Brave New World: A Guide to Twenty-First Century Technology for Oral History

By Steven Sielaff

Advances in technology can often be a double-edged sword: while exciting and useful to some, they can cause fear and paralysis in others. The technology available to historians in the twenty-first century has the ability to ease the oral history process, but as with almost anything worthwhile, it often requires a bit of research and time investment. The goal of this article is to provide a broad overview of what digital tools are available to oral historians, with a focus on aspects that are both economical and easy to use. Also, since this article relies heavily on objects that either live or are referenced online, instead of listing a plethora of internet links that may or may not exist years from now, I have created a digital reference sheet as a companion piece on the Texas Oral History Association (TOHA) website. This way, I will be able to update links as needed, as well as add new content as technology advances. Therefore, when you see an item in this article in *italicized type-face*, know that you will be able to find the appropriate link on this page: www.baylor.edu/toha/technology.

Part I: Digital Audio Recording

Upon hearing the term "oral history technology," most people immediately think of recorders. This, of course, is part of our profession's legacy, but now instead of bringing suitcase-sized reel-to-reel recording equipment to an interview, practitioners can literally carry their technology in their pockets. In this section I will focus solely on audio recording, as proper selection and use of video equipment can easily be the topic of a separate article. If you do require aid with video interviews, I highly recommend the *Oral History in the Digital Age* website as it contains many great tutorials and theory pieces. In fact, everyone should consider this site the first option when seeking additional information on topics presented in this article, and I will also reference certain features located therein later in the article.

Digital Audio Recorders

The centerpiece of an oral historian's technological toolkit remains a dedicated digital audio recorder. I define such recorders as those pieces of equipment designed by established companies for the express intent of recording voices in a professional environment. The good news about these audio recorders is that they now almost all have the same basic features that are important to oral historians. When you consider purchasing your recorder, at the very least it needs to have the following characteristics: 1) records in WAV format (CD-quality at a minimum, defined as 16-bit, 44.1 kHz); 2) uses readily available and accessible recording media, which will almost exclusively have a secure digital, or SD card; 3) possesses quality on-board microphones and/or professional inputs for external microphone use (XLR is the professional input standard), and; 4) has both a DC adapter for power from a wall outlet and an on-board battery option. This last characteristic is important when considering some of the worst-case scenarios for your interview—the redundancy of these power options will protect you should either your batteries or power grid betray you.

Looking at the landscape of entry-level professional recorders, three brands stand out: Marantz, Tascam, and Zoom. There are several models available within each brand, with prices ranging from around $200 for the *Tascam DR-40* to $600 for the *Marantz PMD661 MKII*. The latter is the Baylor University Institute for Oral History's (BUIOH) flagship recorder, but for the dozen or so models in this range the features are similar: a bevy of recording format options, quality on-board microphones, XLR inputs, decent-to-solid preamps, and multiple power options. Depending on your interview logistics and how noisy your environment is, many of these recorders function perfectly using their on-board microphones when placed between the interviewer and interviewee. For more challenging environments, the XLR inputs are there to accommodate your external microphone choices (more on microphones later in this section). Regardless, the primary concern for when it comes to recording quality control is how to best *set your levels*. No matter which recorder you choose, make sure and familiarize yourself with how level/gain settings work on your particular device and make sure to take a pair of headphones with you each time you venture out into the field. Remember, if you do not capture a quality recording at the beginning of your oral history's lifecycle, it is very difficult to take full advantage of all the digital tools out there that will help you share your content.

Smartphones as Recorders

The question I have probably been asked the most in oral history workshops is, "Can I use my smartphone to record my oral history?" The short answer to this question is, "technically yes;" however, the long answer contains a number of additional considerations that are not an issue for

traditional digital audio recorders, but all of which must be addressed before you begin your project. The first issue concerns the smartphone on-board microphone, as it is almost always only capable of only recording monophonic sound and will be considerably worse than the microphones sported by dedicated recorders. The first step, therefore, is often to purchase a *microphone attachment* made specifically for your brand of phone, which will cost in the range of $100 to $200. Second, you will need to make sure your phone is positioned correctly during the interview and that will often mean purchasing a tripod (tabletop or traditional), plus a grip accessory. Third, you will need to choose an application to use to record your interview. Easily ninety percent of the applications available in the Apple or Android marketplaces do not even record in WAV format. Many also have very few, if any, options for transferring the recording off your phone when you are done. Typically, the *recording applications* you are looking for are produced by professional equipment companies, though there are a few independent offerings, such as *Recorder Plus* for iPhone, that will do the job. Regardless, you need to test these applications thoroughly before relying on them in the field, as one simple crash can ruin your entire recording. Fourth, consider your file size limitations. Until very recently, Apple's entry-level iPhone contained only sixteen gigabytes of storage. One hour of CD-quality WAV recording equals around 0.65 gigabytes, so it is easy to see where storage space could become an issue. Finally, you need to consider your power setup. How much power does recording for an hour take, and can you even plug in your phone with your microphone accessory attached? Once you consider all these variables, it is easy to see that recording oral history with a smartphone is probably much more trouble than its worth, particularly considering the fact that most practitioners will want to purchase at least one professional recorder for their project.

Long-Distance Recording

It is easier than ever to connect to someone from the other side of the globe, so how easy is it to obtain a decent recording of such a conversation? The main thing to remember here is that when recording long-distance interviews, it is not only your equipment you have to consider, but that of your interviewee. In most cases, therefore, the recording quality of the interviews will be mediocre at best. You will never be able to match the quality of an in-person interview with proper equipment, so remember to try and make that trip if at all possible. You can literally spend hundreds of dollars on what are called *telephone audio interfaces*, which can isolate feeds and mix levels, but for most researchers looking to conduct a handful of distance interviews this can be overkill. There are a couple of ways to capture these recordings on a budget. *JK Audio's QuickTap* is a simple device that will take the two inputs from your landline and mix them into one monophonic source that you can then output to a digital audio recorder to capture. BUIOH has deployed this

device for a number of our partners who require a quick solution for their projects and it has performed admirably. The one caveat here is that I typically will convert this source to a dual-mono access file for a better user experience.

Another piece of technology that everyone from family members to network news agencies uses to connect across great distances is *Skype*. Skype will work with both phone lines and digital applications, and on the surface seems perfect for recording both audio and video interviews. It does not, however, feature a built-in recorder, relying instead on third-party providers to offer add-ons to accomplish this task. In the past I reviewed the *entire list* of these providers Skype itself references and found only one that has the functionality needed for preservation-worthy oral history: *Pamela*. The Pamela provider will record both audio and video in approved formats and features a fairly straightforward menu system. You can even download a free, thirty-day trial version to test before purchase.

Microphones

Whether you have a complicated recording setup or just want a crystal-clear recording, external microphones are still a staple of the oral historian's toolkit. The first thing to consider when purchasing a microphone is to match the polar pattern (area of reception focus) to your needs. Polar patterns you are likely to encounter come in four varieties: 1) Cardioid—front focused, limited sides, ignores the back; 2) Omnidirectional—normalizes input in a sphere of influence; 3) Bi-directional—focused on front and back, and; 4) Shotgun—long-distance, unidirectional focus. Omnidirectional and bi-directional are great options for single microphone setups, and all four have their roles to play in more complex setups. Again, you will want to look for the professional XLR connectors to use with your recorder and also pay attention to the power requirements. Most microphones will either require a battery, phantom power (where the recording equipment provides the power), or both. Keep your microphones off the table with a tripod or stand and consider a "boom mic" setup if you want to keep the equipment out of the frame for video interviews. Lavalier, or lapel microphones, are still used but often require additional setup and are so prone to interviewee interference that many oral historians avoid them. Most professional-grade microphones mentioned in the formats covered here range in price from $150 to $400. If you are interested in further advice as to which microphone is best for you, consult the *Oral History in the Digital Age* microphone selection tool.

Part II: Digital Preservation

According to *BUIOH's internal cost schedule*, approximately ninety percent of the work required in an oral history's lifecycle occurs after you press stop on your recorder. Often the first order of business is to assure

that your digital files are well preserved. In workshops we often preach the pneumonic acronym LOCKSS: Lots of Copies Keeps Stuff Safe! This means not only creating multiple versions of the same file, but also housing them in a variety of locations (both physical and virtual). Thankfully in the twenty-first century, we have more options than ever when it comes time to preserve our recordings. Digital preservation is not just for media files however; I recommend creating as many digital versions of all other paperwork and imagery as possible. Proper storage and arrangement of all these materials can often make or break a project when it comes to matters of long-term usage and accessibility.

Digital File Management

Before purchasing equipment or server space, there are a few best-practice concepts to consider for your digital preservation project. First, choosing and implementing a naming convention for your interview materials can really save you from future headaches. Your naming convention should be a straightforward way to uniquely identify materials associated with particular interviews. For example, BUIOH's naming convention is to use the first five letters of the interviewee's last name, the first letter of their first name, the first letter of their middle name, then the date of the interview, which, using my name (Steven K. Sielaff), results in the following base: sielask20170901. Unless you are interviewing, on the same day, siblings with unimaginative parents, this type of system will not fail you. Second, you want to make sure and add descriptors to your materials as often as possible. For some this will mean filling out and scanning a data form to live alongside your media, but for others it might mean inserting information called metadata directly into media files. This metadata typically includes fields such as participant names, project name, date of interview, etc., and can be inserted into your media with most proprietary A/V editing software or with free software such as *BWF Metaedit* and *MetaX*. Third, familiarize yourself with the concept of *file fixity*, which is a fancy term describing the process of assuring that every time you copy a digital file the resulting file is not corrupted or has not degraded to the point of data loss. This practice is typically achieved through the use of checksum software, which creates a small "snapshot" companion file for your data files that serves as the comparison point for all future copies. Typically, you will want to create a checksum before you move information off the original recording media. Again, there are free software solutions available to help you accomplish this, such as *Fastsum* for Windows and *CheckSum+* for Mac.

Short-term Digital Storage

While your project is active, short-term storage options are not only acceptable but oftentimes preferable for easy workflow access. Remembering LOCKSS, you will want to maintain an original version while creating multi-

ple copies on diverse storage media. The SD cards that most digital recorders require can be used for both purposes. Prices are trending well under a two-to-one ratio of storage in gigabytes to dollars, so purchasing multiple, smaller cards for individual interviews could be a great way to preserve your project. Alternatively, you can use the hard drive on your laptop or desktop as a "transfer station," as you diversify your storage options. Data disks, either using CDs or DVDs, are cheap ways to create physical copies as well. A caveat here is that many laptops are abandoning optical drives, so while these disks will easily fill the role of backup, you may need to consider this trend when it comes to access during the course of a project. For more concentrated storage, portable hard drives are a low-cost alternative as well. The standard one-terabyte portable drive will hold approximately 1,500 hours of CD-quality WAV files or sixty-five hours of full-HD MP4 files, certainly more than enough for a typical project. Finally, the newest storage option available to oral historians is cloud storage, typically provided by a storage company such as *Box* or *Dropbox*, or greater service providers like *Google Drive*. All these companies provide a small amount of storage for free, with more available via monthly fees. Cloud storage is housed on company servers and available for access wherever an internet connection is present, helpful for both extreme offsite storage needs and handy for project members who would like to share in-progress materials.

Long-Term Digital Storage

Ideally, every oral history project has a partner archive willing and able to accept all original materials, preserve them, and make them accessible for decades to come. In fact, one of the best pieces of advice when it comes to oral history preservation is to begin negotiations with an appropriate archive early in your project's lifecycle so that there is no confusion down the road when it comes time to deposit your materials. For those practitioners without a sponsoring institution or archive to lean on, there are a few cheap long-term storage options available. These revolve around the concept of "cold-storage," that is, storage that is meant to be left safe and untouched unless a major catastrophe occurs and all local/access copies are lost. The two leading services in this sector are *Amazon Glacier* and *Backblaze*. Each charges mere pennies per gigabyte each month to store your information on their servers, and only charge greater amounts if and when you need to access the data.

Part III: Digital Processing

After you have recorded your interview and properly preserved it, it is time to begin the creative process. For some this means working within the media, while for others it involves creating derivative products such as transcripts and indices. Each of these tasks has software options to aid you, ranging in price from free to hundreds of dollars. Thankfully, in most cases,

the free or cheap software will either meet your needs entirely or allow you to experiment long enough to know just what sort of additional investment your work will require. Just remember, any extra work you plan past the preservation phase should be done only on copies of your media.

Audio-Visual Editing Software

The first course of action for anyone looking to work with audio files should be to jump online and download a free copy of *Audacity* for either Windows or Mac. Audacity features a very impressive package of features considering it is freeware, and can accomplish most simple editing tasks such as fades, clipping/combining, and transcoding. While it also contains basic audio-cleanup tools, if you are looking for something more industrial-strength, *Adobe Audition* or *Wavelab from Steinberg* are quality upgrades. For extreme audio cleanup, it is hard to go wrong with *iZotope's RX 6*. These will all cost you hundreds of dollars depending on the version you purchase, and as you can imagine they all possess a bit of a learning curve. For anyone looking for professional-quality audio to feature in their podcast or documentary, however, these advanced tools are almost mandatory. For video production, there are cheap or, depending on your computer's packaged software, free options to try before you progress to the professional level. *Windows Movie Maker* for Windows and *iMovie* for Mac will introduce you to basic tools and timelines used in video productions. If you need more bells and whistles, however, *Adobe Premiere Pro* or *Final Cut Pro* (Mac-only) are industry standards that will provide more creative outlets than you will probably know what to do with.

Transcription Software

Anyone who has ever transcribed an interview will testify to the arduous nature of the process. Having the proper tools while transcribing, therefore, can often seem like a godsend. A proper twenty-first century transcription setup involves a computer, headphones, a *foot pedal*, and transcription software. The software connects to both your word processor and foot pedal to free your hands for typing while your foot handles navigation. There are several quality versions of transcription software available, including *FTW Transcriber*, *StartStop*, and BUIOH's current choice, *Express Scribe*. There are free versions of all three available for you to try, and they all feature varying degrees of customization when it comes to playback speeds and timestamp entry, so make sure and test them thoroughly before purchasing a license.

There are alternative methodologies, however, when it comes to producing transcripts. One such technique involves training voice dictation software, such as *Dragon NaturallySpeaking*, to recognize your own voice, then listening to an oral history interview and vocalizing everything you hear. A post on the *Oral History Review*'s blog details one student's experiences with this option, and as you can probably guess, this would only be an

effective option if the majority of the transcription for your project is handled by one or two individuals. Another possibility is to use an automated transcription service to provide a base machine-produced transcript to then edit and shape into a quality document. Companies such as *PopUp Archive* and *Trint* allow you to upload your audio to their website, and for $10 to $15 per recorded hour will digitally deliver a raw transcript to your online account. You can then either download the raw text and edit within your own software, or use online tools developed by each company to help you achieve a clean document. Overall quality of these initial offerings can vary wildly based on the recording's sound quality and number of speakers during the interview. It really depends on a great number of factors whether it is worth the extra cost and clean-up time to use automated transcripts or to simply transcribe interviews yourself from scratch.

Part IV – Digital Tools for Access

When it comes time to showcase an oral history project, more often than not the first consideration is "how can I connect my work to people online?" Access to oral history records has evolved quite a bit from browsing physical materials onsite at an archive. Users in the twenty-first century are keen to be able to find, read, and listen to/watch your oral histories online. Luckily, you do not need the resources or prestige of a major university or institution to be able to create a solid online presence. In fact, by combining several of the following online tools (many of which are free to use) anyone can create a simple, yet effective online presence that will introduce your work to the world.

Websites and Databases

If you spend enough time on the internet, and especially with Google's search engine, you will inevitably come across advertisements for companies looking to sell easy-to-use products for building your very own website. There are far too many of these to detail in this article, so instead I will focus on a popular option that many people seen or worked in before: *Wordpress*. Creating your own Wordpress blog/website is free and can literally be accomplished in a matter of minutes. Afterwards, you have hundreds of themes and customization options open to you, plus an introductory amount of storage for media uploads. With these options, you can easily build a site that not only describes your project, but also can showcase your interview materials. For an additional monthly fee, you can obtain more storage, create a custom domain name, eliminate ads, and more. Most companies offer these "tiered" pricing options, but remember almost all also have an initial free tier that you can experiment with before committing to a fee structure.

For those oral history projects featuring a large number of interviews, or for any project manager looking for an online presence with a great-

er sense of interconnectedness, an online database, or content management system (CMS), could be a solution. Most offerings in this genre are proprietary, highly complicated, and cost far too much to be feasible for an individual or small organization. However, there is a movement toward free, open-source options, and one such offering is *Omeka*, which can be downloaded and installed on your own server, or you can have the company host your database for a fee. As with Wordpress, Omeka offers a tiered pricing system, but in this case, more money also equates to a larger number of tools called plugins. Many of these tools will take the database entries you create on the backend and turn them into stylized pages users can interact with. At BUIOH, we partner with a company named *Curatescape* to create a framework built on Omeka for both web and mobile platforms for our *Waco History* project. Graduate students work in the database combining text articles, photography, and oral history clips to create entries about Waco's past that are discoverable on a map or via the user's geolocation. While viewing an entry, you can search keywords or themes, or view other entries associated through various "tours," such as our Heart O' Texas Foodways tour. Waco History is a great example of how a free, open-source backbone can blossom into a major digital humanities project.

As mentioned above, one option for creating your personal online space is always to purchase a domain (i.e. stevensielaff.org) and build your website yourself. While this requires a considerable amount of expertise, if you know the right person it can be a solid option in the long-run. PC Magazine recently released a *comprehensive review of web hosting services*, which is a great resource for anyone considering starting down this path. Possessing your own domain certainly provides a great deal of freedom regarding content and aesthetics, and this could easily offset the technical requirements under the right circumstances. My advice is to consult or partner with someone that has web development in their toolbox early in your project's lifecycle if this is an option you would like to pursue.

Online Content Hosting Options

If you browse pricing plans for websites and databases, you quickly learn that online storage can get pricy. It is a vital part of your online presence plan to determine where your content will live online, and how you will link to it. Therefore, it is often wise to find free or cheap services that cater specifically to the type of content you possess. Media accounts for the lion's share of digital storage needs in oral history, so services that provide media hosting solutions will be key. You can then use linking/embedding tools on your online platform to exhibit your media.

The most popular media hosting service online is *YouTube*. Creating your own YouTube channel is free will allow you to upload as many oral history videos as you wish. YouTube has a thorough metadata tagging

structure for your content, and since it is owned by Google, your content will be supported by and easily discoverable on the world's most powerful search engine. YouTube also now features an automated captioning service, which works very well for short clips with clear English audio, but also provides the ability to sync a transcript for longer videos. One piece of advice for those with audio-only oral history projects who would like to use YouTube: utilize the free video editing software mentioned earlier in the article to add a single or multiple static images to your audio files and export as a video file format YouTube will accept. Other popular free media solutions to explore include *Vimeo* (video) and *Soundcloud* (audio). Cloud storage can also be used to host media online. Most services have two separate ways to share an item – as an easy, sharable link, and as a more complex permanent link. The latter is what you can use for any sort of platform that requires a direct link to media.

The Oral History Metadata Synchronizer

In 2014, the Louie B. Nunn Center for Oral History at the University of Kentucky officially released the *Oral History Metadata Synchronizer (OHMS)*, a free online tool that allows oral history practitioners to link media to their derivative products (transcripts/indices). The goal was to provide an effective user experience for those who wish to engage with the long-form, dual-natured medium that is oral history. OHMS exists as two separate pieces of software: an application housed at the University of Kentucky where users log on and create their interview records, and a viewer that users download and install locally on their own server space, which allows each institution to aesthetically modify the experience for their patrons. Interview records exist as data files and can contain a wide variety of metadata field entries, transcript text, and index markers. When these records are exported from the application and uploaded to the viewer, the data "calls" to the media and plays it, allowing the user to navigate using timestamps on the transcript and index modules.

If you would like to use OHMS, you will need an account with the Nunn Center (free), a place to host your media (see previous section), and a host server to install your viewer and upload your records. This final item is the trickiest for most, as it will require both the server and the knowledge to install and maintain the viewer. The OHMS homepage has plenty of tutorials, however, on how to accomplish this, as well as videos on how best to create your records. One of the best aspects of OHMS, however, is the fact that you do not even need a fancy transcript to use it. Anyone with an oral history recording and a couple hours of time on their hands can listen to/watch an interview and write up a short list of topics in order to create a basic "Level 1" index in OHMS that would allow users some level of exploration within the content.

Social Media

When considering the best options for enabling users to connect with your content, advertising tools certainly must be considered, and social media platforms are often your best bet. The usual suspects are all still free and the most ubiquitous for professional promotion: *Facebook*, *Twitter*, and *Instagram*. All three have media components to them, so the pictures or videos you take for documentation during your project can also later serve as fodder for posts. If you want to incorporate social media into your project, make sure and begin early in the project's lifecycle so that you can start informing the public while your project is in-process and, hopefully, by the time you have interview content to share you have already built up an active follower base. Make liberal use of common hashtags in your posts as well (i.e. #oralhistory), as they act as keywords in certain social media circles or trigger many other accounts, some of them automated, to share your post. Also, social media schedulers such as *Hootsuite* can allow you to create scores of posts at the same time, schedule them for release in the future, and then distribute them across multiple platforms at the same time.

The key to promotion through social media is to develop a news cycle plan (a certain number of posts per week), stick to it, then connect to/follow as many individuals or institutions related to your work as possible. It can be difficult at first to develop a following, but if you stay engaged with your audience and actively follow and support the efforts of others as well, it will eventually happen. Be on the lookout especially for local fan clubs or interest groups, as they will often serve dozens if not hundreds of individuals. For example, soon after its creation, BUIOH's *Waco History Facebook* account joined the *Waco, Texas History in Pictures* interest group, which contains more than 15,000 members. Now, not only does the BUIOH graduate student assigned to social media share new articles with the group, but random member discussions will often feature individuals linking to the Waco History site. This kind of domino effect promotion is the ideal situation and means that you will not have to work quite so hard in the future to spread your message.

Conclusion

Hopefully this article, the links provided in its companion page, plus the Oral History in the Digital Age site will provide you with the proper introduction into the world of oral history technology. While the aggregation of all this advice and content can certainly seem overwhelming, especially to those who self-identify as technological neophytes, please remember that the internet is full of additional information and guides crafted by extremely nice people looking to help you out. My hope is that, with a little knowledge and experience, you too can one day become a source of edification for someone else in our field, and then we can all confidently march into this brave new oral history landscape together!