



Introduction

Existing and emerging technology tools enable the collection of multimodal data (e.g., textual, visual, aural, spatial, and temporal). However, given many of these tools were originally developed for other purposes, there is still much to learn about how they can be used in qualitative research (Beddall-Hill, Jabbar, & Al Shehri, 2011; Onwuegbuzie, Leech, & Collins, 2010). Four primary methods for data collection include "(1) participating in the setting, (2) observing directly, (3) interviewing in depth, and (4) analyzing documents and material culture..." (Marshall & Rossman, p. 137). The uses, advantages, and drawbacks of emerging technology tools used for collecting data are presented here within the context of qualitative research in instructional design and technology (IDT).

A Comparison of Interview Recording and Transcription Applications

Julie Kimbler

Dissertation IP: Incorporating Knowledge Management into the Design of Professional Development for Adjunct Faculty: A Blended Learning Case

Dissertation Goal: Design a blended learning professional development program to facilitate just-in-time training for adjunct faculty who teach undergraduate students in a face-to-face environment. Part of the data collection includes interviews with faculty and administrators. The following tools were evaluated to determine whether they would be useful for conducting and transcribing the interviews.

Application	Dragon NaturallySpeaking	QuickVoice Pro	Dictadroid Lite
Platform	PC, Mac, iPad, iPod, iPhone, Android	PC, Mac, iPad, iPod, iPhone	Android
Audio Formats	Varies by version; wav input available across all platforms, but not versions	.caf, wav	.wav
Usability	Medium	Easy	Easy
File Transfer/ Sharing	Not designed to share audio; text sharing via email and word processing documents	Audio sharing via email as a .caf file; text sharing via email in pro version	Audio sharing via Email, Google Drive, MMS, FTP/FTPS, or Dropbox
Sound Quality	Fair	Good	Fair
Speech-to-Text Accuracy	99% accuracy	Undetermined –inconsistent	Not applicable
Additional Features and Functions	- Works with seamlessly with other applications such as email applications and word processing programs	None	- Automatic voice activity detection - Ability to insert into recording - Associate photo with recording
Cost	Varies by Platform, Version, and Specialty; \$75 and higher	Basic – Free Pro – \$2.99	Lite Version – Free Full Version – \$24.99

The Use of Social Mobile Devices (SMDs) for Preliminary Research

Diana Moore

Research Interests: Fostering a community of interest through mobile technologies; the relationship between social presence, student satisfaction and retention in online programs

SMDs (e.g., smartphones and tablet computers) are commonly used in research; however, an understanding of how they are used by individual researchers as qualitative data collection devices is not as well known (Beddall-Hill, Jabbar, & Al Shehri, 2011). The integration of following iPad apps are being used in this instance to support data collection and storage during doctoral course work.

- **Safari:** Preliminary academic research in the literature; accessing the databases
- **Mendeley:** Managing references and quick review of pdfs
- **PDFExpert & iAnnotatePDF:** Reading and annotating pdfs
- **Dropbox:** Backup of pdfs; “watch folder” – places new research directly into
- **Mendeley:** Quick access via PDFExpert or iAnnotatePDF
- **Evernote:** Memoing, reflexive journaling, note-taking

Advantages	Drawbacks
<ul style="list-style-type: none"> • Mobile and compact size support any time and any place access • All-in-one (integrated functionality) • Automatic sync across devices • Multi-modal (used to collect different types of data – textual, aural, visual) • Cloud storage (e.g., Dropbox, Evernote) • Password protected, encrypted, remote deletion 	<ul style="list-style-type: none"> • Technology limits with user-interface • WiFi or 3G/4G dependence • Ethical issues and confidentiality (stored on server not owned by institution) • Perceptions (i.e., academics to not yet perceive SMDs as a valid/serious research tool)

Emerging Technology Tools for Qualitative Data Collection

Julie Kimbler, Diana Moore, Manon Maitland Schladen, Bruce Sowers, Dr. Martha Snyder



Using Morae® to Capture Learner Interaction with Virtual Patient Scenarios – Manon Maitland Schladen

Dissertation IP: *Toward and Instructional Design Theory of Virtual Patients*

Dissertation Goal: Develop an ID theory of virtual patients (VPs) to enhance the development of diagnostic skills in medical trainees. Intrapartum electronic fetal monitoring (EFM) data interpretation serves as an initial instructional case for theory development. Formative research (Reigeluth & Frick, 1999) will be used to refine an existing ID theory, Goal-based Scenarios (GBS) (Schank, Berman, & Mcpherson, 1999), to address the needs of EFM novice learners. Residents, midwives-in-training, and nurses will interact with an experimental EFM VP that exposes learners to both branching logic and game technology-based VP platforms. Both objective and perceptual data will be captured and analyzed.

Advantages	Drawbacks
<ul style="list-style-type: none"> Provides a single platform for capture and working analysis of all data including textual, visual, spatial, and temporal Accommodates import of video captured outside the system Key is translation of usability concept of "task" to "critical actions" in navigating a virtual patient scenario 	<ul style="list-style-type: none"> Expense ~\$1200 for educational edition Does not readily accommodate analysis of repeated actions in a single session Does not readily accommodate import of audio only files (work-around necessary)

Using Skype to Collect Verbal and Non-Verbal Interview Data – Bruce Sowers

Dissertation IP: *Technology's Instructional Role: An Investigation of Instructional Designers' Decision-Making in Higher Education*

Dissertation Goal: Examine how expert instructional designers in higher education design technology-enhanced instruction, determine whether the use of schemata, gambits, and precedent (Lawson, 2004) can be applied to effectively categorize these design decisions, and identify what gaps exist between instructional design theory and practice with regard to the design of technology-enhanced instruction in higher education. A combination of survey and interview data will be collected. Skype (www.skype.com) will be used to conduct video interviews with expert instructional designers regarding design decision-making. The data will be analyzed using interpretative phenomenological analysis (Smith, Flowers, & Larkin, 2009).

Advantages	Drawbacks
<p>Cost: Web conferencing features for one-to-one sessions are available at no cost to users.</p> <p>Availability and Ubiquity: Downloaded from the Web and is compatible across popular operating system platforms.</p> <p>Usability/Quality of Service: Highly intuitive interface = low learning curve for user training. Plentiful support and training options from several sources.</p> <p>Richness of Content/Immediacy and Non-Verbal Cues: Non-verbal data are captured so the researcher does not have to rely solely on notes and memories of the interview during data analysis. The recorded interview is a mirror of what it was in reality (Bertrand & Bourdeau, 2010). Being in the context of a phenomenological study, video may help in building rapport between the research and the interview participant.</p>	<p>Bandwidth Requirements: Designed for and works best in an environment in which all participants have a high-speed Internet connection.</p> <p>Hardware Requirements: Skype participants in this study must have working audio and video peripheral devices, such as headsets or microphones, and web cameras.</p> <p>Technical Difficulties: Communication interruptions can be caused by Internet connection issues, power loss, user operation error, or insufficient computer power for audio and video processing, buffering and streaming.</p> <p>Social Cues and Self-Consciousness: Recording a Skype conversation with computer software, and in particular the video portion, may make participants feel uncomfortable (Hay-Gibson, 2009).</p>

References

- Beddall-Hill, N.L., Jabbar, A., & Al Shehri, S. (2011). Social mobile devices as tools for qualitative research in education: iPhones and iPads in ethnography, interviewing, and design-based research. *Journal of the Research Center of Educational Technology (RCET)*, 7(1), 67-89.
- Bertrand, C., & Bourdeau, L. (2010). *Research Interviews by Skype: A New Data Collection Method*. Paper presented at the Proceedings of the 9th European Conference on Research Methodology for Business and Management Studies.
- Hay-Gibson, N.V. (2009). Interviews via VoIP: Benefits and disadvantages within a PhD study of SMEs. *Library and Information Research*, 33(105), 39-50.
- Lawson, B. (2004). Schemata, gambits and precedent: Some factors in design expertise. *Design Studies*, 25(5), 443-457. doi: 10.1016/j.destud.2004.05.001
- Marshall, C. & Rossman, G.B. (2011). *Designing Qualitative Research*. (5th ed.). Thousand Oaks, CA: SAGE Publications Inc.
- Onwuegbuzie, A.J., Leech, N.L., Collins, K.M.T. (2010). Innovative data collection strategies in qualitative research. *The Qualitative Report*, 15(3), 696-726.
- Reigeluth, C. M., & Frick, T. W. (1999). Formative research: A methodology for creating and improving design theories. In C. M. Reigeluth (Ed.), *Instructional-design theories and models, Volume II: A new paradigm of instructional theory* (pp. 633-651). Mahwah, NJ: Lawrence Erlbaum.
- Schank, R. C., Berman, T. R., & Macpherson, K. A. (1999). Learning by doing. In C. M. Reigeluth (Ed.), *Instructional-design theories and models, Volume II: A new paradigm of instructional theory* (pp. 161-181). Mahwah, NJ: Lawrence Erlbaum.
- Smith, J. A., Flowers, P., & Larkin, M. (2009). *Interpretative phenomenological analysis :Theory, method and research*. Los Angeles: SAGE.