project, is, in addition to a student, a member of the population under study (religious publishers in Canada) and the publisher-editor of the case study magazine, the *Canadian Adventist Messenger*.

This project is not conducted on behalf of the *Canadian Adventist Messenger* nor of the Seventh-day Adventist Church in Canada, but under the auspices of the University of Alberta only. You have the right to refuse to participate and such refusal will not affect in the slightest degree your relationship with the *Canadian Adventist Messenger* or the Seventh-day Adventist Church. Participation is not a requirement of employment.

If you choose to participate, you will be asked to meet with Crystal Steeves, the principal investigator of this research project, and complete a brief (10 min.,

approximately) interview. You may, for any reason and at any time during the interview, change your mind about participating and indicate you do not wish to continue the interview. Any information you have provided to that point will be discarded, deleted or destroyed.

After completing the interview, you may decide to withdraw your participation by contacting Crystal Steeves, the principal investigator, within two weeks of interview completion and indicating that you wish to withdraw.

Participants will not be identified by name at any time. Pseudonyms will be used in any case where a name is required. Participants will, however, be identified by their title/position within the *Canadian Adventist Messenger* or its parent organization, the Seventh-day Adventist Church in Canada.

Further information regarding this research project can be obtained by contacting Crystal Steeves by email at crystal.steeves@hotmail.com or by telephone at 289-385-2830; you may also direct questions to Fay Fletcher, faculty supervisor, at fay.fletcher@ualberta.ca

---

CONSENT

I, _____, consent to participate in the study as described in the attached information letter. I have been fully informed by the researcher regarding what my involvement entails, and any questions I posed have been adequately answered. Additionally, I have been informed about my right to withdraw from this study in the future by contacting the researcher.

I understand that the data I provide will be used in an article to be produced by the researcher to document her findings, and that such article may be published and publically available in the future.

X _____ _____

Participant Date

X _____ _____

Researcher Date

Two signed copies of this agreement have been provided--one for participant's records, one for researcher's records.

Appendix 2

Survey

Thank you for your willingness to complete this brief survey on behalf of your publication. Your answers to the following questions will contribute to a research project being conducted at the University of Alberta which will increase our understanding of the relationship between Canadian publishers of religious periodicals and the blind/visually impaired community and how such relationship might be improved.

FURTHER INFORMATION:

This project is a limited exploration of how publishers use emerging technology to make their printed material more accessible to the blind. Its focus is upon publishers of religious periodicals in Canada

This research is being conducted by Crystal Steeves, a graduate student in the University of Alberta – Masters of Arts in Communication and Technology (MACT) program. It is undertaken as partial completion of the requirements of the program.

This project is under the auspices of the University of Alberta. The Canadian Church Press is assisting with distribution of the survey, only. You have the right to refuse to participate, and such refusal will have no affect upon your relationship to the Canadian Church Press.

If you choose to participate, you will complete a brief online survey. You may change your mind about participating for any reason and at any time during completion of the survey. Closing your browser without clicking ‘submit’ will end your participation. By completing the survey and clicking ‘submit’ you will be deemed to have consented to participation.

Participants will not be identified by name at any time. The survey tool, Survey Monkey, will not collect your email address, IP address or any other identifying information.

At the close of this survey, there will be an opportunity for you to disclose your name and the identity of your publication. Participants who disclose this information may be contacted for followup information. The disclosure is completely voluntary and will not prejudice the survey data in any way.

Further information regarding this research project can be obtained by contacting Crystal Steeves by email at crystal.steeves@hotmail.com or by telephone at 289-385-2830; you may also direct questions to Fay Fletcher, faculty supervisor, at fay.fletcher@ualberta.ca

---

QUESTIONS:

1. How frequently is your periodical published? (daily, weekly, monthly, quarterly, annually, other)
2. Where is your periodical distributed? (mainly Canada, Canada only, mainly US, US only, mainly outside of North America, other-specify)
3. What is the circulation of your print-based periodical? (less than 15,000; 15,000-30000; 30,000-60,000, 60,000-90,000; 90,00-120,000; more than 120,000)
4. Briefly describe your target audience. (ie. *members of the Lutheran church, general public, Christians,* etc.)
5. Is your print-based publication also available on the internet? (yes, no, don't know)

6. If yes, does your online version typically feature multimedia content such as flash animation, video, audio, etc..? (yes-specify, no, don't know)
7. Is your publication available in any form other than regular print or internet (ie. large print, etc.)? (yes-describe, no, don't know)
8. To your knowledge, has your publisher made any attempt (previous or current) to produce your publication in an alternative format to intentionally make it more easily accessible to the blind or visually impaired? (yes-describe, no)
9. Are you willing to be contacted for follow-up information if deemed necessary by the researcher? (yes-provide contact info, no)

By clicking 'done' you will submit your answers to this survey and finalize your consent to participate. If you have decided against participating, please close your browser without clicking 'done.' Information cannot be removed from the research findings after it has been submitted.

Appendix 3

Survey Results

1. How frequently is your periodical published?

Monthly	**35.7%**
Other*	**35.7%**
Quarterly	14.3%
Daily	7.1%
Weekly	7.1%
Annually	0%

* Respondent comments: “twice a year” while others commented “bi-monthly”

2. Where is your periodical distributed?

Mainly Canada	**71.4%**
Canada only	28.6%

3. What is the circulation of your publication?

Less than 15,000	**57.1%**
15,000 – 30,000	28.6%
30,000 – 60,000	14.3%
60,000 – 90,000	0.0%
90,000 – 120,000	0.0%
More than 120,000	0.0%

4. Briefly describe your target audience.

“Catholic believers,” “denominational members and adherents, open to general public,” “men,” “Catholics in Canada, general public,” “Reformed Christians,”

"Members of The Gideons International in Canada," "Mennonite Church of Canada members," "general," "ministers," "members of the Canadian Mennonite Brethren church," Presbyterians in Canada," "members of the United Church," "Roman Catholics in the Edmonton Archdiocese," "Women in the Presbyterian Church in Canada"

5. Is your print-based publication also available on the internet?

Yes	**85.7%**
No	14.3%
Don't know	0.0%

6. If yes, does your online version typically feature multimedia content?

No	**69.2%**
Yes*	30.8%

* Respondent comments: "video," "video clips linked to news stories, some audio," "video and audio"

7. Is your periodical available in a form other than print or online?

No	**64.3%**
Yes*	35.7%
Don't know	0.0%

* Respondent comments: "large-print and CD," "Volunteers at a church record the stories for the visually impaired. I believe they have a mailing list and send out tapes. This project is independent of the magazine," "audio CD"

8. To your knowledge, has your publisher made any attempt (currently or previous) to produce your publication in an alternate format to intentionally make it more accessible to the blind or visually impaired?

No	**57.1%**
Yes*	42.9%

* Respondent comments: “Our font types are bigger than those used by regular publications. We make sure our paper is matte, not glossy paper. We try to eliminate use of colours that are glaring and may be hard to read by the visually impaired.” “audio tape,” “There have been occasional attempts (like once or twice) at printing the magazine in larger sized font,” “audio CD,” “At one point, for several years in the 1980s, a radio announcer read several stories from each week’s edition of the newspaper onto cassette tapes, which were then delivered by volunteers to about a dozen people who requested them. As the project was volunteer based, when the announcer stepped down the project ceased,” “available on CD”