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It is entitled: Nursing Instructor Perceptions in the Assessment of Student Voice-Journals

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Nursing Instructor Perceptions in the Assessment of Student Voice-Journals

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Abstract

Reflective journaling is frequently a part of nursing education; these journals provide a student’s reflection-on-experience to instructors after required clinical experiences, and the instructor’s assessment of the reflective journals is both objective and subjective. A small pilot study of nursing students (n = 17) compared the comfort levels and preferences of groups of students who either audio-recorded their journals or wrote them in text. This study showed the audio-recording ("voice-journaling") students felt comfortable with the technology and process, and these same students showed a slight preference for using the audio-recording method. Voice-journals were additionally found to be greater in comparative word count than text journals. Later, in the first part of a two-phase study, a small cross-sectional survey (n=9) of nursing instructors identified 15 unique factors falling within four broader categories to be used for assessment of voice-journals. In the second phase of this study, a larger online survey of nursing instructors (n = 60) from several Midwestern colleges of nursing were able to identify and note the presence, or lack of presence, of these earlier named factors when listening to voice-journal excerpts. These same instructors rated each of the unique factors above a neutral level of importance to voice-journal assessment, and additionally provided qualitative data to help formulate guidance for future voice-journaling students.
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Chapter I: Introduction

Background

This research is the result of a timely confluence of factors. I was a beginning doctoral student and working at a Jesuit university. Jesuit education strongly stresses the importance of reflection as part of a student’s educational experience. While working there, I was given a special opportunity to spend a week in Central America to study peace and justice issues, and I was asked to reflect daily in a journal. Because of my lack of legible handwriting skills I chose to conveniently audio record my journal entries on a small notebook computer. Listening to those journal entries I quickly discovered how rich they were in content that could not be conveyed in text. My reflections seemed to have more emotional depth, and when listening later I could distinctly recall my feelings at the time. The university had recently acquired Wimba® a voice discussion board tool for their course management system. I found this tool could be configured to allow private reflective journals to be recorded by students and shared with an instructor. It became apparent the direction my educational research should take was to explore reflective voice-journals and how they could be used in an educational setting.

The use of reflection and reflective assignments such as journaling are important parts of higher education and are often used in the curriculum as a formational tool for teaching subject matter and for the development of professionalism. Reflection is a personal, sometimes emotion-laden return to earlier experience; it is a narrative created internally through a process of expectation, active exploration, and critical resolution, which can then be held and used to influence action in future situations. It is creation of personal knowledge, an ongoing process where critical thought processes influence and transform the individual (Mezirow, 1981; Schön,
Reflection is an “active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions which it tends” (Dewey, 1910/2001, p.6). Becoming critically reflective is a key to transformation of frames of reference that are indispensable in the process of adapting to change (Mizerow, 1997). Reflective practice, specifically Schön’s (1991) term “reflection-on-action,” is central to professional practice, and refers to personal consideration of an experience after it has occurred.

Over time, the technology for the creation and sharing of reflective activity as part of pedagogical strategy has transformed and is continuing to change. Technology now permeates the world of higher education. Use of computers by students and instructors as tools for teaching and learning is ubiquitous and is shifting to include the use of mobile devices such as tablet computers and smart phones out of a student-perceived need for convenience. Young people such as students are skilled multi-tasking users of technology, and rely on it on it for information gathering and communication (Bennett, Maton, & Kervin, 2008). A 2013 ECAR study of undergraduate students and information technology finds “students are ready to use their mobile devices more for academics, and they look to institutions and instructors for opportunities and encouragement to do so” (Dahlstrom, Clark, & Dzuiban, 2013, p. 4). It is important that a primary teaching and learning tool such as reflection be adapted to fit technological changes and better serve the student and the instructor. This is particularly true in nursing education where reflection is an important part of the curriculum.

Advances in technology provide opportunities with new faster and richer means for creating and providing reflective journaling responses to instructors. Once handwritten, writing assignments moved to being typed on mechanical devices like typewriters, and then to being created on more convenient and time-efficient text-based tools such as computers using word
processing programs and applications. As technology has progressed, student work now can also be created using preferred smaller mobile devices such as tablets and smartphones. These smaller devices usually contain several applications, but do not favor manual text input longer than a few words without the use of an inconvenient auxiliary keyboard. They, like their larger computer counterparts, however easily accept hands-free multimedia input such audio, which can be recorded. Because of this, and a student-perceived need for convenience, it seems reasonable that pedagogy in higher education should consider the use of multimedia forms such as recorded speech for student reflective assignment creation and submission. Audio recording applications are common to both regular computers and smaller mobile devices, and they are convenient and easy to use. Technological progress in educational settings, as well as students’ desire to use convenient technologies makes recording speech for assignments, including reflective “voice-journals” worthy of study.

Assessment of student reflective assignments such as journals is both objective and subjective. Recorded voice-journals will be different than text-based journals, and because of this instructor perceptions and strategies for assessing them will be somewhat different as well. Thoughts that were once written in text will be replaced by the sound of the student’s voice, and vocal elements such as inflection and the vocal manner of presentation will essentially replace like text-based components, such as punctuation, paragraph, and sentence structure.

**Purpose of the Current Study**

Because voice-journals will include unique elements not seen in text-based journals, the current study seeks to find what elements or factors unique to voice-journals nursing instructors will perceive and will find important to assessment. Courses in nursing often include reflection as a key element, adding it to the course curricula by integrating it into activities, and using
students’ reflection-on-practice material as a part of a formal assessment strategy (Hannigan, 2001). Students in nursing are involved with active participation in simulation labs, and in clinical learning environments, where they work as apprentice staff alongside supervising nurse instructors in a variety of healthcare settings. Assessment of this student activity comes through face-to-face debriefings with the instructor, as well as writing assignments such as reflective journals where the student is prompted to internally return and consider the experience, write meaningfully about it, and share it with the instructor. The time spent by students writing reflective journaling assignments can be lengthy and can occur relatively long after the experience, possibly leading to details being lost. The convenience of voice recording a reflective journal can make the process more expedient, but because voice-journals will be created in a different fashion there will also be differences from the written word that will be apparent to instructors.

Exploration into which unique vocal elements instructors will consider when assessing a student’s voice journal is important. The understanding of what elements will be noticed and which of these are important will assist an instructor in formation of a reflective prompting structure for the student, and will additionally help form an assessment strategy for these types of reflective journals.
Chapter II: Theoretical Framework

Reflection

The definition and concept of the term reflection is hazy (Atkins & Murphy, 1993). A common theme in defining reflection is that it is an internal conceptual change occurring as a result of thoughtful consideration of some sort of stimulation. Dewey calls it an active consideration of belief or knowledge in the light of what supports it (Dewey, 1910/2001). Schön (1991) defines it as mental return to experiences to both learn from and frame professional action. He further identifies three stages of reflection: “conscious reflection, criticism, and action” (Adkins & Murphy, 1993 p. 1189). Meizirow (1981) from his research on women’s re-entry to the workforce, names several levels of reflective perspective transformation, ranging from awareness of discomforting feelings, to critical challenge of personal assumptions, exploration of options, finally ending with “critical reflection” which is the acquiring of new knowledge and efforts to reintegrate it under terms of a newfound perspective. While reflection would appear from these descriptions to be formulaic, it is actually a complex individual process, contains elements of emotion, and is not always linear in nature. Reflection is a personalized individual activity where the source of learning becomes the self (Boyd & Fales, 1983).

Boud (2001) states reflection is “a process of turning experience into learning, that is a way of exploring experience in order to learn new things . . . it involves exploring messy and confused events and focusing on the thoughts and emotions that accompany them” (p. 10), and further states reflection comes in two broad forms, “reflection-in-action” and “reflection-on-action,” both notions brought forward by Schön (1991). Reflection-in-action is comprised of noticing and becoming aware of both external events and internal thoughts and feelings and then intervention, where one takes action either internally or overtly noticeable to others. “It is the
Reflection-on-action is the learning that comes from the thoughts following events, which includes the mental return to experience, dealing with the feeling associated with the event and then reevaluation of that experience.

Reflection then, particularly reflection-on-action, is a process of reconciliation and making sense through an internal storytelling process, and storytelling is the act of stringing together relating incidents for making arguments (Conrad, 2008), and as Daniel Pink (2005) states: “stories are how we remember” (p. 99). Reflection is not unlike having a personal discussion in one’s own head. Ideas, emotions, and contextual stimuli are formed into a loosely reasoned narrative of imagery and sound by which we can remember and mediate our reactions and involvement with external experiences both present and future.

We are organisms with several senses; memory and internal reflective narrative contain elemental artifacts of our sensory perceptions that are bound to our understanding of the world. Internal stories provide a complex multimedia version of knowledge, it is remembering in collective formats that include sight and sound and contain emotional elements. These reflective narratives may be recorded as external knowledge in a multimedia sense, beyond commonly used text representation. As examples, Alexandra (2008), an ethnographic researcher, provides us a study of Irish immigrants who manipulate audio and visual media to digitally document their stories; the immigrant’s complex multimedia reflections of past experiences were successfully represented without text. She found the immigrant’s process for creating their reflections was involved, critical in nature, and transformative. Martin’s (1998) study of transforming the oral reflective stories of welfare children directly to text media also shows the power of storytelling. It shows that conversion from one format to another, oral to text, holds the same knowledge and power. She states, “the agency of authorship became a metaphor for being
self-directed in life: the job of an author planfully unfolding a story is very like the job of a person planfully living a life” (p. 2). To externally express and share one’s internal reflections and what they might mean personally, some sort of technology must be incorporated to capture and hold those thoughts.

**Multimedia Reflective Thought**

Knowledge is held externally for distribution, and this mode has been in place in one form or another from the dawn of humanity. What began as rhetorical representation involving the spoken word, eventually became text. We have always held our knowledge in technical appliances, or tools, such as text; “Memory limitations have been compensated by writing things down, printing books and creating databases” (Verhagen, 2006, p. 4). Now because of technological advances knowledge such as visual or auditory content can be stored and easily distributed in a variety of digital means other than text.

Access to stored knowledge contained in media artifacts, e.g., text, pictures, or audio, in combination with situational immersion, creates cause for even further reflection, learning, and transformation for the individual. Knowledge creation moves forward, becomes richer and as it transforms, spawns further creation of more external knowledge artifacts, which then again are passed onward. A cycle is built; collected thought lives internally as story-like artifacts in neural networks, and by extension, externally through media networks as text or multimedia artifacts. Both evolve and become larger and richer over time as learning occurs. A term, “Connectivism” coined by George Siemens says “Learning may reside in non-human appliances. Learning (in the sense that something is known, but not necessarily actuated) can rest in a community, a network, or a database” (“About-Connectivism,” n.d.). Within humans, knowledge is a networked connection of neurons, in society it is connections between humans and artifacts. The content of
entities or messages sent from one to the other are not the knowledge; the recognition of patterns emergent in the network of connections and interactions are the knowledge (Downes, 2012). This means that knowledge simultaneously resides both internal and external, both essentially having equal value and being both dynamic and tacit.

Like any type of tool, knowledge artifacts depend upon their active use to have meaning, not until incorporated in practice can they be the basis for thought and reflection (Bannon & Bødker, 1991). It seems reasonable then to consider the political relationship between internal and external knowledge to be on equal standing, the only difference is the means, or the appliance in which the knowledge constructs are stored and used over time. Considering this, media then is the knowledge, and technological advances mean this media knowledge can be held or used in a variety of means such as audio and imagery. Multimedia artifacts then are a representation of knowledge and have the same validity as text. Representation as multimedia offers a richer means of knowledge expression as it provides a multifaceted reach into the knowledge of the observer and their emotional makeup. It is a rich manifestation that plays to not only intellectual understanding, but also to emotional understanding.

Using a variety of media in communication offers broader means in which to communicate, and gives individuals a chance to enhance the exchange of their own knowledge by bolstering communication skills. Humans are individuals; we have individual strengths and weaknesses. The opportunity to communicate in different media gives us the chance to exchange knowledge with others, but only as well as our personal communication skills will allow. What may be lacking in one form of communication skill may be supplemented, or possibly even overcome by using another skill of greater strength.
Internal and external knowledge activities as stated above are not mutually exclusive; they interact, influence, and transform each other. Internal activity cannot be analyzed without consideration of the external activity. Activity theory (Leont’ev, 1979; Vygotsky, 1978) can describe the interaction of the tool and the human online. The tool used by a learner influences the interaction with the world and shapes the “interpretation, relevance, and meaning of the meditational tool” (Donnelly, 2008, p. 44). Activity theory applies well to technology tools because of the complex learning environments generated by the Internet and Web 2.0 approaches (Joyes, 2008). The tools hold the power to mediate further action on the part of the human because those tools support multiple ways of understanding.

Activity and associated reflective activity is directly related as a process of external and internal knowledge creation. Knowledge can be accumulated and held externally over time via several media types other than text. Because internal reflection can be multifaceted in nature, i.e., containing emotional and sense-based elements, modern technology offers a multimedia means of capturing this knowledge, containing it and passing it forward in a richer and more nuanced form than text.

Technologies for Reflection

For humans it is almost impossible to find an interaction that does not make some appeal to technology, human interaction is most often localized, held by a framework made up of non-human actors (Latour, 1996). The non-human actor in this case is the online technology and the support offered to more extended forms of person to person interaction and learning. This type of interaction stretches the cultural norms; where writing formally reigned as the primary modality for distribution of knowledge, it now must share the stage with other forms. “We appear to be living in a period where the primacy of silent reading and wring is being contested by a
“secondary orality” supported by various technologies” (Honeycutt, 2004, p. 294). These technologies are means of knowledge distribution and depend upon a myriad of digital devices, which can not only communicate and store information but can distribute it to selected other personal devices or broadcast it to a wide network of others via the Internet.

**Web 2.0.** Web 2.0 is a term frequently used to describe technologies that are computer accessed, online-based, and interactive in nature; users store knowledge digitally online in a variety of media forms that are easily collected, distributed, shared, and if appropriate, collectively modified. There is little agreement as to what Web 2.0 actually is, so it is usually defined as the nebulous entity it appears to be. Doan (2009) refers to Web 2.0 as “certain forms of activities or practices . . . not a binary function, but rather a question of degree” (p. 345). It is a framework and modality for interaction and shared thinking, and a technology for holding interaction. “Web 2.0 is linking people . . . people sharing, trading, and collaborating” (Wesch, 2007). What makes Web 2.0 unique is that knowledge can be actively created or amended, and is immediately distributed and available to anyone to be shared and used, all online. Where earlier web technologies were essentially “read only;” the user would find the web resource and glean information, Web 2.0 instead makes the any user an author of the media, so these technologies are essentially “read/write” in nature and can therefore be collaborative. The user, or in the educational sense the learner, has the capability to seek stored knowledge media, be that text, imagery, or audio and go beyond mere passive observation. The observer becomes the contributor and can now input and amend the media with their own interpretations. Further they can exchange and share this information with student peers or instructors. The digital world now is not limited just to text input alone; the web honors multiple forms of intelligence (Brown, 2000). Pictures, audio, video, and hyper-links to other online resources make Web 2.0 into a
network of current information via shared authorship. It connects and creates a shared and social network of knowledge that computers and mobile devices can carry out into the world.

**Digital mobile devices and technologies.** Devices such as laptop and tablet computers, smart phones, and the like permit communication and recording of knowledge in many forms. Instant communication via voice and video is possible from handheld devices ranging in size and power from laptops to tablet computers and smart phones. The capabilities of some current devices, specifically “smart phones” are a natural extension of their primary purpose, to provide audio communication between users separated by distance. They are small and powerful computers, and contain standard device features and applications that can record, save, and transmit text, images, video and audio. Phone network advances have assisted in increasingly faster non-wired Internet connections that are ubiquitous in the modern world. These types of networks are used for digital connectivity and communication virtually anywhere anytime. Connections to persons, online knowledge and media stores, public or personal are everywhere. Additionally, many of the devices also have the ability to geographically locate themselves via the network, and can allow a user to store or post individual contextual information such as location specific information to websites where this archived knowledge may also be found by any person seeking it. As such mobile devices are very important and a primary part of the Web 2.0 landscape. Knowledge created and held in these devices has the ability to be carried by the individual, somewhat akin to a notepad and pen. The individual becomes an observer, correspondent, and mobile repository of knowledge moving about the environment of the world gathering and disseminating information at the same time.

Information can be stored on digital networks, often referred to as “the cloud” away from the individual but still attached by the Internet and the device’s technology to the individual.
Even when not connected to a network, mobile devices can still be convenient repositories for storing multimedia knowledge. If we can store knowledge then by extension we have the possibility to also store our personal thinking processes such as reflection. Mobile technologies, like computers provide a new form for pedagogical input and output. Major computer-based educational course management systems (CMS) such as Blackboard® and Canvas® among others have created interactive applications for handheld devices. A student or instructor can log into their CMS account from anywhere where they have Internet connectivity and communicate, receive, and upload information in real time. Mobile devices then appear the perfect way to progress in education; the student can create and share information conveniently, and mobility makes educational and other resources quickly available. The need for mobility can create problem issues though, and from those issues innovation can occur.

There is a huge array of mobile devices in the marketplace, and the market is driven by the needs of the customer; consumer convenience is a prime factor for market innovation. Physical size of the devices has fluctuated over time depending on the consumers’ needs and what technologies could be fitted into the device package. Mobility is key, and a casually observed trend is a general move toward smaller devices that might fit in a pocket or personal carrying bag, such as a purse or backpack. The market for larger devices, even laptop computers is showing decline in favor of smaller devices such as tablet computers (Whitney, 2013). These devices may be some form of smartphone or may be a small tablet-style computer. Many, if not most, of these devices now use a touch screen as an interaction interface with the device and its applications. There are no keys to type on, only images that are touched to generate text or choose device options. With size limits come constraints such as the user’s manual dexterity. The smaller screen size required to make these devices convenient also makes traditional methods of
user input other than imagery, video, or audio more difficult; typing or editing anything longer than short “text” notes without some sort of external physical keyboard is troublesome, and the need for some sort of separate keyboard overcomes the consumer’s want of device mobility. Because mobile devices now provide multiple methods of user input, the user-to-device interface for larger information storage needs to be in media forms other than text. Speech forms an easy input means for mobile devices. Interestingly technology advances have revived orality, which Ong (1982) states is essentially the primal form of human communication.

**Orality and transcription.** Man’s original stories and reflections were oral, later to be transcribed in symbolic technical appliances such as text. Spoken language has a power that text can only describe, “articulated sound, is paramount . . . thought itself relates in an altogether special way to sound” (Ong, 1982, p. 7). The spoken word is primal and an integral part of our social structure and culture. The recording of the spoken word holds the same knowledge and validity as it would transcribed into text. It is also a record of knowledge accessible over time, but also has embedded in it the added emotional and primal power of articulated sound. Through articulated sound, i.e., voice inflection, an observer, in this case an instructor may detect an implicit deeper meaning in reflection. This may provide additional insights and means for assessment of student thoughts, problem solving, and their reflective learning process; by this way it can be considered an educational tool which can be part of a strategy for teaching and learning.

Oral stories and reflection can, via a transcription be converted into a tool such as text that holds knowledge accessible over a period of time. Among the many Web 2.0 technical tools is that of computer generated transcription; the author speaks through some sort of microphone interface into a device such as a computer or smartphone and a software program converts the
oral utterances to text which is displayed as spoken onto a screen. The application provides this service with a widely varying amount of accuracy. There are several of these dictation programs currently on the market; some even come free of charge. Many of these programs also come in the form of a mobile application, or an “app” available for download and use on a device such as a smartphone. This is particularly helpful as the small screen size required provide convenience also makes the traditional method of text input more difficult; typing anything in text is more troublesome than just dictating words into the device and letting the software application decipher and change it to text.

**Dictation applications.** Computer and mobile device speech-to-text (ST) dictation apps for speech recognition have gotten progressively better, their accuracy is improving. The only caveat is that the ST apps must “learn” the voice and speech patterns of specific users to have any kind of fidelity to what was actually spoken. The app becomes personal and consequently dictation received from an “app-known” entity will be considerably more accurate in speech recognition than if the same personalized software were used listening to another person, or even an audio recording.

The use of ST conversion is not new; it is essentially “dictation” and humans have long been using this method for generating text from speech through the use of stenographers, and more recently through computer software applications. Earlier research shows that between the shortcomings of ST applications and the associated lack of user familiarity with them, much post-dictation editing was required, primarily done via standard keyboard (Honeycutt, 2004). The way a person communicates via casual or even formal speech is different than how written speech is presented. A person may dictate using an ST app, but in speaking must include punctuation queues for the app, thus removing the spontaneity and naturalness of the spoken
word. Editing of mistaken words, phrasing, or punctuation requires revision best done via some sort of manual keyboard diminishing the convenience of ST. The need for a keyboard negates any advantage mobile device ST apps can provide for student journaling, as manual editing of text on such devices at this time is difficult at best and certainly not the convenient solution a student user seeks in ST. This does not necessarily mean that ST technology as it currently stands with no post-dictation editing cannot be used as a tool for journaling, but it is means that an “unedited” and “flawed” text journal with frequent incorrect wording and punctuation will provided to the instructor.

Over time as the technology gets better the output of ST applications will get better, but ST apps at this time have far to go before achieving perfect accuracy and not requiring extensive review and editing to provide a transcript worthy of educational assessment. Though attractive, aside from providing a quick way of creating quick text notes, the use of ST programs for reflective journals is not yet viable if convenience is a factor to be considered.

**Audio-recording reflection.** If the return to orality and voicing one’s thoughts and reflections for ST will not be convenient, or natural, then use of a device for recording one’s own voice to share thoughts and reflections seems a viable alternative, be it computer or mobile device. Should the use of this type of technology for journaling be used then there should be consideration of those who will be using it and their opinions. Tindall and Seo (2013) ran a pilot study, later discussed in depth, examining nursing student’s preferences and comfort levels recording their voices as reflective “voice-journals.” Undergraduate nursing students in a semester-long weekly journaling assignment were divided into two groups, one using text, and the other journaling by recording their voices on a computer. This sample of students responded to identical questionnaires both before and after the study intervention. Those questionnaires
examined comfort levels and preference for the type of journaling technology used. Journal samples were also collected for examination, and post-intervention interviews with students were held.

The questionnaire data showed differences between the text and voice groups over the course of the intervention. The voice-recording group’s comfort with the technology increased some and there were also indications of a rise in comfort for audio recording their reflective journals. When questioned about comfort recording on a computer there was a difference between the groups in the post-intervention questionnaire; the text group fell while the voice journal group rose. While there was not a significant rise within the voice group, the difference between the groups was significant. When asked in the post-intervention questionnaire to give a short answer response about comfort recording on a computer there was a difference between the groups in the post-intervention questionnaire; the text group fell while the voice journal group rose. While there was not a significant rise within the voice group, the difference between the groups was significant. When asked in the post-intervention questionnaire to give a short answer response about comfort with technology and voice recording, the voice-recording students in general seemed to feel positive toward the voice journaling experience, and found it easy to use.

Should students such as the ones discussed above use audio recording to create reflective journals, questions arise concerning how they will be assessed. Certainly there are objective measurements of specific learning goals that can be deliberated using a rubric, but there are other aspects to be considered which may be subjective in nature. Are the reflective skills of the student what is to be measured, or is it the measure of a student’s personal growth as a result of their reflection on experience.

**Teaching Reflection and Assessment**

Reflective capacity is essential for professional competence. Integration of theory and practice by way of repeated reflective practice is an integral part of learning for students in the health professions (Hannigan, 2001; Mann, Jordon & MacLeod, 2009; Smith, 2011). It is
assumed reflection is positive and contributes to development and increases the quality of nursing practice (Asselin, Schwartz-Barcott & Osterman, 2012), and without question it is a valuable part of the professional educational experience particularly for students of nursing.

Nursing students are assigned to reflect on many aspects of their educational experiences, those include classroom, case study and mechanical patient simulations, as well as clinical experiences with real patients. Such considerable activity produces much scholarly writing and research that refers to the various definitions of reflection as cited in the many publications of Dewey, Schön, Boud, Mezirow, and others discussed above. While all these writings closely circle the construct of reflection they appear to alter in their approach. Mann, Jordan & MacLeod (2009) provided a comprehensive literature review of reflection used in health professions education and found the models of reflection to basically follow two general dimensions. These authors define one as being an “iterative dimension,” where the process is caused by experience that creates new understanding and the reasoning to act differently in the future, among the proponents they cite are Boud, Keogh, and Walker (1985) and Schön (1991). The other is a “vertical dimension” which considers a hierarchical level of reflection on experience from one of being simply descriptive to critical. Proponents of which the authors cite as being Dewey (1910/2001), Hatton and Smith (1995), Mezirow (1991) and Moon (1999). The work of Kember, McKay, Sinclair, & Wong (2008) should additionally be considered in this group of proponents.

These means of defining reflection provide the opportunity and criteria for developing some sort of assessment. Moreover, as nursing curriculum frequently depends upon reflection as a necessary component, an educator must decide how to apply that assessment in a meaningful way to spur learning, but at the same time not inhibit the students’ learning process.
Reflection is a difficult skill to teach (Jay & Johnson, 2002), and much research has been done showing that there is a great variation in approach. It is difficult to find a common language and terms between teachers and students to approach the topic. These two groups have different levels of familiarity with the concept (Smith, 2011). This is possibly one reason why teaching students to reflect is so difficult. It is a learned skill, and consequently takes considerable time and practice to master or even become proficient. It appears that repeated attempts provides for better reflective outcomes, much as a person gains mastery of skills such as drawing, writing, or oration. Over time, and repeated reflective assignments, the quality as well as personal comfort with the modality increase. One approach, journal writing, can provide students a growing ease and satisfaction with reflection and journaling as well over time (Shields, 1995). Journal writers however often fail to probe their experience and few reflect in a critical manner (Cowan, 2014). Students must be given a structure to assist in the formulation or at least a starting point for their reflection. Prompts can assist in the structure reflective thinking (Lai and Calandra, 2010), but may lead to only descriptive narratives which possibly could be considered the level of “habitual action” (Kember, et al., 2008). Providing a “recipe” for reflection does not provide for learning (Boud and Walker, 1998). In this case students are only responding superficially and are not considering the experience-to-self relationship necessary to critically examine their personally held beliefs.

Cowan (2014) suggests from his research that reflection must be a personal quest:

“Reflection begins from a question whose useful answer the person concerned desires to identify. . . it should involve sustained questioning and self-questioning” (p. 61). Jay and Johnson (2002) provide a framework of leading questions to scaffold self-referential reflection based upon their three dimensions of descriptive, comparative, and critical reflection. Where a standard rubric of
specific prompts essentially creates only a recipe for recitation of specific answers, the guiding questions they describe focus instead on the relationship of the matter at hand and personal reaction to its implications. They state: “we must continue struggling with the tension between providing supportive scaffolding for learning the process of reflection without reducing it to a series of steps” (p. 84). Similarly a reflective learning guide to assist in personal reflection, “Learning from your Experiences as a Professional” (LEaP) was also developed and pilot-tested with medical students (Aronson, Niehaus, Lindow, Roberson & O’Sullivan, 2011). Rather than provide a rubric, a guiding set of prompts to assist the reflective process was provided. This guide could be applied to a recent clinical situation and asks leading questions to force the student to examine the personal thoughts and perspectives surrounding an event and how and what those thoughts made them learn.

The assessment of reflection can be a difficult task. Bourner (2003) finds two obstacles to assessment, the first being that a significant part of the learning outcomes are subjective rather than objective knowledge, and that assessment depends also on the subjective judgment of the instructor to decide the extent to which the student has achieved the planned learning outcomes.

Arguing in favor of the allowance of some sort of subjective assessment, Osborne and Walker (2013) state that current assessment models demand the instructor translate their expertise into a set of rigid rules, but they go on to say “a rubric cannot begin to encompass everything a rater knows and utilizes when evaluating” (p. 40). They find that the practice of assessment, in their case writing, should instead rely on a more fluid application in the use of an instructor’s own expertise that is effective and meaningful.
Assessment of reflection can be formative or summative in nature. The instructor must consider many things such in assessment decisions, whether the reflection’s purpose is formative as a short, informal and personal collection of thoughts, or instead a summative formal professional reflective response. The notion of what is actually being assessed is additionally important: is it the student’s demonstration of ability to reflect skillfully, or is it instead the student’s response to learning and experience that is being assessed.

It is important for instructors to read journals not only for evidence of content but also for the experiential meaning. Pierson (1998) suggests that reflection is both a technique and a process related to the German philosopher Heidegger’s notions of calculative thinking, that being: an “abstract and practical process confined to organizing, managing and controlling,” and the concept of contemplative thinking, that being: “a natural and spontaneous process fundamental to the exploration of meaning (p. 166). Reflection then as “technique and process” becomes a learned skill. Educators must find ways of providing the valuable time and means to reflect “in action” and “on action.” Perhaps reflective journals need to become conversational in nature (Pierson, 1998). Subsequently the assessment for this conversational type of journal reflection then should be informal and formative in nature, and that raises questions of interpersonal relationships; instructor and student trust becomes an issue.

Clarifying who will have access to journals is important (Hannigan, 2001). The expectation of writing for an audience, particularly for assessment, can profoundly shape what we write and what we feel comfortable even considering as content (Hargreaves, 2004). There is a tension between assessment and reflection that must be addressed (Boud, 2001) Assessment in an educational experience is important (Thorpe, 2000), and so the question of whether to assess and/or what type of assessment is to be used is important; “The need for trust and sharing
between individuals suggests that reflective journals may not be an effective assessment, evaluation, or grading tool” (Pierson 1998, p.168).

Reflection is personal, informal, and should be assessed in a formative manner, but assessed reflection also needs to align with professional competencies and appropriateness. In gathering portfolio reflections for summative assessment, students must skillfully choose those items that will provide a good grade (Hargreaves, 2004). In choosing what to present as a formal summative reflection the question arises: Should some sort of embellishment of reflection be out of the question?

“Requiring students to express their beliefs and feelings, whilst remaining within a paradigm in which inappropriate beliefs and feelings are sanctioned pressurizes students into producing assignments which are acceptable, rather than truthful. Consideration needs to be given to the extent to which an ‘alignment’ model of learning, teaching and assessment, where learning outcomes and their achievement are closely prescribed and measured is effective in professional education . . . exploring the value of fictional narratives may reveal a powerful medium for the development and understanding of professional practice” (Hargreaves, 2004, p. 201).

Clearly this would be a form of storytelling, and perhaps not something that can be assessed as strictly a reflection of experiential learning, because it is a combination of learned concept, learned appropriate response, and personal narrative. It may be considered critical reflection by definition, but it stands away from any of the confusing and messy mental business that reflection-in-action or reflection-on-action is. Reflections such as these cannot be instructor mediated; only assessed for what they actually are. Embellishment seen in reflection-on-action is professionally inappropriate for students of nursing. Nursing is a medical practice, is heavily
regulated, and compliance to regulations is strictly enforced. Allowing a nursing student to embellish a reflection would belie the professionalism nursing instructors’ work hard to create in a student.

Assessed mediation of reflective and experiential learning is important and shapes the learners act of learning. Reflection should indeed be subject to assessment, but that the assessment depends upon creation of a criteria framework built into the map of the curricular course design (Moon, 2004). Reflective prompts will be needed “to focus learning, motivate students to learn, shape or direct learning, and to require that student can apply or transfer their learning to unexpected situations” (Moon 2004, p.150). The outcomes assessment of journaling should then decide whether the concern is for the product, (i.e., the formal output), or for the process of the learning that occurs by assigned reflection. If both are to be considered then they must be separately assessed. Moon (2004) writes reflective writing such as journaling can be an aid to learning analogous to creating ‘raw material’ for later more formal reflection. It is important to consider a requirement that learners reflect on their primary reflections. This will likely garner deeper levels of reflection with improved learning.

Reflective journals provide raw materials and memory prompts. Working through journal reflections in debriefing sessions with facilitators was found valued by students working toward reflective resolutions (Shields, 1995). Interpersonal debriefing may not be possible though, and the question again becomes: should reflection as journals be assessed from a formative point of view or summative point of view? Smith (2011) finds teaching critical reflection requires creating conditions for intellectual challenge, and feels that assessment of reflection in nursing to be more formative than summative in nature. She recommends that courses build in reflective tools that offer a framework to reflect on autonomy, self-direction, and critique of power and
knowledge formations. A solution that may apply in this instance is the LEaP model (Aronson et al., 2011) mentioned above.

Assessment may also be based upon instructor perceived depth. Kember, McKay, Sinclair, & Wong (2008) working from definitions, particularly those of Boud and Mezirow, break reflection down and developed and tested four hierarchical levels of assessment for measuring student reflection, ranging from “habitual action,” a simple regurgitation of fact, to the “critical reflection” as defined by Mezirow (1981). The lowest level, “habitual action” is that which has been learned previously and is an activity preformed automatically. It is not considered reflection and does not necessarily involve or associate with any sense of meaning. “Understanding”, the next higher level does not imply reflection, it is understanding of concepts or theories, but does not make the connection to practice, practical situations or to personal experiences. The next level “reflection” considers the application of a concept to personal functions, and practical application. Personal insight becomes apparent at this level and experiential situations will be related to what has been taught. The highest level is “critical reflection” where personal deep-seated and embedded presuppositions are re-assessed and reconstructed internally in the light of new experience or learning. This level is not seen as frequently as the lower levels (Kember, et al., 2008).

**Rationale for the Current Study**

The use of reflection as stated above is a large part of standard nursing pedagogy. In the process of reflecting students must devote time after a learning experience to translate their newfound knowledge and perceptions into text for assessment by the instructor. Instructors will strongly consider that the standard writing norms such as sentence structure, grammar, formatting and spelling apply. The student must convert immediate complex mental perception
into the rather rigid conformity of formal written text output. The thought-to-text conversion process, which takes time and writing skill can diminish the emotional impact of the experience. The conditions under which journaling takes place can have profound influence on what is produced, and the extent of critical reflection (Boud, 2001). Reducing the time lag between the experience and a student’s creation of reflection-on-action can help overcome memory-related problems (Hannigan, 2001). Good writing skills are important, but communication of knowledge is now multi-faceted, and due to commonly found technologies can be offered in alternative means. Articulation of knowledge does not have to be text-based.

The ability to communicate effectively in writing is important scholastically and professionally; textual communication will not disappear, it will always play a large role in education and the professional world. Other modalities of communication are coming to the forefront via technology and need to be considered as well. Text dissemination of reflective knowledge can be scored based on the objective and subjective assessment of a student’s writing skills, which are skills that lay outside of the realm of reflection the true purpose of the assigned task. The score does not truly mirror whether the reflection was meaningful or transformative if the writing skill of the student is a strongly considered part of the assessment. The subtle emotional nuance of discovery or personal revelation becomes subject to the ability of the student to write well, and subsequently it may not translate to text in a manner that can be readily or meaningfully perceived by an instructor looking for deeper learning. Limited vocabulary skills may also hinder accurate representation of their expression and reflective emotional overtones. The instructor reading the reflection has no choice but to examine, take into account, and possibly be biased by the writing and vocabulary skills of the student, as it is the only
representation of their experience. These are factors that may overshadow the meaning of what the student was actually trying to relate.

As computer technology becomes smaller, more powerful, and portable educators will likely rely more heavily on multimedia for communication and dissemination of learning from students. If this is the case, it is important to learn how instructors might consider a technical modality such as recorded reflective voice-journaling as a useful means of learning. Though voice-journals also will be assessed both objectively and subjectively, they will offer different assessment challenges to an instructor. The student may follow the recipe-like prompting rubric, but their vocal quality and skills such as vocabulary, manner of speaking, and tone of voice will come into the assessment process much as their writing skills currently do. Voice-journals will provide additional rich material such as vocally inflected emotional cues from which the instructor can gauge learning and a student’s attitude. It is important then to know what instructors will perceive, and how important those perceptions are to their assessment.

In summary, reflection is an important part of the nursing curricula. Recording reflective assignments gives a nursing instructor the opportunity to review the student’s spoken word, such as their manner of speaking and voice inflection, and assess their learning, personal relationship and experiential transformation. Though instructor perceptions of manner of speech and inflection are largely subjective in nature, these unique factors by virtue of their mere presence can be an element in shaping an instructor’s assessment. Personal and professional transformation in nursing education involves reflection, and technologies such as voice-recording reflection will assist an instructor’s assessment by not only providing evidence of learning, but also some insight into the student’s personal and professional view of the experience and their transformation.
Among the several questions raised by the prospect of students recording their reflective assignments are two important inquiries: First, what unique elements or factors of a voice-journal will instructors notice, and second, what factors will they perceive as being important for assessing those reflections?

Because of its pertinence and contribution to the current study, what follows is an in-depth report and discussion of the student pilot study (Tindall and Seo, 2013) mentioned above, which examined comfort levels of nursing students creating reflective voice journals. Following that is a literature review of pertinent research studies where audio recording was an active part of the course curriculum in both student-to-student interaction and instructor-to-student interaction. Studies here researched student perceptions of using recorded audio as a means for online input for course discussion and examined both student and instructor perceptions in providing recorded audio feedback in their assessment of student assignments.
Chapter III: Student Pilot Study

Introduction

If voice-journals are to be considered for adoption as a pedagogical tool in nursing education they must be considered and assessed first by those who will be using them as part of their educational structure. A-methods pilot study (Tindall & Seo, 2013) sought to explore the creation of voice-journals from the student perspective. Reflective journals have traditionally been created in text using computer technology familiar to the students. To create a voice-journal, students must learn and use a computer technology new to them. This poses a risk to students because instructors assess student journals for a grade. For this reason it was considered important as a first step in the research to better understand the perceptions and comfort level of students using this new technology. The pilot study with students sought to answer how comfort levels and preferences were different between students using audio-recorded reflective journals (voice-journals) and conventional text-based journals. As an additional part of this study the researcher also sought to explore and compare any differences in relative word-count that may occur between journal types.

This pilot study explored two research questions. Question one (Q1) sought to discover if comfort levels with journaling technology was different between nursing students creating voice-journals and nursing students creating conventional text-based journals? The hypothesis (H1) for the first question was that students using voice recording would be more comfortable with technology and in creating voice-journals. The second research question (Q2) sought to explore student preferences for the use of voice-journaling; would the voice-journaling students prefer
use of their assigned journaling tool over text journaling. The hypothesis (H2) was that voice-
journaling students would prefer to create and use voice-journals rather than text journals.

The data was analyzed using inferential and descriptive statistics coming from student
questionnaire data. Qualitative data coming from these same questionnaires and student
interviews was also analyzed using grounded theory (Glaser & Strauss, 1967).

Methodology

To answer these questions, nursing students from two concurrent junior level courses
taught by different groups of instructors, at a medium-sized, private university in the mid-west
United States were chosen as participants. Students were recruited using consent forms approved
by both the University of Cincinnati IRB and the students’ private university’s IRB. The
University of Cincinnati (UC) approval for this research study was expedited and the private
university approved it as an exempted research study. The forms used for student and instructor
consent process were those using the UC consent template. (see Appendix A)

The students in both courses were required to post private journal entries following each
immersive clinical experience or simulation for instructor review via email, or the course
management system (CMS). The journals did not have a required length of response, and a set of
instructor prompts were provided to students at the beginning of the semester to assist them in
the process of reflection. The participants sitting in the classroom-held consent process were
divided into two groups by having them count off alternately “A” then “B”: The “A” group was
designated to create journal entries by recording their voice, and the “B” group to create their
journal entries in standard text fashion. They were then listed in alphabetical order by last name
and assigned random number identifiers. The consent document allowed students to cease
participation or not participate in all aspects of the study. Some of the initially consenting
students did not submit journal entries during the collection time period and were removed from the study thus yielded a final sample pool of respondents (N = 40, A = 13, B = 27). This group was comprised of two course sections. Twenty-seven came from a class of younger students, 13 were in a course for older students. The participants were primarily female (Female = 36, Male = 4) and they ranged in age from 20 to 40+ years with the majority being 20-21 years of age.

**Research design and procedure.** A pretest-posttest design using the two groups was implemented to answer the research question. The “A” group audio recorded their journal entries using Wimba®, a voice discussion board tool contained in the university’s course management system (CMS). This tool provides students a way to record their voices and upload those recordings as a discussion board post or reply. Students may post in text as well, and the tool can be configured to let posts be observed by everyone in the course, or set as a journal entry to be accessed only by the student and instructor. The tool in this study was set so that students were not able to see any other student’s journal posts or even which students were posting using the voice boards. All students in the “B” group wrote their text journals using a word processing program and then submitted the journal files electronically through the CMS or via email to the instructor. The treatment intervention where students reflected in text or recorded voice lasted a total of 10 weeks with the students posting journals once a week. The researcher collected both the voice-journals and the text journals as samples for further study exploring word count differences between the two journal types. The submitted journals (n = 169) were consequently named and sorted by student number and edition and then grouped by week and type.

**Instrumentation.** A pre-intervention questionnaire was given prior to the treatment, and a post-intervention questionnaire given at the end of the treatment after the journal collection period (see Appendix B). Both questionnaires contained 14 identical five-point Likert scale
statements to discover changes in the students’ comfort levels and preferences for their assigned reflection tool. The students would select from the number one as “strongly disagreeing” to five as “strongly agreeing” with each statement provided. A choice of three was considered as a neutral response. The pre-intervention questionnaire included additional questions to collect demographic information, and the post-intervention contained three short open response questions to gather qualitative data inquiring the student’s feelings for technology, feelings about changes in technology tools they used, and feelings about reflection related to learning.

To help answer Q1, six statement items asked about student comfort levels. The first questionnaire item (item 1) asked for agreement with the statement “I am comfortable using technology.” Four questionnaire items asked agreement specifically about comfort level with voice recording (items 6, 8, 9, 11), e.g., “I am comfortable recording my voice on a computer.” One questionnaire item (item 10) asked agreement with a statement about comfort with written reflection: “I am comfortable reflecting in writing.”

To help answer Q2 three questionnaire items (items 12, 13, 14) asked for agreement with statements about preference, voice versus text, when creating a reflective assignment. Because the students were using the Wimba® voice discussion board tool to post their journals, the wording of the statements in the questionnaire used the term “discussion board” rather than “journal” to avoid any confusion. As an example item 13 states: “I would prefer to use a voice discussion board to post my assigned reflections.”

**Procedures.** A total of 42 questionnaires were collected (pre-treatment questionnaire = 24, voice = 11, text = 13, post-treatment questionnaire = 18, both groups = 9). Data from sample students who did not complete both questionnaires was cleaned from this total. This yielded 17 questionnaire pairs (pre and post) collected from respondents who had participated in all parts of
the study. The voice-recording group (A) and the text group (B) were almost equal in number, (A = 9, B = 8) and were predominantly female (Female = 13, Male = 4).

A list of unique random numbers with a range of 1-200 was created and journal files were assigned randomly to this list; the text journal files were assigned the odd numbers, the voice-recorded the even. This sample was selected to be compared for length of reflection and to be used in later study.

Following the treatment period, a random sample of voice-recording students (n = 5) were interviewed in a semi-structured format to gather qualitative data concerning their comfort level and preferences in using the voice-recording method, and the procedures they followed when recording their reflections.

**Findings for Students’ Preference and Comfort Levels**

Study questionnaire items examined comfort level; of those, four were specific to comfort with voice recording reflection and one for comfort writing reflection. Three items examined preference; of those two, specifically asked preference for voice recording or text reflection. The questionnaire data came from a small sample of two independent groups, was ordinal in nature, and was similar in distribution between like items, meeting the criteria for an independent samples Mann-Whitney U test, a nonparametric analysis tool most suitable for comparing the two groups with this type and amount of data (Gravetter & Wallnau, 2007). Wilcoxon signed-ranks tests were also run to discover any significant change within each group over the treatment (Gravetter & Wallnau, 2007). The amount of data from the comfort level questions was too small for assurance of item alignment with the construct of comfort. Therefore the data from the questionnaires was examined on the item level rather than instrument level.
Data from all scaled items in the pre-treatment questionnaire was compared using the Mann-Whitney U test to find if there were significant differences between the groups concerning comfort, preference, and perceptions of reflective assignments and online course work. In all cases there was no significant difference between the groups before the treatment intervention (see Tables 1 and 2).

**Student comfort.** The questionnaire’s data were analyzed to answer the first research question related to the students’ comfort levels with journaling media. Table 1 shows a summary of analysis results. A Mann-Whitney U test was run on pre and post-treatment data to determine if there were differences in student comfort with technology over the course of the treatment (Item 1). There was not a statistically significant difference between groups on this item pre-treatment. There was however a statistically significant difference between the text group ($Mdn = 4$) and voice group ($Mdn = 5$) on this item in the post-treatment questionnaire, $U = 12.5$, $z = -2.61$, $p = .021$. A Wilcoxon matched-pair signed ranks test was run on each group to compare within group change. The text group remained the same ($Mdn = 4$), but the voice group showed a significant positive change (pre-treatment $Mdn = 4$, post-treatment $Mdn = 5$), $z = 2.07$, $p = .038$. Students who had used the voice-reflection tool appear to be more comfortable with technology after the treatment than those who had reflected in text.

Student perceptions of online classwork and assignment tasks may in some way bias other aspects of comfort or preference; three items on the questionnaires addressed this. Item 2 asked about student comfort with online classwork, and found no significant difference or change within or between the groups; the response was positive ($Mdn = 4$) in all cases. Examining students’ comfort with reflection seemed relevant, as it could also be a confounding factor. Items 3 and 4 asked for agreement with the usefulness of reflection as an educational tool
and personal comfort with reflection as a course element respectively. The independent samples Mann-Whitney U test found no significant difference between the groups before or after the treatment. A Wilcoxon matched-pair signed-rank found no significant change within each group. The median response for the groups was also positive in all cases ($Mdn = 4$); students seemed to be unchanged in terms of usefulness and comfort with reflection over the course of the treatment.

Further exploring student comfort with technology and voice recording, item 6 explored comfort with recording one’s voice on a computer. There was no significant difference between the text group ($Mdn = 3$) and voice group ($Mdn = 4$) in the pre-questionnaire, $U = 29, z = .311, p = .541$, but there was a difference between the groups in the post-intervention questionnaire. Post-treatment data for item 6 found a significant difference between the text group ($Mdn = 2$) and the voice group ($Mdn = 4$), $U = 12, z = -2.38, p = .021$. Voice recording students were found to be more comfortable recording their voices on a computer after the treatment period than text journaling students; though a Wilcoxon matched-pair signed-ranks test found no significant increase in comfort within the voice recording group, it did show a significant drop within the text group $z = -2.27, p = .023$.

Items 8 and 9 addressed comfort with hearing one’s own recorded voice and comfort with others listening to your recorded voice respectively. Both of these items did not change after the treatment; a slight amount of discomfort was still present in the text group and the voice group remained neutral ($M = 3$). In the case of both groups the response showed no statistically significant change within or between groups over the course of the treatment.

Items 10 and 11 addressed comfort with online text and voice reflection. There was no statistically significant change for either group on item 10 (comfort with text reflection). The voice group held the same median ($Mdn = 4$) over the course of the treatment, where the text
group median fell from 5 to 4. A Mann-Whitney U test showed a significant difference between groups on item 11 (comfort using voice to reflect), $U = 12.5$, $z = -2.33$, $p = .021$ in the post-intervention questionnaire. The text group fell in this item (Pre-treatment $Mdn = 3$, Post-treatment $Mdn = 2.5$), where the voice group held steady ($Mdn = 4$). The Wilcoxon matched-pair signed-ranks test showed no significant change within either group on this item. Voice-recording students showed a slight increase in mean on item 11 (Pre-treatment $M = 3.33$, Post-treatment $M = 3.79$) indicating they were slightly more positive about recording their voices. Interestingly students who had never needed to record their voices felt less comfortable with the notion of voice recording after the treatment period.

Table 1

<table>
<thead>
<tr>
<th>Student Comfort Levels Between Groups</th>
<th>1a*</th>
<th>1b**</th>
<th>6a*</th>
<th>6b**</th>
<th>8a*</th>
<th>8b**</th>
<th>9a*</th>
<th>9b**</th>
<th>10a*</th>
<th>10b**</th>
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<tbody>
<tr>
<td>$Mdn$ A group</td>
<td>4</td>
<td>5</td>
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<td>4</td>
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<td>2</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
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<td>$Mdn$ B group</td>
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<td>5</td>
<td>4</td>
<td>3</td>
<td>2.5</td>
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<tr>
<td>Mann–Whitney U</td>
<td>39.5</td>
<td>12.5</td>
<td>29</td>
<td>12</td>
<td>37.5</td>
<td>29.5</td>
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<td>24</td>
<td>51</td>
<td>46.5</td>
<td>26</td>
<td>12.5</td>
</tr>
<tr>
<td>$z$</td>
<td>.381</td>
<td>-2.61</td>
<td>.311</td>
<td>-2.38</td>
<td>.151</td>
<td>-.655</td>
<td>-.994</td>
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<td>1.56</td>
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<td>-2.33</td>
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<td>Asymp. Sig. (2-tailed)</td>
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<td>.705</td>
<td>.017</td>
<td>.880</td>
<td>.513</td>
<td>.320</td>
<td>.218</td>
<td>.118</td>
<td>.253</td>
<td>.314</td>
<td>.020</td>
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<tr>
<td>Exact Sig. [2*(1-tailed Sig.)]</td>
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<td>.021</td>
<td>.541</td>
<td>.021</td>
<td>.888</td>
<td>.541</td>
<td>.370</td>
<td>.277</td>
<td>.167</td>
<td>.321</td>
<td>.370</td>
<td>.021</td>
</tr>
</tbody>
</table>

* pre-questionnaire, **post-questionnaire  $p = <.05$

**Student preferences.** Item 12 questioned whether a student would rather speak than write thoughts. Testing the data found no significant change between groups, but where the B (text) group held the same mean and median ($Mdn = 2$), the A (voice) group held a higher median ($Mdn = 3$) and the mean increased slightly between questionnaires in that group (Pre-treatment $M = 3.11$, Post-treatment $M = 3.33$). This indicates no significant change in the writing group who appear more comfortable with writing, but there was a small though statistically insignificant increase in preference for spoken thought in the voice-recording group.

Two items (13 and 14) specifically addressed preference for using a voice discussion board or a text discussion board for reflection assignments respectively (see Table 2). There was
no significant difference between the groups on item 13 (preference for the voice discussion board); the text group \((Mdn = 2)\) did not change, but the voice group had an increased median value pre-to-post from 3 to 4. For item 14, which asked preference for using text discussion board to post reflection, the text group’s median rose (pre-treatment \(Mdn = 4.5\), post-treatment \(Mdn = 5\)) where the voice group fell (pre-treatment \(Mdn = 4\), post-treatment \(Mdn = 3\)). There was a significant difference between groups on this item, \(U = 58, z = 2.23, p = .036\). A Wilcoxon matched-pair signed ranks test was run on these two items to analyze the data for significant within-group change and found no significant change in either case. Where the text reflection group showed a strong and increasing preference for writing over voice recording, the voice-recording group changed only slightly, with an insignificant decrease in preference for using text.

Table 2

<table>
<thead>
<tr>
<th></th>
<th>12a*</th>
<th>12b**</th>
<th>13a*</th>
<th>13b**</th>
<th>14a*</th>
<th>14b**</th>
</tr>
</thead>
<tbody>
<tr>
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<td>2</td>
<td>4.5</td>
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<tr>
<td><strong>Mann–Whitney U</strong></td>
<td>21.5</td>
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<td>18.5</td>
<td>19</td>
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<tr>
<td><strong>z</strong></td>
<td>-1.43</td>
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<td>-1.67</td>
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<tr>
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<td>.094</td>
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<tr>
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<td>.167</td>
<td>.139</td>
<td>.093</td>
<td>.114</td>
<td>.114</td>
<td>.036</td>
</tr>
</tbody>
</table>

* pre-questionnaire, **post-questionnaire \(p < .05\)

**Word count.** The researcher felt it was important to examine the differences in relative word count between the two types of journals. No grading criterion was provided for journal word count. The students were to respond to instructor prompts at a length they personally saw fit. An arbitrary 10-minute time limit was put on the Wimba® audio recording tool in the CMS, with the assumption that this would be ample time to respond to prompts. Students who audio
recorded their journals were informed of this limit. A list of random numbers with a range of 1-200 was created and journal files were assigned to the list; the text journal files were assigned the odd numbers, the voice-recorded the even. The researcher chose a random sample of both types of journals (n=25 each) from the 169 journals collected to examine for length and word count. The recording length for the voice-journal samples ranged from 1:48 to 9:48 ($M = 7:38$, $Mdn = 7:40$). Text journals samples with identifying data and written prompts removed had word count that ranged from 149 to 716 words ($M = 466$, $Mdn = 490$, $Mode = 539$).

To compare relative length between journal types, rather than transcribe all the voice-journals to get a definitive word count, the time length of each voice-journal was multiplied an arbitrary 150 words-per-minute, a common factor from which to examine and compare the two journal types. Spoken words-per-minute varies between people and can depend upon many factors, including the presentation forum, speaker stress, regional speech patterns, and language fluency. The website for National Center for Voice and Speech states the average rate of speed for English speakers in the US is approximately 150 words per minute ("National center for voice and speech," 2007). Using this method, the voice-journal word count samples had a mean of 1145 words ($Mdn = 1148$). The length of time to read aloud the mean word-count text journal at this rate would be approximately 3:07 (466 words). The voice-journals from this sample using this common factor comparison appear to be considerably longer in terms of word count and of spoken time.

**Discussion and Conclusions for the Student Pilot Study**

The student pilot study examined student perceptions of comfort level and preference for using technology to create a reflective voice-journal rather than writing the journal in text. The questionnaire data from this part of the study show some differences between the text and voice
groups over the course of the treatment. The voice-recording group’s comfort with the technology and voice recording increased some thus fulfilling H1. There were indications of a slight rise in preference for using the voice-recording tool by those students who had used it. Those same students also showed a slight decrease in the preference for using text thus H2 is essentially fulfilled though there is not statistically significant proof.

Where the text-journaling group had no change between the pre and post-intervention questionnaires, the voice-journaling group rose; both groups were comfortable with technology, but a small but significant difference appeared between the groups. This is interesting in that the voice group students were introduced to a new technology, which offered a threat to grades. When asked in the post-intervention questionnaire to give a short answer response about comfort with technology (student questionnaire item 16), voice-recording students in general seemed to feel positive toward the voice-journaling experience. Three responses bear this out, the first saying: “I like technology, it makes my life so much easier and it is convenient for studying, research, and class work.” Two student comments favorably singled out the tool: “Using the Wimba® voice board to record my journals has made me more comfortable with the use of technology for completing the required nursing journal assignment,” and “I personally really enjoyed doing the voice-journal. It was fast and easy. I found myself saying more than I would have typed.” It should be noted that this last statement was generally borne out by the high word count numbers in almost all the voice-journals.

When questioned about comfort recording on a computer (student questionnaire item 6), there was a difference between the groups in the post-intervention questionnaire; the text group fell while the voice-journal group rose. There was not a significant rise within the voice group, but there was a significant difference between the groups. Voice-journaling alone probably did
not make a difference in the comfort level of students recording on a computer as the within group measurement was not significant. However this can still be seen as a positive result in that there was no decline in comfort observed, and therefore there is no reason to reject voice recording as a means for posting reflection. Item 13, where preference for voice recording is questioned bears this out; the mean for students who recorded their voice held even over the treatment period and there was a one-point increase in the post-intervention median indicating a slight increase in preference.

Similarly, when students were polled in item 11 (comfort using speech for reflection), a significant difference was found between the groups on the post-intervention questionnaire, and though this is largely attributable to a drop in the text group’s rating, the voice-group did not have a decrease. When this is considered along with comfort voice recording on a computer (item 6), they can be seen as a positive indicator that students that have used this method to post reflection are comfortable with the notion, and process of creating computer-recorded reflections. Also of note is the finding that the text group had a drop in median from pre-treatment to post-treatment for their assigned reflection tool when asked in item 10 (comfort using text for reflection).

Post-intervention interview data indicated that the creation method of reflection posting is different between the two types. A random sample of voice-recording students (n = 5) was interviewed to gather qualitative data concerning their preference and their procedure using the voice-recording method for reflection. The students who recorded their reflections did so in a rapid spontaneous method, generally using the instructor-provided prompt as a point of departure for a quickly spoken response. Those interviewed mentioned the ease of use and how it allowed them to fulfill the assignment in a short amount of time. Some voice-recording students went so
far as to say some text-journaling students indicated jealousy over the short time they spent creating their journals. The fast creation time was overwhelmingly indicated as being a positive part of the experience. When asked about the creation process, students stated that they would start the recorder and then just respond: “I never would write something down, but I would just have the prompt next to my computer.” When asked if they reviewed their journals after recording, the typical answer was, as one student put it: “When I listened, I only listened to the first minute or so to make sure it sounded OK.” When asked how this differed from their normal text-based reflective process, a common theme was that usually the writing process took much longer and was more thoughtful because students spent more time reviewing their writing to make sure spelling and formatting was correct and the wording mirrored their thinking. This is typified by another student statement: “I feel like you can be a little more detailed, because when you are going through it you can be a bit more intentional.”

Voice-journaling students interviewed indicated a 10-minute time limit was appropriate. When recording, students were actively recalling events and their reactions; they described the reflective process as focused on divulging thought in spontaneous fashion only governed by the provided prompts rather than by the more thoughtful and considered approach they admittedly used when responding in writing. One interviewed student stated that they only stopped recording because of the time 10-minute length imposed on the recording tool. The longer length of several of the recordings, many of which were over 8 minutes would seem to indicate this possibly was a common consideration among students. This begs the question of what would change in the process of recording should the time limit be reduced, thus theoretically forcing the student to more heavily consider what is worthy of recording.
There were many limitations to be considered in regards to this pilot study. Certainly the halo effect may come into play. The technology was new and different. As students in the pilot mentioned it made quick work of what would normally be a longer writing task and therefore it was attractive. The sample size for this part of the study was also very small, and therefore not a true reflection of what might be seen in a bigger study or in the nursing student population at large.

If students feel comfortable audio recording reflective journals, and they do it in a vocally spontaneous and admittedly loosely considered fashion, then the perceptions of instructors who assess these journals should also be considered and studied. Assessment of student work is an important part of the educational process. Perceptions concerning the vocal manner and content of students’ voice-journals will be particularly important as this will be part of the assessment process.

Following is a review of literature that addresses the use of voice recording by students and instructors for interaction as part of the course curriculum. These studies researched student perceptions and preferences using asynchronous audio discussion boards and also examined student and instructor perceptions of audio recorded feedback provided as part of assignment assessments.
Chapter IV: Review of Literature

Introduction

The pilot research study first examined the perceptions and comfort levels of students voice-recording their reflective journal assignments. The current study sought to find what unique factors or elements instructors would perceive when assessing voice-recorded reflective journal entry. Findings show that research studies and journal articles on the use of voice recording by students for reflection and assignments other than informational podcast creation are few at this time. The criteria for a review of the literature therefore targeted a more studied and pertinent area, student and instructor perceptions using audio recording technology for online coursework and interaction. These types of studies explored the use of voice recordings as an online modality for student-to-student interaction such as voice discussion boards, and studies examining instructor-to-student interaction where the instructor made use of voice recording to provide feedback to students. Because these types of studies are focused on student and instructor use and perceptions with voice recording as an online modality they form a background upon which the current research can be based.

The studies discussed first are primarily those that examined the use of a special online voice-recording discussion board system defined earlier, Wimba® which provides asynchronous student interaction much as a commonly used text-based discussion board does. Most of the research here examined student perceptions of, and comfort with the tool. Wimba® has often been researched as an online tool to assist teaching conversational skills in foreign languages particularly “English as a second language” courses. Because this is not the thrust of the current study those types of studies were not included in this review.
Studies were also reviewed that examined instructors’ use of recorded audio-feedback provided to students as part of an assignment assessment process. These studies focus specifically on student and instructor perceptions, reactions to, and comfort using that type of feedback.

**Voice Discussion Board Studies**

Recorded audio has been used in a few studies for asynchronous online discussion between student peers and between students and instructors. Marriott and Hiscock (2002) used Wimba® voice discussion boards as a audio-posting option to study the viability of audio student summarization of weekly course readings, the purpose of which was to stimulate discussion and better understanding. A quasi-experimental study by Hew and Cheung (2012) also using Wimba® sought to find if there were differences in the degree of student participation between text-based and voice-based discussion boards, and what advantages voice discussion have over text discussion. Hew and Cheung (2013) had also earlier compared audio-based discussion to text-based discussion in a qualitative case study. Yaneske and Oates (2012) ran a small case study to better understand the benefits and difficulties voice discussion boards provided as a pedagogical tool. Wei, Chen, Wang, and Li (2007) ran a novel study not using Wimba® that incorporated mobile phones and voice discussion into a special web discussion forum. In this study student voice recordings from mobile phones were posted to a text discussion board forum along with ontological tags, all done via a human-intermediated file translation step. The thrust of their study was the adaptation of the technology for convenience.

With the exception of the study by Wei et al. (2007), these studies focus on the perceptions of online students’ being able to hear each other’s voices, the benefits of voice
discussion board usage in a course, and perceptions and comparisons between text-based and voice-based online discussion boards; for these reasons they are considered here.

**Methodologies and data collection.** Marriot and Hiscock’s (2002) study was based in a course management system where they used an iterative action research strategy. The authors gathered quantitative data as well as qualitative data from a post-intervention survey to pair with usage data taken from online server logs. Two consecutive classes of students posted to a Wimba® voice discussion board. To examine preference, the researchers compared the effect of withholding information from students about the ability to post text along with audio. Students in the first class, (n =154) are aware of the option to post text to the Wimba® discussion board, in the second course, (n =124) the option was still available, but the students were not made aware of it.

In a qualitative study, Hew and Cheung (2013) examined perceptions of 41 graduate students in a teacher education course by having them post responses to different reflective discussion board forums; one forum being text-based, the other using the Wimba® voice discussion board. The reflective prompts asked students what benefits online audio-based discussions have over text-based discussions and which type would they prefer. The collected reflection posts were analyzed and grouped into themes to discover what students felt the affordances of asynchronous online audio discussions were, and the students’ preference for audio-based or text-based discussion.

Hew and Cheung (2012) in mixed-methods research working with data from the study noted above, examined student discussion board participation and looked at two undergraduate classes working in a blended educational environment. One class (n = 24) used the Wimba® voice discussion board while the other (n = 18) used a standard discussion board. The researchers
counted the total number of postings in each type of discussion board and also counted the number of discussion board responses to individual discussion threads to measure the depth of discussion. This data was compared using independent t-test analysis. Students who used the voice discussion board were also asked at the end of the course to answer two open-ended questions to discuss the benefits and challenges of using asynchronous voice discussions. This study also reported the data from their 2013 study.

In a study by Yaneske and Oates (2012), a Wimba® voice discussion board was set up as a virtual support room for 11 students in a 12-week education course module centered around the use of audio and video technologies for language learning. Students would use the voice board to upload their created work for review by the instructor and their peers, they would also use the voice board to give and receive feedback. The researchers examined results from a post-course online survey which asked students to evaluate the benefits and name types of difficulties found using the Wimba® voice discussion board.

The methodology used by Wei et al. (2007) differed significantly from the other studies noted. Rather than using voice discussion boards it compared a ubiquitous mobile technology solution facilitated by mobile phones for student online discussion and a computer-based text-only version of the same thing. In this study student voice recordings from mobile phones were posted to a special discussion board forum, all done via a human-intermediated file translation step. This study was run in a single school term with intervention and control groups drawn from a 40-student population.

**Findings and discussion.** Qualitative data was relied upon in all these studies and simple statistics were used to analyze the numerical data. The focus for the studies by Marriott and Hiscock (2002), Hew and Cheung (2012, 2013), and Yaneske and Oates (2012) was to compare
text-based and voice-based discussion boards and provide student observations and opinion as the measurement tool. Some numerical data such as counts of postings (Hew & Cheung, 2013) was also collected to assist in the comparisons. Server log data was provided by Marriott and Hiscock (2002) to count the number of times each type of voice boards was accessed. Wei et al. (2007) provided server log data as well, in their case that data is tied to the number of times the system was accessed by the intervention and control groups. The researchers then linked these numbers statistically to student outcomes.

Marriott and Hiscock (2002) found no real significant differences in student preferences for posting in audio between his samples. Comparative bar charts show each group’s responses to the survey were almost identical. All students agreed that the voice forums were useful, but a clear preference was shown for text posting in both groups, with the earlier groups preference being slightly higher. When the students were aware of the ability to change from audio posting to text posting the overall tendency was to switch to text. When they were not made explicitly aware of that ability, virtually all student posts were made using audio recording, clearly showing a significant effect in the researcher’s “don’t tell” policy. It seems apparent then that students did not seem to strongly mind posting by audio. Neutral results were the mean for the students in both groups when asked about liking to post in the voice forums and their consideration for future involvement with the voice forum.

Though students found many affordances in using a voice board, a preference for text-based posting was found in the study by Hew and Cheung (2013). Of the 34 students who responded to a question asking preference 58.8% chose text. When asked why, 34.5% of the 29 students responding to the question cited being conscious of the sound of their own voices and 24.1% felt that text-based discussion allowed for better organization and structure of their
thoughts. Marriott and Hiscock (2002) and Yanesky and Oats (2012) additionally found students had issues along these lines. Students perceived problems with the sound of their own voices, their voice fluency, the difficulty of correcting spoken errors, and were self-consciousness when talking into a computer. Wei et al. (2007) stated belief that discomfort caused by the sound of the student’s voice might be “alleviated after a period of adaptation” (p. 136). This notion was echoed by Hew and Cheung (2012) who questioned if more participation in a voice discussion board would lead to a fading sense of awkwardness.

The positive findings for voice discussion boards in these studies show students had perceptions of the voice boards as being a richer means of communication allowing appreciation of natural and emotional content (Marriott & Hiscock, 2002). Students in the study by Hew and Cheung (2013) stated voice-based discussion had the ability and tendency to engage students; expressions of emotions were cited as a reason. When students in this study were asked to list the affordances of voice-based discussion 36.8% of total responses found this type of discussion allowed more expression, the ability to detect emotion, and understand someone better. Yanesky and Oates (2012) also found that students felt hearing other people’s voices of benefit; it gave “an enhanced sense of meaning, emphasis and emotion compared with text” (p. 76). Other affordances found were the spontaneity of creation, their usefulness for students with poor typing skills, and their use as a way to improve students’ oral skills (Hew & Cheung, 2013).

Degree of participation and measurements of discussion depth in text-based and voice-based discussion was measured by counts of posts in the study by Hew and Cheung (2012). Independent t-tests showed there was not a significant statistical difference between the two in terms of participation and thread depth, however there was indication by the larger number of thread replies that online discussion was more sustained in the voice-based discussion. The
authors mention cause for this may have been that “the ability of the spoken word to project a sense of actually dealing with real people as compared to text discussions” (p.364). Marriott and Hiscock (2001) found an interesting observation in the server log data indicating repeated student consultation of the voice postings in their study occurred in only 30% of all the cases of discussion board consultations; apparently when students returned to review posts they primarily revisited text posts.

Measure of effectiveness in terms of learning was not considered in these studies, and was only peripherally considered in the study by Wei et al. (2007). This study primarily considered the speed and convenience for the mobile discussion forum by comparing the number of times students accessed the forum between the phone and computer groups in their intervention. Inside of that process the researchers additionally discovered a positive correlation between the frequency of access to the system and academic performance in the course, with the mobile group having better grades than the computer-using control group; not much consideration is given to this point in their article however.

All of these studies rely and focus heavily on qualitative data, with quantitative measurement taking a relatively minor role in comparison. This is a new technology and the novelty of using a new technology may have colored the reactions and perceptions of students and by consequence the findings. This preconception is known as the “halo effect” which is an observer’s cognitive bias caused by the personal impressions of an entity and its qualities. Though the studies focus on discussion and student perceptions, discussion about student reflective activity is absent; the content and vocal elements such as manner of speaking and inflection found in the students’ spoken posts is not discussed explicitly though it is referenced often. There is little discussion of the effects these types of online discussion boards have on
learning. These studies main focus is on comparison of the discussion board types, the technology and the way it might be used.

Useful information for the current research comes from these studies. Of particular interest, is the information discovered concerning comfort level of the students using voice discussion boards and the affordances they offer, particularly those related to human interaction, and the provided emotional elements found in the recorded voices. When reacting to others online, the sound, and emotional nuance found in another persons voice was appealing and helped better student-to-student engagement. This appears to be a reason to use voice discussion boards.

The information concerning students’ comfort with their own voices and vocal fluency is interesting as well; it appears as a topic frequently in these studies. Comfort may come through repeated use as noted by comments seen in Hew and Cheung (2013) and Wei et al. (2007). An auxiliary benefit to repeated voice recording might be improvement of oral skills as also noted in the study by Hew and Cheung (2013) though it seems unlikely without some form of formal guidance.

**Audio Used for Feedback Studies**

Several studies have explored audio recording used by instructors to post spoken comments and feedback to online students. For the most part these studies compare text and audio feedback, usually through the use of online surveys, focus groups and interviews. Though some of the studies collect and summarily analyze quantitative data, most put their emphasis on the qualitative data collected. These studies strongly consider student responses to audio feedback but some also examine the instructor perceptions, specifically the process involved in creating audio feedback, and the amount of time taken to do so.
Ice, Curtis, Phillips, and Wells (2007) who also functioned as the instructors in their study examined the perceptions of students receiving feedback over several months which alternated between text and audio recording. Measure of learning was considered as well in their study. Orsmond and Merry (2008) also functioning as instructors ran a small study examining student perceptions and compared volume of text and audio comments for the same student assignments based on a category scheme. King, McGegan, and Bunyan (2008) examined student perceptions and also considered instructor perceptions and the quality of their feedback. Lunt and Curran (2010) and Wallace and Moore (2012), using online post-intervention surveys compared the students’ perceptions of audio feedback versus text feedback in their studies. Gould and Day (2013) provided information taken from post-intervention questionnaires given to nursing students to examine their perceptions after receiving audio feedback exclusively for a number of written assignments.

**Methodologies and data collection.** The study by Ice, Curtis, Phillips, and Wells (2007) focused on the empathetic influence audio recording provided to students and examined learning outcomes related to the type of feedback. Over a period of 13 months the researchers functioning as instructors taught asynchronous online courses in Curriculum and Instruction. Instructor feedback to text discussion board postings was presented to 34 participating students using either text or audio. For audio feedback, recorded audio files were embedded into a document along with the text of the student’s post. Text feedback was provided using a comment and markup feature in a document that also contained the text of the student’s post. By the end of the course students had received six text and five audio feedback documents. The researchers used a triangulation process of different data including survey questionnaires and interviews, as well as
analysis of student’s final projects to report their findings. The researchers also accumulated and reported some student’s unsolicited feedback.

Orsmond and Merry (2008) ran a small study with 15 volunteering undergraduate biology students who submitted a single self-chosen sample of their written work for formative audio feedback comments from their instructors. The audio feedback was recorded on the instructors’ computer and the audio files were then emailed to the students. Twelve of the students also were provided conventional written feedback comments for the same submission at a later unspecified date. These written comments did not reference the previously generated audio feedback. The researchers then classified the types of comments given into categories and compared the relative volume of each, audio and text using paired t-tests. Semi-structured interviews with the students were performed within three weeks of them receiving the feedback with question items that examined their perceptions of the audio feedback and their utilization of the feedback information.

A qualitative study by King, McGugan, and Bunyan (2008) reported on data received from post-intervention focus groups. The researchers compared the instructor perceptions, concerns, and time efficacy found when providing audio feedback to students rather than text feedback. A small volunteer sample of 25 students from three different classes was asked to allow four volunteer instructors to provide audio feedback for their course summative essay assignments. The intent was for audio feedback comments to replace the free comments normally given on a feedback form and on the actual assignment paper. The instructors recorded their feedback and provided it to students using the course management system. They were additionally asked to compare their audio recording experience to their experience providing text feedback for the essays. The audio files were transcribed, and word counts between the two types
of feedback, the wording of the feedback, as well as the mean creation time per type were all compared. Focus groups using a semi-structured approach were also held both with students who received the audio feedback and with the instructors.

Another comparison study was run in England by Lunt and Curran (2010) in reaction to a “National Union of Students” survey which found students unhappy with feedback received from instructors. It focused on the benefits of using audio feedback rather than text from both the student and instructor perspective. The researchers were specifically examining if audio recording was a more efficient way of providing feedback and how the students perceived the quality of that type of feedback. Two instructors sent audio feedback files to a sample of 60 students either through a virtual learning environment, or via email in response to submissions of un-named types of assignments. After receiving the feedback, students were asked to take an online survey where they provided Likert scale responses to statements, and provided open responses concerning the audio feedback. Similar to King et al. (2008) above, the time taken to create both written and audio feedback was measured and compared.

Wallace and Moore (2012) compared text to audio feedback using an online Likert scale survey that also included a section for open responses. Prior to this study their original concern was to discover is there was a time-advantage for instructors to create and provide audio feedback rather than text-based feedback. They initially began providing audio feedback files for a variety of student assignments using a hand-held digital recorder and provided them to students via the course management system. This was anecdotally reported to be considerably more time-efficient than providing the same information in text. After an implementation period of two years the authors decided to research the student perceived effectiveness of audio feedback. The survey was given to 100 online undergraduate and postgraduate students who had received audio
feedback over the implementation period. Fifty percent of sample students responded, and the data was examined by comparing rating agreement to survey statements that asked about quality of feedback and time taken to receive the feedback from the instructor. Qualitative data was also collected in the survey and was used to supplement the numerical data.

Gould and Day (2013) ran a mixed-methods study where post-intervention questionnaires were distributed to 51 nursing students in a face-to-face environment to examine their views of audio feedback given for their written assignments. In the intervention, six instructors provided only audio feedback for four assignments in the first of a three-semester program. The questionnaire had been developed earlier in a pilot study, and used scaled responses to examine student agreement on five statements. The statements addressed questions to find if audio feedback contributed to the student’s learning, was detailed and supportive, formatively improved the quality of their work, and was preferred to written feedback. Self-selecting students took part in focus groups using open and closed questions and reflective comments to gather qualitative data. The instructors’ responses about providing audio feedback were also noted in this study, though the method by which they were collected was not.

**Findings and discussion.** Student perceptions were a major focus of all the studies listed here, and for some it was the only focus. Students across the studies on the whole liked audio feedback, and found it helpful. Findings by Orsmond and Merry (2008) found students listened to the feedback more than once, which was seen as an advantage, and used it formatively to alter their work. Only a few students personally found listening to audio feedback problematic. One response was that the student would rather see written comments pertaining to what they had done wrong rather than hearing it (King et al., 2008). Another response stated the student found
some of the feedback slow and somewhat scattered, and though useful it could be more succinct (Gould & Day, 2013).

King et al. (2008) examined the quality of feedback by transcribing typical audio comments and placing them side-by-side in a table that also contained a typical text feedback comment. Their point was to show the nuance, immediacy, richer and more personal character of the audio feedback, which when read was apparent. The table also graphically showed the differences in relative length difference of the feedback. Where text feedback was only a few words long, the audio feedback was generally much longer, though the length did alter considerably between the instructors. Orsmond and Merry (2008) classified and compared the volume of comments between audio and text feedback by category and found a higher number of comments in audio were given to correcting errors, demonstrating correct practice, suggesting approaches for future assignments, engaging the students in thinking, and suggesting further study. Most interesting here is the much higher number of comments for “identifying” errors in the text feedback as compared to the much higher number of comments “correcting” errors for audio feedback. This suggests audio feedback to be a more empathetic and personal teaching approach, more suggestive rather than dictated.

The sound of the instructor’s voice was generally found to be good for empathetic reasons. A finding consistent across all studies was that students perceived audio feedback as being more nuanced than text because it provided auditory cues indicating a sense of care for the student, and gave the student a better understanding of the meaning of the instructor’s feedback. A student statement coming from the study by Ice, et al. (2007) seems to sum this up: “I understood then that you really liked what I was doing but were trying to tell me to add a little more, but in a good way” (p. 13).
Document analysis of final projects in the Ice, et al. (2007) study considered learning outcomes by measure of the level and frequency of course-covered teaching strategies found in student’s final projects, the instruction of which was split between text and audio feedback from the instructor. A count of the number of taught strategies used by students in their final assignments was found to be higher for those who were taught using the audio feedback method. Coding of the documents contents also showed the level of student thinking and problem-solving skills to be far higher based on Bloom’s Taxonomy when audio feedback was provided.

Tangential consideration of learning outcomes was also considered in the study by Gould and Day (2013). Forty nine percent of the students in the study “substantially agreed” with a survey statement saying audio feedback “formatively enabled me to improve the quality of my final piece of work” (p. 557). This finding however does not prove any actual improvement. The other studies did not specifically examine learning outcomes as a result of audio feedback. It was not specifically addressed other than a concluding comment by King et al. (2008) wondering as a result of audio feedback whether learning has been enhanced,

The process of recording feedback, the time involved, and length of feedback was of interest in two of the studies. Findings by King et al. (2008) indicated that creating audio feedback took longer than text. The researchers measured the amount of time in a questionable fashion by asking the four instructors in their study to self-report the amount of time it took to create their audio feedback files. When the researchers examined the mean amount of time only one instructor spent less time creating audio feedback than they did creating text feedback. These researchers noted as a confounding element that the instructors were not familiar with the technology and spent much time editing and re-recording their comments. King et al. also noted that this contrasted with the findings of Ice et al. (2007) who found the voice method time
saving. The study by Lunt and Curran (2010) also found creating audio feedback was quicker. Instructors here described the method as “very easy.” Wallace and Moore (2012) too indicated the instructors in their study found the process easy, and were able to record feedback on hand-held devices either in one longer session or over several sessions. Lunt and Curran ran a test to compare time-efficiency between feedback types asking the instructors to type, write by hand, and audio record a typical piece of audio feedback. The results clearly indicated speaking was much quicker than both handwriting and typing.

The amount of feedback given word for word is greater for audio feedback than for written feedback. King et al. (2008) compared word count directly finding that the length as noted above depends upon the individual instructor and their enthusiasm for commenting. The researchers allude to this and make recommendations the instructors in the future make smaller “bite sized” extracts and insert them into the student assignment documents. They prescribe a recording time limit of five minutes, which they feel based upon their study, will provide about 500 words of feedback.

The instructor feedback studies focused primarily on the perceptions of students receiving audio feedback. With only a few exceptions those perceptions were generally positive. The nuance of voice and personal nature of delivery in this type of feedback led to better student understanding when dealing with specific points provided in the assignment assessment, and better outcomes at least in the finding by Ice et al. (2007) The students felt a more personal connection with the instructor as well. Some studies also focused on instructor perceptions, specifically on the time and convenience in creating audio feedback. With the exception of the instructor perceptions found in King et al. (2008) the studies overall found that creating audio feedback was easy and convenient.
**Study limitations.** There are numerous limitations to these studies. Most have a small sample size, and as many are case studies, or use self-selecting participants, the samples cannot be considered random. Though there does seem to be some consensus agreement between the studies the findings are likely not applicable to a larger population. The point that the researcher was an instructor or held some sort of power relationship in many of the studies provides further proof of limitations. This is most apparent in the study by Orsmond and Merry (2008) where the instructors were in the room for the post-intervention student interviews. Discussion of reliability and validity of the qualitative and quantitative data is not extensive, and because all of these studies used a new technology or approach the halo effect becomes a large factor to be considered in their findings, which many of the authors to their credit acknowledge.

**Conclusion**

All the studies above focus primarily on the technology and how it can be used in interaction. The focus is not so much on measuring the results of audio recording, such as learning outcomes as it is on the audio recording being considered an element in an innovative pedagogical strategy. When audio recording of the voice is considered as an online pedagogical tool it is studied almost exclusively as a technology tool. Much of the literature finds audio recording as a modality used for convenience and as method for better and more personal communicative understanding. The findings indicate that the recording of another person’s voice expresses thought in a more personal and deeper fashion than text. Empathy is present; elements of emotion, and caring are noted as being present both in student-to-student communication and in instructor-to-student communication. Audio recording becomes an enhancement to pedagogy; therefore there is reason to consider its use it as an online pedagogical strategy.
Students and some instructors may not have always been fond of talking into a computer, (Marriott & Hiscock, 2002; King et al., 2013; Yaneske & Oates, 2012; Hew & Cheung, 2013) but they did find the spontaneity attractive (Hew & Cheung, 2013) and the convenience of being able to post from a mobile phone was also liked by students, even if a bit problematic as seen in Wei et al. (2007).

Studies are missing considering students’ audio recording reflective journaling assignments. As well, there are none examining how instructor perceptions might play into assessing student’s audio recorded journal. Discrete vocal elements, such as inflection, manner of speaking, recording quality, and the like are not specifically addressed. The ubiquitous presence of technology with multi-media capabilities like recording audio provides ample opportunity for innovative pedagogical strategies, and as seen in these studies is being actively researched. The need for audio authoring is born out of a need for expediency, convenience, and multimodal forms of learning; it can be applied to reflective learning. Voice recording allows us to quickly capture reflective thought through the naturalness and primacy of the spoken word. It can allow an instructor or even the recording student to more easily examine the reflective thought process presented through voice inflection, manner of speaking, and relative conciseness of thought. Consideration of what elements or factors unique to vocally expressed and recorded reflection should and will be part of the assessment process.
Chapter V: Methodology

Introduction

Review of the literature revealed that there is little research involving the use of reflective voice-journals in schools of nursing. Consequently there are few specific attributes or unique factors identified in voice-journals that relate to instructor’s perceptions and assessments. This raises the two main research questions for the current study, the second of which has two parts:

- What voice-journal factors do nursing instructors perceive to be unique for use in assessment (RQ1)
- Which unique voice-journal factors do nursing instructors perceive to be important for use in assessment (RQ2)
  - Will nursing instructors perceive unique voice-journal factors when listening to voice-journals (RQ2.1)
  - How important to assessment will nursing instructors find these unique factors (RQ2.2)

To answer these questions the researcher conducted a two-phase study using a cross-sectional survey. A cross-sectional survey collects data from a pre-determined group at a single point in time to help describe characteristic opinions and attitudes of a specific population (Fraenkel & Wallen, 2009). This survey design type was considered appropriate because the use of voice-journals in nurse education is a new application of technology, and perceived factors unique to voice-journals that nursing instructors can use for assessment has not been fully determined. A survey of experienced nursing instructors can help to name these factors and will help to define which of the factors are considered important.
To identify those factors the researcher developed a three-step survey instrument using a sample group of experienced nursing instructors. The first step of the survey asked the instructors what they considered to be important for assessment of a voice-journal. The second step let them listen to a voice-journal, and the third step asked questions to discover what unique elements or factors they perceived, and which they felt important for assessment. The current study was designed to be done in two consecutive phases. The first phase surveyed a sample of instructors from a small college of nursing and the second surveyed a larger sample of instructors from several large and small colleges of nursing. The aim of the first phase of the study was to answer RQ1, which is to identify and refine a list of perceived unique factors or elements found in a voice-journal. The second larger phase of the study was to examine RQ2 and its two parts. In this phase the aim was to validate the list of factors created and refined in the first phase and then to ask instructors to rate the factors for importance to assessment. The second phase used a larger online sample of nursing instructors who followed a refined version of the three-step survey procedure used in the first phase. Because phase one of the study was integral to creation and refinement of the phase two instrument and procedure, the analysis of the phase one findings are included below.

**Phase One Design and Procedure**

**Research design.** The first phase of the study was conducted to answer RQ1. It helped discover and name a list of relevant unique factors present in voice-journals. This list of factors, along with the survey instrument, was to be refined for use in the second phase of the study where the survey was presented online to a larger group of nursing instructors from several nursing schools. The design for the first phase of the study used a small sample of instructors who met with the researcher face-to-face. These instructors had no previous exposure to voice-
journals, so they had no pre-conceived notions or bias toward any factor or elements found there. This is important because they could begin by identifying what factors they might expect to be present. After hearing a voice-journal they provided information on what factors or elements they noticed, and then they could express an opinion on the importance of those elements for assessing voice-journals. By design, the group of phase one instructors was encouraged to provide feedback on the survey instrument, thus assisting the researcher in its refinement for use in phase two of the study.

**Instrumentation.** The researcher created a short paper survey questionnaire as a tool to use with a three-step procedure (see Appendix C). The researcher assumed when creating this instrument that revision and refinement to the instrument would be considered by analysis of the outcomes, comments, and observations made in the encounters with this group of instructors.

The questionnaire’s first step and question asked respondents to list elements or factors they expected to notice when listening to a voice-journal. A numbered list was provided for the respondent to provide up to 12 factor items. As an assistive prompt, the researcher provided the first three numbered factors in the list: informality, emotion, and conversational tone. All the other numbers were left blank.

For the second step of the procedure, the researcher randomly selected five voice-journal entries from the earlier student pilot study for the instructors to hear. Each original sample ranged from 7 to 10 minutes in complete length. Anecdotal information from instructors in the earlier student pilot study indicated that listening to the whole journals seemed to take a long time, was tedious, and inconvenient. The researcher decided that providing smaller excerpts (ranging 1:57 to 3:28) would provide enough information for the respondent to make note of the factors/elements present or missing without being tedious or overwhelming. The excerpt samples
for this phase of the study were from different students and specifically chosen to come from approximately the same mid-semester collection period. This was done assuming the students who created them would have the same level of experience in voice-journal creation. The students responded to written prompts when recording their voice-journals. The researcher decided to excerpt only parts of the journals where the students did not make any explicit reference to the written prompts. The researcher felt should the prompts be included instructors would be more prone to “assess” the student’s journal based on that prompt rather than to only take notice of the vocal factors present. For this phase of the study the instructors listened to two excerpts rather than one. The researcher thought playing two samples instead of one would give this group of respondents broader information from which to base their lists of noticed factors/elements.

For the third step of the procedure the researcher created another 12 item numbered list with a written prompt asking the instructors to write down what factors they noticed when listening to the voice-journal excerpts and then rate them from a low of one to a high of five for importance to assessment. The three prompts noted above were provided again as the first three items in the list and all the other numbers were left blank for the respondent to fill.

This part of the instrument also contained three questions for the instructors to complete. Those questions asked if the instructor would consider using a student’s recorded voice as a means for fulfilling a reflective assignment in a course they teach, if they would place a time limit on the recording and how long it would be. The last question asked if they had any other comments concerning voice-journals.

Participants. For the phase one study the researcher recruited 12 instructors via email for a face-to-face survey session. Three of the recruited instructors were not able to assist at the time
and that provided a final convenience sample of nine consenting nursing instructors, eight female and one male. The selection of recruited instructors was chosen because they teach both didactic and clinical classes, and are experienced nurses and instructors. This group’s average number of years in nursing was 22.7 years, and years teaching 9.4 years. The researcher met with these instructors individually over a period of two days.

**Procedure.** The respondents met the researcher individually by appointment, and read signed consent documents. The researcher then read a script to introduce the study, the research questions, a description of the student population from where the voice-journals were taken, and the methodology for obtaining the voice-journals. The script outlined the three task steps for the instructors: (a) answering the first survey question, (b) listening to two short excerpts from a group of five randomly chosen voice-journals, and (c) answering the final questions in the survey. The instructor respondents were also prompted to ask questions or make further comments about the voice-journals and the survey instrument after answering the last questions.

The first question asked: “When I listen to the student’s voice-journal I expect to notice” This question was followed by a list of numbers 1 to 12, where the respondents could write expected factors/elements. The first three numbers had the prompting factors noted above. The respondents were also verbally told they could add as many factors as they wanted; no minimum or maximum number of factors was required.

After the instructors completed the first step, the researcher then played two of short voice-journal sample excerpts from the same five randomly chosen voice-journals. The short excerpts were extracted from various points within the larger voice-journals. The researcher did not provide the assignment reflection prompts to the respondents, and when selecting the
excerpts took care to find only portions without student reading or making specific mention of the prompts.

The choice of the two excerpts played in this part of the study was designed so that each excerpt would be heard by at least three respondents. Most of the excerpts were played and heard a total of four times. The pairing order of the excerpts was designed to avoid repeated playing of the same pair group as much as possible. The researcher thought playing two mixed samples instead of one would give the respondents broader information from which to base their lists of noticed factors/elements. The later phase two online survey used this same set of 5 excerpts, but respondents instead listened to only one randomly chosen voice-journal instead of two.

The phase one instructors were asked the step three questions immediately after listening to the two excerpts. The instructors were given the same numbered list as in the first question with the three provided prompts included. They were told that they could take the first question’s “expected” factor/elements should they want, and add any others they noticed. They were asked to numerically rate items in this list from one (low) to five (high) for usefulness in assessment. The instructors wrote the rating next to the factors in the list. The respondents listed and rated many of the expected factors/elements from the first question, and almost always included the three prompting factors. Some respondents did not include or rate some of the earlier expected factors, and some added and ranked some additional factors, primarily those that thought would be important to include for assessment.

The instructor were then asked to indicate if they would consider using a student’s recorded voice for a reflective journaling assignment and if they would, should there be a recording time limit and how long would it be.
In addition to the questions asked in the survey the respondents were verbally asked to
note how many years they had been in nursing, how long they had been teaching, and to give any
further opinions they might have on voice-journals. The researcher then asked each respondent if
the wording of the prompts used in the survey seemed clear in meaning, or if they could be better
crafted. They were also asked what demographic questions they felt should be asked of future
survey respondents. While meeting with each respondent the researcher made notes concerning
any verbal comments or discussion concerning voice-journals, their factors, or the survey, for
grounded theory analysis to help refine the instrument for future use in phase two of the study.

**Phase one analysis, and instrument revisions.** The second phase of the study depended
upon the analysis of the phase one study’s findings. This analysis defined a list of the unique
voice-journal factors that nursing instructors noticed and found important. The analysis also
provided instructor feedback used to refine the phase two survey instrument. Because of this the
analysis and instrument refinement is discussed below.

After completion of the face-to-face meetings the researcher began to refine the list of
factors provided by the respondents. Many of the factors/elements listed by the instructor
respondents in the step one and step three questions were very similar in terms of intent, theme,
and ratings. Each respondent listed between 2 and 8 factors \( M = 4.4 \). Factors provided ranged
from a single word to several word descriptions, (e.g., “overall learning experience/what the
student will carry forward”). Many of the factors given were very similar in theme. The
researcher created a single list of the rated factor data from the survey’s third step. All those
factors that had been rated three or above were developed into a list and similar items were
combined based on theme. The researcher then divided that list into four themed factor
categories: “student’s manner of speaking, recording quality and tone of student’s voice
(inflection), the student’s orientation to tasks and learning, and care and meaningfulness.” Each category contained a number of discrete sub-factors ranging from two for “care and meaningfulness” to six for “student’s orientation to tasks and learning.” This list was later shown individually to the phase one participating instructors who indicated the factors listed were appropriate.

Discussions occurring in the survey process with this group of instructors indicated the prompt wording and questions for the online survey instrument be revised (see Appendix C). The first question in step one of the survey now states: “When I listen to the student’s voice-journal in step two, I expect I will take particular notice of.” The list of the four factor categories noted above is then provided. Respondents will choose which of the factor categories they expect to notice by placing a check mark beside the listed category. The question in step three asking what factors were noticed and then rating those factors was found too complex, and was broken into two separate questions: “When I listened to the voice-journal I noticed:” and “Assume you are assessing a student’s voice-journal submitted as an assignment for your course; please rank each item below from 1 (not important) to 5 (very important) in terms of its significance to your assessment.” The first of these questions lists the only 15 category sub-factors as choices to be marked noticed. The factor categories, as well as their sub-factors are all listed in the second question.

Discussions with the phase one group of instructors also indicated that a dichotomous question should be added to step three, that being: “I think students’ audio-recording of a reflective journal is a viable way for them to fulfill a journaling assignment.” They additionally suggested adding two questions for demographic information: “Are you currently teaching clinical” and “If you are not currently teaching clinical, have you taught clinical in the past and
for how long.” They further suggested that it would be good to know what area of nursing the
instructor considers their specialty.

After making the suggested revisions, the updated version of the survey was presented as
a document and circulated among the phase one instructor group for additional feedback,
comments, and discussion of modifications. All indicated they felt comfortable with the revisions
and approved the survey.

**Phase Two Design and Procedure**

**Research design.** The research design for this phase of the study was again a cross-
sectional survey and closely followed the design of the earlier phase one study. The researcher in
this phase planned to use a mixed-methods design incorporating descriptive statistical analysis of
quantitative data taken from the survey and grounded theory analysis of qualitative responses to
supplement the statistical findings. The plan in this phase was to survey a larger group of
experienced nursing instructors from several different schools of nursing both large and small.
To do this, the study was taken to an online format where the sample respondent population
could be easily targeted and recruited. The population was initially contacted and recruited via
email. Should they decide to participate they clicked a hyper-link in the recruitment message and
then provided their consent using an online IRB approved document. The survey followed the
same three-step process as the phase one study did, but was refined as a result of the analysis of
the phase one findings. Instructor respondents began with a first step question; they then
randomly chose a single voice-journal excerpt to listen to in a second step. Step three asked them
to first choose factors that they noticed and then to rate their importance on a scale. To gain
additional information about the respondents’ opinions and the choices they made, some
questions in the third step gave them the option to provide additional comments. These
comments provided valuable qualitative data to help corroborate the quantitative data the survey provided. As in the first phase study, respondents in phase two were asked questions about the viability of using voice-journals, the necessity and length of recording time limits, and demographic questions to help define the sample population. In case the respondents skipped questions or steps, thus not providing enough data to be useful, the researcher made some of the questions in the survey mandatory. The respondents could not move to the next question until they provided a response to the question before them. This strategy assured enough useful data would be collected to be analyzed.

**Instrumentation.** Once the first phase of the study was complete, the researcher created and readied an online survey for the study’s second phase by purchasing an account and creating a 19 item survey instrument on a commercial online survey website (see Appendix E). This online instrument functioned as a development prototype prior to it being used in the phase two study. Before seeking IRB approval for an addendum to the existing research study the researcher consulted with the dissertation committee members, provided them online access to the prototype instrument. As feedback, a suggestion was made that allowing respondents to choose what they expected to notice in the first question would not lead to discrimination between the four factor categories as a respondent could choose all of them. It was decided to change this to instead ask respondents to rank the four factor categories from most important to least important. The researcher changed the question to ask: “When listening to a student's voice-journal, which of the following categories are most important to you.” The online respondent, using a computer mouse, would click and drag the various factors to rank them from most important (the top listed position) to least important (the lowest listed position). After making these changes, an addendum to the research study online, along with a revised consent form to
enable online respondent consent was submitted to the UC IRB who provided approval. The researcher then began individual email solicitation of nursing instructors from a variety of schools of nursing.

**Participants and study consent.** Instructors from 14 Mid-western universities and colleges of nursing were solicited to respond to this survey. The survey sample came from nine large universities and five smaller colleges. The researcher found email directories of the nursing faculty for each of the schools chosen on each school’s public website, and sent prospective respondents an individually addressed email with the IRB approved text soliciting their help with the research study (see Appendix D).

The email text introduced the study and the researcher and provided his contact information. It described the earlier pilot study student population, their reflective assignment, and the intervention procedure from which the voice-journal excerpts were taken. The three steps of the survey were then briefly described and the recipient was given instructions, to click a hyperlink at the bottom of the email should they care to participate. This hyperlink opened the online IRB approved consent document.

The IRB consent document, (see Appendix D) contained two hyperlinks shown below the consent text. When clicked one would provide a downloaded copy of the consent document for the respondents records, the other would signal the respondent’s consent to participate in the study and would then take them to the online survey website. When arriving at the survey website respondents received a “start message” with a description of the survey procedure. Mouse clicking a hyperlink at the bottom of the start message took respondents to the first step of the survey and question one.
Care was taken to only include nursing faculty members and instructors in the solicitation. A total of 759 email solicitations were sent yielding a return of 70 responses, a response rate of 7.9 percent. Of those who responded 60 completed the survey. This sample consisted of registered nurses both female \((n = 53)\) and male \((n = 7)\). Respondent data from those who did not complete the survey was removed from the data set.

Procedure. The phase two online instrument was the revised version of the same one used earlier as the prototype for development (See Appendix E). Respondents were first presented with the short start message and were informed of the steps to complete the survey. Some of the questions or steps of the survey as noted above required a response. Respondents were provided a “progress indicator” on their computer screen to let them know how much of the survey had been completed and how much remained. At the bottom of all question pages was a “continue” button hyperlink that when clicked would take them to the next question.

The first required question (Q1) asked respondents to click with the computer mouse on the four factor category names and drag them into a ranked order from most important (top) to least important (bottom). By clicking on the “continue” hyperlink button at the bottom of this and all subsequent pages they were shown a page with a survey-generated random order list of the five voice-journal excerpts. The list order of the excerpts changed for each respondent taking the survey. Respondents were instructed to select only one excerpt and then click on a small “play” arrow next to it to listen. This was a mandatory step and all participants were required to listen to an excerpt. The excerpts were not numbered, but volume controls and the time-length for each was displayed. This was the unchangeable default setting for the survey website.

Respondents were prompted in question two (Q2) to check small boxes by the 15 category sub-factors they noticed when listening. Those sub-factors were grouped together by
category though the category was not explicitly noted. This question required a response, and provided a textbox option to add any other factors they noticed should they desire. Respondents then moved to question three (Q3) where they were asked to suppose they were assessing a voice-journal. They were then asked to rate all the factor categories and their sub-factors items on a 5-point Likert scale from one (“not important at all”) to five (“very important”) in terms of its significance in their assessment. The researcher had decided earlier, based on feedback, that including the factor category of “care and meaningfulness” would appear redundant when scoring importance ratings for its two sub-factors, “caring attitude/empathy for patient” and “reflection on experience (personal meaningfulness)” consequently it was not included in the Q3 list when the online survey was created. To gather some additional qualitative data question five (Q5) asked respondents to list any factors not listed that they felt might be important for assessing a student’s voice-journal.

Respondents then moved to a series of four dichotomous “yes or no” questions, the first three of which were required. Those questions asked: if they felt audio-recording a voice-journal is a viable way to fulfill a journaling assignment (Q6), if they thought voice-journals were useful (Q7), and would they consider using a voice-journal for a reflective assignment in a course they teach (Q8). After this question all subsequent questions were not mandatory, did not require a response, and were formatted to accept a written response. Question nine (Q9) asked if respondents chose to use a voice-journal in their course would they impose a time-limit. Question ten (Q10) asked them should they place a time limit how long would it be. Question eleven (Q11) was a free response asking for any other thoughts or comments the respondent would like to share about voice-journals.
The last eight optional questions collected demographic information including: Years in nursing (Q12), years teaching nursing (Q13), if respondents were currently teaching clinical (Q14), if not currently teaching clinical, if and when they had done so in the past (Q15), current teaching position (Q16), the respondent’s category/area of specialty in nursing (Q17), age and gender (Q18 and Q19).

By clicking the “continue” button on the last question the respondents received a short message thanking them for their assistance with the study, and a prompt to close the survey browser window.

Information concerning the time-range for answering all the questions in the survey can only be assumed from information provided by the polling showing how long the respondent had the survey open on their computer. The time-range for the 60 respondents that completed the survey was wide and varies from 4:48 to 28:45, \( M = 12:21, \text{Mdn} = 10:30 \).

Analysis. The phase two survey was run online over a three month period after which recruitment ceased and the survey instrument closed. All collected data was securely held on the polling website, and then transferred the researcher’s computer. This data was analyzed to help provide an answer to RQ2, specifically its two sub-questions. Answers to those sub-questions provided instructor’s validation of the unique factors discovered in the first phase of the study, and also provided ratings of each factor’s importance to assessment.

The data collected was analyzed using descriptive statistical methods to discover mean, and median scores for the factor rankings (Q1) and factor importance ratings (Q3) found in steps one and three of the survey. For Q2 where respondents marked noticed factors, the scores were analyzed to discover if there was consensus agreement between respondents over all the journals as well as for each individual voice-journal excerpt.
Qualitative data was collected from the optional responses to Q2 and Q3 as well as from the open responses found in Q11. This data was examined using grounded theory techniques to find common respondent observations and themes that could be used to help corroborate the statistical data collected.
Chapter VI: Findings

Phase Two Study Findings

The two-phase study sought to name perceivable factors unique to voice-journals that instructors would use for assessment. Further, this phase sought to determine the importance of those factors to instructor assessment. As described earlier in phase one of the study, a small group of nursing instructors focused on the first research question RQ1, which asked what voice-journal factors nursing instructors perceived to be unique for use in assessment. Having named those factors, phase two of the study sought to answer RQ2, which had two parts. Part one sought validation of the named factors by seeing if nursing instructors would perceive them when listening to a voice-journal. The second part sought to find their importance to assessment. Answers to these questions were provided by descriptive statistical analysis of survey data which was corroborated by qualitative responses.

The researcher via email solicited 759 instructors of nursing; 724 of this group were female and 35 male. A total of 70 respondents consented to participate and opened the survey instrument. Ten of this group did not complete the survey and those responses were cleaned from the data set, thus yielding a final respondent population of 60. Of this group 53 were female and seven were male.

The online survey was divided into three steps. The first step offered a brief introduction and presented the first question (Q1), which asked about the instructors’ perceptions of what factor categories were important in a voice-journal. They ranked the categories in order from most important to least important. Those factor categories were: The student’s manner of speaking (M), the recording quality, and tone of the student’s voice (R), the student’s orientation...
to tasks and learning (TO), and care and empathy for the patient (C). The respondent in this case would mouse click on each item in the list and drag it into their preferred position, the top being most important, and the bottom least. Instructors then proceeded to the second step where they chose and listened to a voice-journal excerpt ranging in minutes from 1:57 to 3:35. These were placed in random order in attempts to get an even distribution of listeners to each excerpt. After listening the respondents moved to step three where they were asked in question two (Q2) to choose and mark all the category sub-factors that they had noticed when listening. The next question (Q3) asked the respondents to rate all the categories and their sub-factors on a five-point Likert scale from not important to very important, with three being considered a neutral response. A not applicable (NA) option was also offered for each item. This last step of the survey asked questions pertaining to the respondent’s opinions of voice-journals, and asked for demographic information including age, gender, number of years in the profession, years teaching, current teaching position, and nursing specialty.

The four factor categories in Q1 were presented to respondents in random order. The respondents would re-arrange them by ranked importance. The mean value for the each category item was calculated using the formula: (item position x count / total responses) and then they were ranked with the highest mean value being first and the lowest last. The findings show the rankings for all respondents fell into two distinct clusters: “Care and meaningfulness” was ranked most important ($M = 3.25$, $Mdn = 3$) and was very closely followed by “the student’s orientation to tasks and learning” ($M = 3.03$, $Mdn = 3$), “the student’s manner of speaking” ranked third ($M = 1.97$, $Mdn = 2$), followed by “the recording quality and the tone of the student’s voice (inflection)” which ranked last ($M = 1.77$, $Mdn = 1.5$).
Category rankings when examined by gender show a different distribution. Female instructors who comprised 88.3% of the sample population reflected the same ranking order as noted above. Males however showed a different ranking order. In their case “The student’s orientation to tasks and learning” was ranked highest \((M = 3.71, Mdn = 4)\), and followed by “care and meaningfulness” \((M = 2.86, Mdn = 3)\). Both “The students manner of speaking” and “the recording quality and tone of the student’s voice (inflection) finished last with equal means \((M = 1.71)\), there was however a difference in their median score (see Table 3).

Table 3

<table>
<thead>
<tr>
<th>Mean/Median Factor Categories and Sub-factors</th>
<th>Q1 M/Mdn</th>
<th>Q1* M/Mdn</th>
<th>Q1** M/Mdn</th>
</tr>
</thead>
<tbody>
<tr>
<td>(C) Care and Meaningfulness</td>
<td>3.25/3</td>
<td>3.3/4</td>
<td>2.86/3</td>
</tr>
<tr>
<td>(C1) Caring attitude/empathy for the patient</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(C2) Reflection on experience (personal Meaningfulness)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO) The student’s orientation to tasks and learning</td>
<td>3.03/3</td>
<td>2.94/3</td>
<td>3.71/4</td>
</tr>
<tr>
<td>(TO1) Presenting a simple list of tasks performed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO2) Presenting evidence of task prioritization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO3) Comfort with nursing topics and terms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO4) Information connected between classroom/clinical experience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO5) Evidence of critical thinking/thought</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO6) Expression of what was learned/discovered</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(M) The student’s manner of speaking</td>
<td>1.97/2</td>
<td>2/2</td>
<td>1.71/2</td>
</tr>
<tr>
<td>(M1) Professional manner of speaking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(M2) Informal tone in speaking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(M3) Organized manner of presentation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(R) The recording quality, and the tone of the student’s voice (inflection)</td>
<td>1.77/1.5</td>
<td>1.77/2</td>
<td>1.71/1</td>
</tr>
<tr>
<td>(R1) Enthusiastic tone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(R2) Bored or frustrated tone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(R3) Superficial or distracted tone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(R4) Presence of background sounds/voices</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*female , **male

Instructor respondents were given choice of five voice-journal excerpts to listen to after providing their initial ranking. The survey was configured to present the excerpts in random order, and there was no designation of voice-journal number. The web-site player controls
however did show the time length for each excerpt. The longest excerpt voice-journal three (VJ3), had the longest (time = 3:28) and subsequently was chosen by only five respondents. All other excerpts, which ranged in time from 1:57 to 2:31 were chosen between 13 and 15 times each.

Following listening to the voice-journal excerpts the next survey question (Q2) presented the respondents with a checklist of 15 sub-factors, which were grouped together by the four categories presented in Q1. Respondents were asked: “When I listened to the voice-journal I noticed: (please check all that apply).” This gave a dichotomous choice for the respondents; the factors were either noticed or not noticed. Respondents were also given the option of providing text comments and adding any factors they personally noticed.

All of the 15 sub-factors were marked as noticed at least once in the survey, and 7 of the sub-factors were checked as noticed by at least 20 or more respondents. The six most noticed were “an informal tone in speaking” (n = 48) followed by “a simple list of tasks performed” (n =35), “a reflection on experience (personal meaningfulness)” (n = 33), “an expression of what was learned/discovered” (n = 31), and “a caring attitude/empathy for the patient” (n = 29). “The presence of background sounds/noises,” and “a superficial or distracted tone” finished this group with a tie of 20 marks each. All of the factor categories ranked earlier in Q1 were represented in this group. Interestingly three of these seven most noticed sub-factors came from factor categories that were ranked the lowest in Q1 (see Table 4).

In terms of rater reliability, the scores for Q2 are observed as dichotomous data; only “noticed” items were actively scored, the default value was for any item was to be un-checked and thus considered “un-noticed.” A measure of consensus agreement for noticed factors was done by taking the sum of the “noticed” scores for each sub-category, dividing it by the total
number of listeners and then multiplying that product by 100 to yield the percentage of agreement. These calculations were done for data collected for all voice-journal excerpts, and also for each of the five voice-journal excerpts (see Table 5).

Table 4

<table>
<thead>
<tr>
<th>Q2 Sub-Factors Marked “Noticed”</th>
<th>All (n=15)</th>
<th>VJ1 (n=14)</th>
<th>VJ2 (n=5)</th>
<th>VJ3 (n=13)</th>
<th>VJ4 (n=13)</th>
<th>VJ5 (n=13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(C) Care and Meaningfulness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(C1) Caring attitude/empathy for the patient</td>
<td>29 5 12 1 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(C2) Reflection on experience (personal Meaningfulness)</td>
<td>33 5 12 0 6 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO) The student’s orientation to tasks and learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO1) Presenting a simple list of tasks performed</td>
<td>35 6 11 5 8 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO2) Presenting evidence of task prioritization</td>
<td>5 3 2 0 0 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO3) Comfort with nursing topics and terms</td>
<td>12 1 6 1 1 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO4) Information connected between classroom/clinical experience</td>
<td>9 3 5 1 0 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO5) Evidence of critical thinking/thought</td>
<td>5 0 4 0 1 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO6) Expression of what was learned/discovered</td>
<td>31 6 11 1 5 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(M) The student’s manner of speaking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(M1) Professional manner of speaking</td>
<td>6 0 1 1 2 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(M2) Informal tone in speaking</td>
<td>48 10 14 2 11 11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(M3) Organized manner of presentation</td>
<td>13 3 2 1 5 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(R) The recording quality, and the tone of the student’s voice (inflection)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(R1) Enthusiastic tone</td>
<td>12 0 10 1 0 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(R2) Bored or frustrated tone</td>
<td>11 5 1 1 2 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(R3) Superficial or distracted tone</td>
<td>20 8 1 2 5 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(R4) Presence of background sounds/voices</td>
<td>20 3 10 0 1 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Analysis was performed to determine interrater reliability. This was to see if there was consistency in all the “noticed” responses to each voice-journal excerpt. Cronbach’s alpha is a commonly used means to assume a consistency estimate. This type of tool is based on an assumption that raters do not necessarily have to share a common interpretation of a rating scale; it considers the respondent being consistent in classifying the phenomenon according to their own definition. The advantage in using Cronbach’s alpha is that it can yield a single estimate of interrater reliability across several judges (Stemler & Tsai, 2008). All of the alpha findings fell below 0.7, which is regarded as questionable. The highest alpha for any of the sub-factors groups
was .67 for the sub-factors “noticed” in voice-journal five (VJ5) falling under “care and meaningfulness.” The highest alpha for combined sub-factors “noticed” for any voice-journal was voice-journal one (VJ1) which received an alpha of .52.

Table 5

<table>
<thead>
<tr>
<th>Q2 Percent Agreement for Sub-factors Marked “Noticed”</th>
<th>All</th>
<th>VJ1</th>
<th>VJ2</th>
<th>VJ3</th>
<th>VJ4</th>
<th>VJ5</th>
</tr>
</thead>
<tbody>
<tr>
<td>(C) Care and Meaningfulness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(C1) Caring attitude/empathy for the patient</td>
<td>48.3%</td>
<td>33.3%</td>
<td>85.7%</td>
<td>20%</td>
<td>38.5%</td>
<td>46.2%</td>
</tr>
<tr>
<td>(C2) Reflection on experience (personal Meaningfulness)</td>
<td>55%</td>
<td>33.3%</td>
<td>85.7%</td>
<td>0%</td>
<td>46.2%</td>
<td>76.9%</td>
</tr>
<tr>
<td>(TO) The student’s orientation to tasks and learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO1) Presenting a simple list of tasks performed</td>
<td>58.3%</td>
<td>40%</td>
<td>78.6%</td>
<td>100%</td>
<td>61.5%</td>
<td>38.5%</td>
</tr>
<tr>
<td>(TO2) Presenting evidence of task prioritization</td>
<td>8.3%</td>
<td>20%</td>
<td>14.3%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>(TO3) Comfort with nursing topics and terms</td>
<td>20%</td>
<td>6.7%</td>
<td>42.9%</td>
<td>20%</td>
<td>7.7%</td>
<td>23.1%</td>
</tr>
<tr>
<td>(TO4) Information connected between classroom/clinical experience</td>
<td>15%</td>
<td>20%</td>
<td>35.7%</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>(TO5) Evidence of critical thinking/thought</td>
<td>8.3%</td>
<td>0%</td>
<td>28.6%</td>
<td>0%</td>
<td>7.7%</td>
<td>0%</td>
</tr>
<tr>
<td>(TO6) Expression of what was learned/discovered</td>
<td>51.7%</td>
<td>40%</td>
<td>78.6%</td>
<td>20%</td>
<td>38.5%</td>
<td>64.5%</td>
</tr>
<tr>
<td>(M) The student’s manner of speaking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(M1) Professional manner of speaking</td>
<td>10%</td>
<td>0%</td>
<td>7.1%</td>
<td>20%</td>
<td>15.4%</td>
<td>15.4%</td>
</tr>
<tr>
<td>(M2) Informal tone in speaking</td>
<td>80%</td>
<td>66.7%</td>
<td>100%</td>
<td>40%</td>
<td>84.6%</td>
<td>84.6%</td>
</tr>
<tr>
<td>(M3) Organized manner of presentation</td>
<td>21.7%</td>
<td>20%</td>
<td>14.3%</td>
<td>20%</td>
<td>38.5%</td>
<td>15.4%</td>
</tr>
<tr>
<td>(R) The recording quality, and the tone of the student’s voice (inflection)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(R1) Enthusiastic tone</td>
<td>20%</td>
<td>0%</td>
<td>71.3%</td>
<td>20%</td>
<td>0%</td>
<td>7.7%</td>
</tr>
<tr>
<td>(R2) Bored or frustrated tone</td>
<td>18.3%</td>
<td>33.3%</td>
<td>7.1%</td>
<td>20%</td>
<td>15.4%</td>
<td>15.4%</td>
</tr>
<tr>
<td>(R3) Superficial or distracted tone</td>
<td>33.3%</td>
<td>53.3%</td>
<td>7.1%</td>
<td>40%</td>
<td>38.5%</td>
<td>30.8%</td>
</tr>
<tr>
<td>(R4) Presence of background sounds/voices</td>
<td>33.3%</td>
<td>20%</td>
<td>71.4%</td>
<td>0%</td>
<td>7.7%</td>
<td>46.2%</td>
</tr>
</tbody>
</table>

Observation of consensus across all of the sub-factors marked as “noticed” found varying percentages of agreement, most below 50%. The highest agreement across all of the voice-journals combined was for “informal tone in speaking” (M2), which received 80% agreement from all respondents. When the data is broken down and viewed by individual excerpt, with exception of VJ1, all excerpts have at least one sub-factor with 80% or greater agreement of being noticed. Some noticed sub-factors within the individual excerpts received 100% agreement.
Many of the sub-factors, though possibly skipped by respondents, were more likely left in the “un-noticed” state purposefully, suggesting that their lack of presence was considered. Of particular interest are those that were “un-noticed” most frequently across the entire group of excerpts. This group includes, “evidence of critical thinking, presenting evidence of task prioritization, professional manner of speaking, and information connected between classroom/clinical experience.” Each of these sub-factors was marked “noticed” by less than 10 respondents out of the entire group. Calculations were done to find the percentages of respondent agreement on “un-noticed” sub-factors, which showed that there was consensus on several of the sub-factor items (see Table 6).

Respondents appear to have taken an active role in scoring Q2. There were several optional comments (n = 26) provided for this question. These comments ranged in length from only three words to several sentences. Most comments (n = 24) came from the female respondents, and four of the voice-journals got five comment responses each. Voice-journal three (VJ3), which only had five listeners, received comments from each listener. Most of the comments referred directly to the student’s manner of speaking, e.g., “Uninterested and superficial,” “the student sounded bored,” “Tone was flat and did not have any reflection of how it made the student feel/grow in the role as a nurse. . . just listed interactions with others throughout her shift,” and “every other word was ummmmm.”

Question three (Q3) asked the respondents to hypothetically assume they were assessing a voice-journal. They were then asked to rate each of the factor categories and category sub-factors significance to their assessment using a 5-point Likert scale. The scale ranged from a low of one: “Not important at all,” to a high of five: “Very important.” Three was considered a neutral response and an option for “not applicable” (NA) was also provided. There were
responses from all 60 members of the sample though it was not a mandatory question. Variance in the individual responses was seen; only one respondent rated every factor at five. A small number of respondents did not rate some items, thus the mean score for each item does not necessarily represent opinions from the entire population. Mean and median scores were calculated for each of the list’s items. To calculate the mean scores in terms of importance the NA ratings, which had a value of zero, were not included. Only two of the items received a rating from the entire sample population and the lowest response rate for any item was 53 (%) (see Table 7).

Table 6

<table>
<thead>
<tr>
<th>Q2 Percent Agreement for “Un-Noticed” Sub-factors</th>
<th>All %</th>
<th>VJ1 %</th>
<th>VJ2 %</th>
<th>VJ3 %</th>
<th>VJ4 %</th>
<th>VJ5 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>(C) Care and Meaningfulness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(C1) Caring attitude/empathy for the patient</td>
<td>51.7%</td>
<td>66.7%</td>
<td>14.3%</td>
<td>80%</td>
<td>61.5%</td>
<td>53.8%</td>
</tr>
<tr>
<td>(C2) Reflection on experience (personal</td>
<td>45%</td>
<td>66.7%</td>
<td>14.3%</td>
<td>100%</td>
<td>53.8%</td>
<td>23.1%</td>
</tr>
<tr>
<td>Meaningfulness)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO) The student’s orientation to tasks and</td>
<td>41.7%</td>
<td>60%</td>
<td>21.4%</td>
<td>0%</td>
<td>38.5%</td>
<td>61.5%</td>
</tr>
<tr>
<td>learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO1) Presenting a simple list of tasks performed</td>
<td>91.7%</td>
<td>80%</td>
<td>85.7%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>(TO2) Presenting evidence of task prioritization</td>
<td>80%</td>
<td>93.3%</td>
<td>57.1%</td>
<td>80%</td>
<td>92.3%</td>
<td>76.9%</td>
</tr>
<tr>
<td>(TO3) Comfort with nursing topics and terms</td>
<td>85%</td>
<td>80%</td>
<td>64.3%</td>
<td>80%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>(TO4) Information connected between</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>classroom/clinical experience</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO5) Evidence of critical thinking/thought</td>
<td>91.7%</td>
<td>100%</td>
<td>71.4%</td>
<td>100%</td>
<td>92.3%</td>
<td>100%</td>
</tr>
<tr>
<td>(TO6) Expression of what was learned/discovered</td>
<td>48.3%</td>
<td>60%</td>
<td>21.4%</td>
<td>80%</td>
<td>61.5%</td>
<td>55.5%</td>
</tr>
<tr>
<td>(M) The student’s manner of speaking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(M1) Professional manner of speaking</td>
<td>90%</td>
<td>100%</td>
<td>92.9%</td>
<td>80%</td>
<td>84.6%</td>
<td>84.6%</td>
</tr>
<tr>
<td>(M2) Informal tone in speaking</td>
<td>20%</td>
<td>33.3%</td>
<td>9%</td>
<td>60%</td>
<td>15.4%</td>
<td>15.4%</td>
</tr>
<tr>
<td>(M3) Organized manner of presentation</td>
<td>78.3%</td>
<td>80%</td>
<td>85.7%</td>
<td>80%</td>
<td>61.5%</td>
<td>84.6%</td>
</tr>
<tr>
<td>(R) The recording quality, and the tone of the</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>student’s voice (inflection)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(R1) Enthusiastic tone</td>
<td>80%</td>
<td>100%</td>
<td>28.7%</td>
<td>80%</td>
<td>100%</td>
<td>92.3%</td>
</tr>
<tr>
<td>(R2) Bored or frustrated tone</td>
<td>81.7%</td>
<td>66.7%</td>
<td>92.9%</td>
<td>80%</td>
<td>84.6%</td>
<td>84.6%</td>
</tr>
<tr>
<td>(R3) Superficial or distracted tone</td>
<td>66.7%</td>
<td>46.7%</td>
<td>92.9%</td>
<td>60%</td>
<td>61.5%</td>
<td>69.2%</td>
</tr>
<tr>
<td>(R4) Presence of background sounds/voices</td>
<td>66.7%</td>
<td>80%</td>
<td>28.6%</td>
<td>100%</td>
<td>92.3%</td>
<td>53.8%</td>
</tr>
</tbody>
</table>

The mean rating value for each of the items shows that the top 14 out of the total list of 18 rated above a value of four, which is considered “somewhat important.” Ten of this group had
a mean value above 4.5, and 12 had a median value of five. The highest mean values were for “expression of what was learned/discovered” \((M = 4.81, Mdn = 5)\), “evidence of critical thinking/thought” \((M = 4.79, Mdn = 5)\), “caring attitude/empathy for patient,” “the student’s orientation to tasks and learning” (both \(M = 4.76, Mdn = 5\)) and “reflection on experience (personal meaningfulness)” \((M = 4.74, Mdn = 5)\). Of the lowest rated items, eight came from the two factor categories ranked as least important in Q1. The lowest of any rating was “presenting a simple list of tasks performed” \((M = 3.36, Mdn = 3)\) which fell under “the students orientation to tasks and learning,” the category ranked of second importance in Q1.

Twelve of the items in the Q3 list received a median rating of five (“very important”) by the sample population. Oddly, this same group of 12 items received the highest number of NA ratings \((n = 42\) total). The highest of these were “evidence of critical thinking /thought” and “information connected between classroom/clinical experience.” The nine items inside the two highest Q1 categories received the most NA rankings of all \((n = 37\) total). The total number of NA rankings for the items falling in the two categories ranked least important in Q1 was much smaller \((n = 9\) total).

Question five (Q5) of the survey asked respondents to list any other factors they noticed, or felt were important for assessing a student's voice-journal. This question provided 30 responses, which ranged widely. Respondents did not necessarily focus on factors, and only one comment offered a factor to be added, that being “HIPPA compliance.” HIPPA stands for the Health Insurance Portability and Accountability Act enacted in 1996, which demands compliance with strict privacy for individuals concerning health information. This is an important factor in healthcare, and great effort to stay in compliance is always expected in nurses and nursing students. Most of the responses to this question came from female instructors \((n =\)
27). Many comments were specifically aimed toward the theme of student guidance, examples are: “Training or an expectation of what the instructor expects might be helpful to provide before the students’ record their reflection,” and “provide a list of expectations for the reflection rather than letting them just ramble on without direction.” Instructors also commented on elements that should be included in guidance, e.g., “the mention of patient response to treatment or care,” and “I think it would be interesting to have the students discuss areas of improvement or what they might do differently in their next clinical assignment.”

Table 7

<table>
<thead>
<tr>
<th>Q3 Mean/Median Factor Categories and Sub-factors</th>
<th>Q1 M/Mdn</th>
<th>Q3 M/Mdn</th>
<th>Q3* M/Mdn</th>
<th>Q3** M/Mdn</th>
<th>Q3*** M/Mdn</th>
<th>Q3 N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>(C) Care and Meaningfulness</td>
<td>3.25/3</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>(C1) Caring attitude/empathy for the patient</td>
<td>4.76/5</td>
<td>4.9/5</td>
<td>4.43/5</td>
<td>55</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>(C2) Reflection on experience (personal</td>
<td>4.74/5</td>
<td>4.9/5</td>
<td>4.71/5</td>
<td>54</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Meaningfulness)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO) The student’s orientation to tasks and</td>
<td>3.03/3</td>
<td>4.76/5</td>
<td>4.82/5</td>
<td>4.86/5</td>
<td>54</td>
<td>3</td>
</tr>
<tr>
<td>learning</td>
<td></td>
<td>4.76/5</td>
<td>4.82/5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO1) Presenting a simple list of tasks performed</td>
<td>3.36/3</td>
<td>3.55/4</td>
<td>2.71/3</td>
<td>56</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>(TO2) Presenting evidence of task prioritization</td>
<td>4.69/5</td>
<td>4.72/5</td>
<td>4.67/5</td>
<td>58</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>(TO3) Comfort with nursing topics and terms</td>
<td>4.57/5</td>
<td>4.63/5</td>
<td>4.71/5</td>
<td>56</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>(TO4) Information connected between</td>
<td>4.70/5</td>
<td>4.85/5</td>
<td>4.5/5</td>
<td>53</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>classroom/clinical experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TO5) Evidence of critical thinking/thought</td>
<td>4.79/5</td>
<td>4.91/5</td>
<td>5/5</td>
<td>53</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>(TO6) Expression of what was learned/discovered</td>
<td>4.81/5</td>
<td>4.9/5</td>
<td>5/5</td>
<td>54</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>(M) The student’s manner of speaking</td>
<td>1.97/2</td>
<td>4.23/4</td>
<td>4.34/4</td>
<td>3.43/4</td>
<td>60</td>
<td>0</td>
</tr>
<tr>
<td>(M1) Professional manner of speaking</td>
<td>4.54/5</td>
<td>4.63/5</td>
<td>3.86/4</td>
<td>59</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(M2) Informal tone in speaking</td>
<td>3.51/4</td>
<td>3.52/4</td>
<td>3.43/3</td>
<td>59</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>(M3) Organized manner of presentation</td>
<td>4.71/5</td>
<td>4.69/5</td>
<td>4.86/5</td>
<td>59</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(R) The recording quality, and the tone of the</td>
<td>1.77/1.5</td>
<td>3.68/4</td>
<td>3.75/4</td>
<td>3.14/3</td>
<td>60</td>
<td>0</td>
</tr>
<tr>
<td>student’s voice (inflection)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(R1) Enthusiastic tone</td>
<td>4.26/4</td>
<td>4.27/4</td>
<td>4.14/4</td>
<td>58</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>(R2) Bored or frustrated tone</td>
<td>4.16/5</td>
<td>4.18/5</td>
<td>4/4</td>
<td>57</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>(R3) Superficial or distracted tone</td>
<td>4.16/5</td>
<td>4.18/5</td>
<td>4/4</td>
<td>56</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>(R4) Presence of background sounds/voices</td>
<td>3.41/3</td>
<td>3.51/3</td>
<td>2.71/3</td>
<td>58</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

*female , **male, ***total responses,

The survey’s next questions Q6, Q7, and Q8 asked respondents if audio recording a reflective journal is a viable way for students to fulfill a journaling assignment, if voice-journals are useful, and if the instructor would consider using a voice-journal in a course that they teach. A response to these questions was mandatory. The results for each were very positive, with 54
respondents agreeing audio recording a journal was a viable way to fulfill a journaling assignment, that they were useful (n = 53), and they would consider using one in a course they teach (n = 52).

The next questions asked if an instructor should put a recording time limit on the voice-journal (Q9) and if so, how long (Q10). These questions were included as the earlier student pilot study found that voice-journal recording times ranged widely, and were often quite long. Both questions asked for a written response. Fifty-five respondents felt a time limit was necessary, and of the instructors responding to Q10 (n = 57) six stated the time limit would depend on the assignment. All others provided numeric answers that varied from 2 to 15 minutes, with 5 minutes being the most common answer ($M = 5$, $Mdn = 5$, $Mode = 5$).

Question 11(Q11) asked respondents to share any other thoughts or comments related to voice-journals, to which 41 instructors responded. Structure and guidance for students were common themes. Those comments stressed the need for the students to have specific guidance, and be given a prompt structure to help them understand what was required, such as assignment objectives and instructor expectations. Some comments indicated the respondents found the option of allowing students to record their journals a viable and interesting alternative, while some others were adamantly committed to written reflection only. The notion of instructor feedback was mentioned: One respondent stating that recorded feedback from the instructor was inappropriate, and another believing providing spoken feedback was the only fair option to use for students when they were providing voice-journals. The notion of logistical issues and instructor time management was also mentioned, with one instructor saying: “I feel I can read faster than it would take for me to listen to audio journals of all my students. I also think it would be more difficult to provide feedback.”
The end of the survey contained eight questions that gathered demographic data. These were not required responses, though most respondents submitted answers. As mentioned above, 53 respondents were female, seven male.

Responding female instructors who provided their age \((n = 46)\) ranged from 30 to 71 years old \((M = 50.8, Mdn = 51, Mode = 51)\), had been registered nurses from 4 to 50 years \((M = 26.7, Mdn = 25, Mode = 30)\), and had been teaching nursing between 1 and 39 years \((M = 13.1, Mdn = 10, Mode = 10)\). Thirty-five respondents were currently teaching clinical.

Responding male instructors who provided their age \((n = 6)\) ranged from 27 to 61 years old \((M = 46.3, Mdn = 49)\), had been registered nurses between 5 and 43 years \((M = 22.3, Mdn = 17)\), and had been teaching between 3 and 37 years \((M = 12.4, Mdn = 8, Mode = 5)\). Three of these instructors were currently teaching clinical.

When asked what type of position the group of instructors currently held \((Q16)\), 44 were full-time faculty professors or instructors \((Female = 40, Male = 4)\), nine held administrative positions \((Female = 6, Male = 3)\), the remaining group of seven were adjunct clinical, classroom, or simulation lab instructors.

Question 15 asked respondents who were not currently teaching clinical if they had done so in the past, and how long ago. There were 24 responses and some only provided a yes or no answer. Of the 13 who did provide a number, the time range was between 3 and 25 years ago \((M = 9.8, Mdn = 5.5, Mode = 4)\).

Question 17 asked respondents to name their nursing specialty; they could choose from a short list provided, or write in their specialty as a text comment. All of the sample population responded and many named and listed more than one specialty. The highest response rates came for intensive care unit nurses \((n = 8)\), surgery \((n = 7)\), nurse practitioner, \((n = 6)\), psychiatric \((n =
5), obstetrics (n = 4), pediatric, geriatric, community health, cardiac, and oncology each had three.
Chapter VII: Summary and Discussion

The current study used a cross-sectional survey methodology in a two-phase study to find answers to two research questions. The first phase of the study explored and named what unique voice-journal factors nursing instructors perceive for use in assessment (RQ1). Phase two of the study focused on which unique voice-journal factors nursing instructors perceive as being important for use in assessment (RQ2) using a mixed-methods approach. In that process validation of the earlier named factors was sought and those factors were rated for their importance to assessment. It is important to note that most of the instructor respondents in the second phase of the study felt voice-journals to be a useful and viable way for students to fulfill a journaling assignment. Eighty seven percent responded positively to the survey question asking if they would consider using a voice-journal in a course that they teach. As this is the case, it was important that the identified factors be validated and their importance to assessment rated.

Some of the factors in the survey instrument found important to assessment of a voice-journal are not exclusive to the spoken work alone; these can also be conveyed in writing. Which of these factors can be perceived and how they affect assessment is important, but as noted in earlier research literature, the sound of a voice can be a strong indicator of empathy, caring, and underlying emotional content (Marriott & Hiscock, 2002, Ice et al., 2007; King et al., 2008; Hew & Cheung, 2013). These factors can be perceived as well, and because they are unique to the spoken word and to voice-journals they will have an effect on assessment.

In the phase two survey question one (Q1) asked instructors to rank order factor categories they considered important in a voice-journal. The findings from this question were important because they came before the respondents actually heard a voice-journal. The instructors therefore they gave an unbiased view of what types of factors they consider being
most important. The findings indicated instructors above all felt students should convey a sense of care and meaningfulness as well as show a strong orientation to their tasks and learning.

Ranked responses in Q1 clearly showed that these two factor categories were considered of greatest importance and should be a part of a student’s voice-journal. Below these were the two factor categories unique to voice-journals: the student’s manner of speaking and the recording quality and tone of the student’s voice. After listening to voice-journal excerpts and responding to subsequent questions two (Q2) and three (Q3), respondents indicated after hearing a voice-journal that the unique voice-related factors were strongly noticed and should be considered important to assessment of a voice-journal as well.

**Consensus of Noticed Factors**

To validate the factors named in phase one of the study and help answer RQ2, Q2 of the survey asked respondents what factors they noticed when listening to a voice-journal excerpt. The wording specifically asked respondents to mark only the noticed factors. All 15 sub-factor items from the four factor categories in Q1 were presented. When the respondents marked noticed items, some items in the factor groups were left as being “un-noticed” assumedly on purpose, thus yielding a dichotomous scoring relationship upon which to review the data. To examine consensus agreement on the noticed, and un-noticed factors a percentage of respondent agreement was calculated, and a threshold determined. Seventy percent is considered a standard threshold for consensus agreement (Stemler & Tsai, 2008) therefore this is the percentage number used to analyze the consensus data in this part of the study.

All of the factors in the entire list were marked “noticed” by five or more respondents. The most noticed item was nested inside the category of “the student’s manner of speaking.” That item was “informal tone in speaking” and 48 respondents marked it noticed, therefore there
was 80% agreement on this item. The other items within this group were also marked noticed, though not as frequently.

There is a good amount of consensus agreement found on the “un-noticed” factors across all the voice-journal excerpts. Of note, 90% of all the respondents agreed that the students in the excerpts did not use what they would consider a professional manner of speaking, 80% felt the students used an informal tone, and 78.3% did not find the student’s presentation organized.

The scores measured within each of the excerpts show good consensus agreement as well. The total number of scores noticed or unnoticed within the category of “student’s manner of speaking” is 15. This number is calculated by multiplying the total number of excerpts (5) by the total number of sub-factor items within the category (3). Of the 15 item scores within this category group, 13 items had an agreement percentage of 70% or better.

The other factor category unique to voice-journals was “the recording quality and tone of the student’s voice (inflection)” which had four sub-factor items. This category was ranked of lowest importance in Q1. The items falling in this category were marked as “noticed” between 11 and 20 times by the entire group of respondents. The items “a superficial or distracted tone” and “presence of background sounds and voices” were noticed the most. The total number of scores given for items in this category group within all five excerpts was 20. This number was found using the same calculation as notes above. Fourteen of the 20 items met the 70% agreement standard as being “noticed” or “unnoticed.”

The factor categories marked in Q1 as being the most important yielded interesting results, particularly the six sub-factor items under the category “orientation to tasks and learning.” The highest numbers of “noticed” marks here were given to “presenting a simple list of tasks performed” which was marked noticed 35 times. “Expression of what was
learned/discovered,” was noticed 31 times by respondents. Two items “evidence of critical thinking” and “evidence of task prioritization” were only noticed five times each, the lowest number for any of the factors. This strongly suggests that they were not found present in the excerpts. Using the previous calculation, this category group had a total number of 30 scores given for the five excerpt samples and of these 20 met the 70% agreement standard.

The Q1 top-ranked category “care and meaningfulness” had only two sub-factor items. Of these “reflection on experience” was marked “noticed” 35 times, followed by “caring attitude/empathy for the patient” noticed 29 times. Within this category using the above calculation, 10 scores given for the five excerpts and four met the 70% agreement standard.

It is interesting to note when looking at the percentage of consensus agreement for either noticed or un-noticed factors, the highest percentages of agreement for the factor items come in the two categories that are unique to voice-journals those being “the student’s manner of speaking,” and “the recording quality and tone of the student’s voice.” Considering the ratio of agreement above 70% within each of the category groups noted above, 86.6% percent of the respondents are in agreement when scoring the “a student’s manner of speaking” group items, and 70% are in agreement when scoring “the recording quality and tone of the student’s voice” group items. This is followed by a lower 66.6% for “the student’s orientation to tasks and learning” and then falls to 40% for the “care and meaningfulness” category. It appears apparent the instructors can perceive and find at least a 70% consensus agreement when scoring the factor items unique to voice-journals. They also appear to be able to easily perceive the lack of presence of these factors, and the optional comments provided bear this out.

Twenty-four respondents provided optional comments to Q2. They were specifically asked to add any factors or elements they noticed, and the comments all targeted factors
belonging to the specific excerpt to which they had listened. No new factors were provided, and no comments appeared positive. Comment phrases and terms included: “Unsure of self, uninterested and superficial, tone was flat, tired, off-track, and demonstrated vocal fry.” Most comments targeted the categories “student’s manner of speaking,” or “recording quality and tone of the student’s voice (inflection).” Only two comments directly referenced “care and empathy” items, and those were also negative. Some longer comments addressed more than one factor category, usually the student’s orientation to tasks and learning, and included references to the student’s manner of speaking, as an example:

I did not identify any evidence of critical thinking, what was learned during the clinical day, or how learning was beneficial or could be used as a frame of reference for additional learning. I heard no connection between theory and the clinical experience. The reflection was superficial. I'm not sure the student understood the purpose of the clinical experience.

Respondent’s perceptions of the voice-specific sub-factor items can only be subjective in the case of this survey; purposefully no student prompts or rubric by which to judge or score the voice-journal excerpts was provided to respondents. The top ranked categories in Q1 were considered the most important, but when listening to an actual voice-journal there appeared to be an appreciable amount of agreement, particularly at the individual excerpt level, as to what voice-only factors were, or were not perceived. Almost half of the of respondents felt compelled to share thoughts specific to the excerpt they had heard and many of those were generally critical of the student’s manner of speaking and the inflective tone of the student’s voice. These two factors appear to be strongly perceived, and appear to have shaped the response to the voice-
journal. It can be assumed they may also have an effect on how the instructor would assess a voice-journal for a grade.

**Factor Importance**

Question three of the survey further explored RQ2, specifically the second sub-question: “How important to assessment will nursing instructors find these factors.” This question presented the same list of sub-factor items and included three of the factor category headings. It asked respondents to numerically rate on a scale from low (1) to high (5) which items would be important to their assessment of a voice-journal should they give one as an assignment to their students. Respondents could also provide a “not applicable” (NA) rating to each item. Not all the items were rated by 60 respondents, the highest number of responses were for those items listed under “student’s manner of speaking,” which was followed closely by items associated with “recording quality and tone of the student’s voice.” Response rates for the highest ranked categories in Q1 were lower. It can be argued that this could have occurred as a result of respondent fatigue with the survey; the items in those two categories were presented toward the bottom of the list and presumably were the last to be rated. Respondents may have also grown tired of the survey process at the time. It may also be possible that they were not rated because those items were not considered being unique to voice-journals, and therefore not considered appropriate for voice-journal assessment. Items within these two category groups also received the highest number of NA responses, which lends some credibility to this last argument.

All factor items were found at important some level; every factor element in the list was rated above the neutral rank of three. This suggests that none of the listed factors were considered inappropriate for assessment purposes. Average response to items associated with “the student’s manner of speaking” were all well above a neutral response, and gathered the
largest total number of responses for any category group in the survey; only two NA responses were given for this group of four items. The recording quality and the tone of the student’s voice factor group ranked least important in Q1, also had ratings well above a neutral response. Only seven NA responses were recorded for this category’s five items. Between these two groups there are nine sub-factor items and only nine NA responses. When compared to the 37 NA responses to the eight items belonging to the two highest ranked categories in Q1, it seems apparent instructors took notice and felt the student’s manner of speaking, the tone of voice and the recording quality were important when assessing a voice-journal. It should be noted once more, that eight of the nine factor items in these two groups cannot be replicated in a standard text-based journal.

Question five (Q5) simply asked respondents to optionally list any other factors they noticed or felt are important for assessing a student’s voice-journal. Information on what was considered important when creating guidance and an assessment framework was found here. More than one respondent suggested providing some sort of guide for course content and style expectations. Some sort of rubric needs to be in place, as one respondent commented: “Provide a list of expectations for the reflection rather than letting them just ramble on without direction.” Other comments advocating guidance included this one, which also speaks to objective and subjective assessment criteria: “I think it depends on what the purpose of the journal is. If you are prioritizing honesty and self-insight, then those are what I'd be looking for. If you want specific material/topic addressed, then I'd want to see that.”

A very specific rubric outlining expectations was suggested: “[Students] need to demonstrate critical thinking, application of theory content to clinical experience.” Other respondents said the reflection element is essential, and there should be “signs of a deep level of
critical thinking and evidence the experience was meaningful.” Some felt it would be important to have the student discuss areas of improvement and explain what they might do differently the next time, and some felt they should also make mention of the patient’s “responses to treatment or care.”

There were indications in the comments that factors listed in the survey were considered to be valid and appropriate for assessment. The lack of comments in Q5 asking for additional factors to be added, other than one for “HIPPA compliance” seems to reinforce this notion. A respondent also stated that the provided list “covered the factors nicely.” Some directly referenced the list and said:

Items such as bored or superficial tone and presenting a simple list of tasks performed would be an important part of my assessment because it would provide data on student thinking. I would want neither to be present so if I noted these in the recording, it would definitely impact my assessment.

Two other respondents commented: “This is good for the personal meaningfulness reflection because a lot can be gleaned from inflection, tone, and speech” and “presenting a simple list of task performed is not helpful.”

Recording Time

Though this element falls outside of the two research questions it is important to discuss, particularly as assessment involves the commitment to listen in “real time” to a voice-journal. An instructor cannot skim through a voice-journal as they might for a text-based journal, and this was noted in comments coming from the survey.

The word count and recording time of the raw voice-journals from the student pilot study was high. Recording time, though it was not listed is a factor that may play into a voice-journal
assessment scheme. The phase two survey indicated some sort of time limit for voice-journals should be provided. Comments from Q11 showed that some instructors were cognizant of the potential time involved listening to, and assessing voice-journals. Fifty-five of the respondents answering Q9 stated that they would consider imposing a time limit on voice-journal recordings should they use one in their courses. In the subsequent question 57 respondents who answered seemed to feel five minutes was enough, though there were some that felt the limit should depend on the assignment. Two comments in Q11 additionally indicated that both a minimum and maximum time limit might also be considered.

The student pilot study found the mean and median times for a random sample of 25 voice-journals almost 8 minutes long with some going practically the entire allotted length of 10 minutes. Though these students were using a set of prompts to help structure their responses, these prompts were not specifically created for voice-journals. Comments from the students in the pilot study indicated that spontaneity seemed a key element in creating their voice-journals; the students would read the prompt and then begin speaking and divulging their thoughts. The timesaving process of simply being able to speak their thoughts was found to be appealing. Students self-admittedly did not focus so much on being as thoughtful in their responses as they would be in text-based reflection. Setting a time limit as part of a rubric or prompt structure appears desirable as the responses to Q10 seem to indicate. This limited time to speak may as well prompt students to be more concise and more thoughtful in their vocal presentation, which would be a positive outcome.

Beyond providing a time limit when creating the rubric or reflective prompts, instructors in the survey indicated some specific elements to which students should adhere. Question 11 comments indicate things that should be considered when formulating guidance for voice-
journaling. Once comment suggested, “Student(s) should be prepared and concise in presentation,” another stated:

The student needs to clear [sic] describe the purpose and provide detail/evidence of critical thinking and description of what specifically learned [sic] and the positive and negative aspects of the experience. Priority setting and integration of content as well as sounding professional and knowledgeable is important.”

These are not elements unique to voice-journals alone, but seem fitting in providing proper guidance and will assist in avoiding what one respondent termed “rambling.”
Chapter VIII: Conclusion

Limitations for the Current Study

The online survey instrument was lengthy, and contained 19 question items, some requiring several discrete responses. There is a possibility that survey fatigue played a role in the scoring and ratings seen in the second phase online survey. Both the survey’s second and third questions presented long lists of the same factor items to be considered, 15 and 18 items respectively, and those questions came after listening to a voice-journal excerpt.

As the respondents were recruited via their work email, the survey was likely taken while they were at work. That busy and perhaps a distracting environment may have had a confounding effect on their responses. The mean time to complete the entire survey was over 12 minutes, which is long. Respondents may have been distracted and left the survey open while attending to other matters, thus accounting for the long completion times. The possibility of respondent distraction while taking the survey may be considered a confounding factor. It should be noted however, that there were a very high number of responses to all the questions in the survey, many of which were not mandatory. There were as well, a large number of optional sometime extended comments provided. Sixty of the consenting 70 respondents completed the entire survey, which seems to indicate that even though the survey process was long, most respondents felt enough interest to complete it.

The sample of instructor respondents in both phases of the study was relatively small, and localized to only a few schools in the Midwest United States. Findings therefore are limited, and may not be consistent with what might be seen in a larger survey, or a survey run in another location. Because of these limited samples, the findings may not be applicable to the general population of nursing students or instructors. There was a wide range of age in the instructor
respondents; the majority of these groups were middle-aged. Their familiarity and comfort with newer technologies, particularly multi-media applications used in pedagogy may also be a confounding factor. Because this is an innovative use of technology, and unfamiliar to instructors the halo effect may have also caused bias, and led respondents to view this type of journal type as attractive as well.

**Conclusions**

This research represents a small early step in the process of integrating voice recording as part of a pedagogical strategy. It builds upon a commonly used tool, reflective journaling, but adapts that tool to the technical capacities and time demands of the present day. Students in an earlier pilot study found being able to record a voice-journal attractive, and timesaving. However, they appear to have lacked skill in presenting themselves and their thoughts effectively by way of the recorded speech. The voice-journals excerpts used in this survey instrument were perceived by the respondents to be verbally informal, rambling, and sometimes only a litany of tasks performed. They did not show much connection between the classroom and the clinical experience, and showed little evidence of critical thought. Though this might not be the case for all voice-journals, these tendencies were found common in the random samples chosen for this study. Respondents easily perceived and often had a consensus agreement on the presence of, or lack of presence of the voice-journal factors provided, and felt willing to make comments referring to them. Because of this, these unique factors can be considered valid elements that may play into an instructor’s assessment. Respondents overwhelmingly felt these unique factors to be important in their hypothesized assessment process, thus answering both parts of the second research question.
Good communication skills include both the written and spoken word and are required in nursing as well as many other professions. The student’s manner of speaking, the tone of their voice, and their vocal presentation skills appeared to be easily perceivable, and these unique voice-journals factors, along with factors that can also be found in written reflection are important to assessment. Instructors who responded to this survey found the ability of students to record a journal reflection interesting, viable, and possibly worth trying in a course of their own.

Perceptions of these communicative elements are subjective, and lacking a specifically designed rubric these elements may not be able to be assessed appropriately. Survey comments however show that these elements appear to shape the instructors perceptions of a student’s learning and development. Elements that are not necessarily unique to voice-journals such as connecting the classroom and clinical experience, evidence of critical thinking, indications of personal reflection, and expressions of care and empathy for the patient were indicated as being perceivable in the survey. Much as in text, the manner in which these elements are presented for assessment is shaped by the way they are relayed. Survey comments indicated that an assessment can be shaped by how those elements are presented vocally. Repeated use of a tool or modality constitutes a strategy of practicing, which over time makes tends to make things better. Perhaps repeated use of this type of modality might provide better oral presentation skills, the notion put forward by Hew and Cheung (2013).

**Voice-journal Recommendations**

Factors unique to voice-journals perceived in question two of the survey and deemed important in question three should be considered and included as part of a prompting and assessment process. They are elements to assist students in structuring their journals, and by extension their ability to professionally communicate. Question and comment data coming from
the survey suggests that instructors should prompt students to be cognizant of the tone of voice used when recording a voice-journal, and be precise and focused in their manner of speaking. They should always be conscious of HIPPA compliance, and should attempt to not sound bored, superficial, or uninterested in their presentation. The students should make attempts to sound professional, on topic, and comfortable using terms appropriate to the profession. They should be organized and verbally concise in their presentation, and use an appropriate amount of recording time. To this end, time limits should be included in the voice-journal guidelines.

Students should be instructed, or somehow guided to go beyond providing only a simple list of tasks performed in their voice-journals. They should attempt to critically tie information from their classes to the clinical experience in a reflective manner that focuses on personal and professional improvement. Students should also take care to present an attitude showing care and empathy for the patients they report on.

**Future Research Considerations**

There is much still to be discovered, and there are many paths for future research to follow in this area. Further study should consider the actual assessment of voice-journals in a course, specifically measuring the effects of guidance structured for creating this type of journal. Such research could examine and compare side-by-side groups of students using different guidance structures over a course semester. Timed observations of voice-journals through the course term can look for evidence of specific features or factors resulting from that guidance in either group. Should interim measures be taken, immediate alteration of the guidance structure can then be made to better its function. Future research can also take longitudinal measurement of how a student’s journaling and communication skills develop over time using this guidance. To that end a rubric for measurement, built on some of the factors named in the current study can
be developed. Periodic measurement can be taken annually, or over shorter time spans to measure student’s change and development.

Research should be considered to see if there is transference of the communication skills learned by creating voice-journals to other environments. Such environments can include other college courses, interactions in the work place, or in professional interactions with those outside the immediate workplace.

Research should examine the procedures students will integrate into the voice-journal creation process; will the process still be a spontaneous one, or somehow be different. Qualitative research can examine a student’s voice-journal preparations, including their informal documents and notes. Comparing these preparation items with the subsequently created voice-journals can help provide useful information for creating student guidance. It will as well deliver a better understanding of the voice-journaling process.

Because reflection is not unique to just the nursing education, research should also be done using this same reflective journaling approach in other disciplines. This would require research into what unique voice-journal assessment factors may be important to educators in those realms. Of particular interest may be the artistic disciplines where the creative process is internally driven and reflection is key.
References


doi:10.1108/00400910310484321


doi:10.1016/j.asw.2014.06.002


doi:10.1080/02602938.2012.697868


Appendix A

Consent Form for Research – Instructor and Students
University of Cincinnati

College of Education, Criminal Justice and Human Services

Division of Teacher Education

Principal Investigator: Dana Tindall
Faculty Advisor: Kyeong Ju Seo, PhD

Title of Study: Student Reflection with Technology: Blogging Using Voice Discussion Boards

Introduction:

You are being asked to take part in a research study. Please read this paper carefully and ask questions about anything that you do not understand.

Who is doing this research study?

The person in charge of this research study is Dana Tindall of the University of Cincinnati (UC) Division of Teacher Education. He is being guided in this research by Dr. Kyeong Seo.

What is the purpose of this research study?

The purpose of this research study is to explore the following two questions.
1. What are students' and instructors' perceptions of voice-based discussion compared to text-based discussion?
2. How is the content and substance of student posting different between voice-based and text-based discussion?

Who will be in this research study?

Up to 150 people will take part in this study. You may be in this study if you are the instructor or a student in one of the targeted course sections at Xavier University.

What will you be asked to do in this research study, and how long will it take?

There are three parts to this research study. You may choose to participate in some or all of them. The whole study will last until the end of the current academic year.
1. Online discussions that are part of required class assignments – student participants only.

Your course requires participation in online reflective discussion forums through Blackboard as part of the teaching and learning process. These online postings are required whether or not you decide to be in this research study.

For this research project, the investigator would like to use selected postings as research data, to be analyzed along with other data collected below. Not all postings will be used, but if you consent to be in this research study some of your postings may be analyzed. Half of the students in your course section will be instructed to post their online reflective assignments on Blackboard using text-based technology. The other half will use Blackboard's Wimba Voice Board® voice-based technology.

Although all students will post with text and voice technology as part of their course assignments, only postings from students who have given consent may be selected for analysis for research purposes. Specifically, random postings including text and voice postings will be selected.

2. Questionnaires about online discussions – student participants only.

Early in the term an online questionnaire will be distributed using a special Blackboard course shell to all consenting students in the class. It will ask for individual attitudes, familiarity, and comfort level of the online discussion tools. Completing the questionnaire will take about 5 minutes. Only students who are participating in this research study will complete the questionnaire.

A final questionnaire will be distributed to consenting students using the same method as above near the end of the term. It will be similar to the first questionnaire.

The questionnaires will ask for your name so all your research data can be linked together to give a complete picture but your name in all parts of this study will be replaced as soon as the data is collected by a random number.

3. Individual interviews about online discussions – student and instructor participants.

Near the end of the term the instructor and some student participants will be invited to take part in an individual interview with the investigator. The interview will be audiotaped. It will be held in a private location at the Xavier University library and will last for about 30 minutes. Similar questions about technology use will be used for student and instructor participants.

Are there any risks to being in this research study?

There are no risks from being in this study. None of the questions ask for sensitive personal information. The course instructor will not know which questionnaire or interview answers were given by an individual student, or even whether a particular
student did or did not participate in the study until after the end of the course. Participation or non-participation will have no effect on students' course grade.

**Are there any benefits from being in this research study?**

There are no benefits to you from being in this study. However, this study may help teacher educators use technology more effectively.

**Will you have to pay anything to be in this research study?**

You will not have to pay anything to participate in this study.

**What will you get because of being in this research study?**

You will not receive anything because of participating in this study.

**Do you have choices about taking part in this research study?**

Students will only be asked to participate if their instructor has already agreed to take part in this study. Students who do not want to take part in this research study may turn in a blank consent form and blank questionnaires. Students may participate in any or all parts of this study. For example, a student may give consent for his/her postings to be used for research purposes but then not fill out one or more of the questionnaires.

If you agree to be interviewed but do not want to be tape recorded, you may ask that the recorded be turned off.

**How will your research information be kept confidential?**

Information about you will be kept confidential by removing your name as soon as possible. The researcher will replace your name with a pseudonym or study ID number on the discussion postings, questionnaires and interview. Signed consent forms, the master list linking names and pseudonyms/ID numbers, and all research data will be kept in separate locked drawers in the researcher's desk. The data from the study may be published but you will not be identified by name.

Your information will be locked in the researcher's office for 5 years after the end of the study. After that it will be destroyed by shredding paper documents and erasing audiotapes and deleting digital files.

Agents of the University of Cincinnati may inspect study records for audit or quality assurance purposes.

**What are your legal rights in this research study?**
Nothing in this consent form waives any legal rights you may have. This consent form also does not release the investigator, the institution, or its agents from liability for negligence.

**What if you have questions about this research study?**

If you have any questions or concerns about this research study, you should contact Dana Tindall at 513-745-3235 or Dr. Kyeong Seo at 513-556-2531.
Appendix B

Student Pilot Study Questionnaire (post-intervention)

Please respond to each question, and select the number between 1 (strongly disagree) and 5 (strongly agree) which comes closest to your feelings on the statement. Checking 3 would be considered a neutral response.

1. I am comfortable using technology.
2. I am comfortable with online class work.
3. Reflection is a useful educational tool.
4. As a course element I like to use reflection.
5. I have recorded my voice on a computer or digital audio recorder before.
6. I am comfortable recording my voice on a computer.
7. I am comfortable recording my voice on a digital audio recorder.
8. I feel comfortable with the sound of my recorded voice.
9. I feel comfortable with another person listening to my recorded voice.
10. I am comfortable reflecting in writing.
11. I am comfortable using speech to voice my reflections.
12. In general would rather speak than write my thoughts.
13. I would prefer to use a voice discussion board to post my assigned reflections.
14. I would prefer to use a text discussion board to post my assigned reflections.
15. Briefly describe below your personal feelings toward technology.
16. Briefly describe how you feel reflection relates to learning.
17. Briefly describe how you react to changes in a technology you use often.
18. I am in group A / B (choose one)
Appendix C

Phase One Student Reflection with Technology Survey

Step 1

When I listen to the student’s voice-journal I expect to notice:

1. Informality
2. Emotion
3. Conversational voice
4.
5.
6.
7.
8.
9.
10.
11.
12.

Step 2

Respondents listen to two short excerpt voice journal excerpts in this step

Step 3

After listening to the student’s voice-journal please write down what factors you noticed, and then rate from 1(low) to 5 (high) how useful each one is for assessing a student’s voice-journal.

1. Informality
2. Emotion
3. Conversational Voice
4.
5.
6.
7.
8.
9.
10.
11.
12.

- Would you consider using student’s recorded voice as a means for fulfilling a reflective assignment in a course you teach?
- Would you place a time limit on the length of a student’s voice-journal, and how long would that limit be?
- Do you have any other comments about voice journals?

**Revised Phase One Student Reflection with Technology Survey**

**Step 1**
When I listen to the student’s voice-recorded journal in step two, I expect I will take particular notice of: (please select all that apply)

- The student’s manner of speaking
- The recording quality, and tone of student’s voice (inflection)
- The student’s orientation to tasks and learning
- Caring and meaningfulness

Other: ________________________________

**Step 2**
Respondents listen to a single short excerpt of a voice journal in this step

**Step 3**
When I listened to the voice-journal I noticed:
(please select all that apply)

- A professional manner of speaking
- An informal tone in speaking
- An organized manner of presentation
- An enthusiastic tone
- A bored or frustrated tone
- A superficial or distracted tone
- The presence of background sounds/voices
- A simple list of tasks performed
- Evidence of task prioritization
- Comfort with nursing topics and terms
- Information connecting the classroom and clinical experience
- Evidence of critical thinking /thought
- An expression of what was learned/discovered
- A caring attitude/ empathy for patient
- A reflection on experience (personal meaningfulness)
Assume you are assessing a student’s voice-journal submitted as an assignment for your course; please rank each item below from 1 (not important) to 5 (very important) in terms of its significance to your assessment.

____ Student’s manner of speaking
____ Professional manner of speaking
____ Informal tone in speaking
____ Organized manner of presentation
____ Recording quality and tone of student’s voice (inflection)
____ Enthusiastic tone
____ Bored or frustrated tone
____ Superficial or distracted tone
____ Presence of background sounds/voices
____ Student’s orientation to tasks and learning
____ Presenting a simple list of tasks performed
____ Presenting evidence of task prioritization
____ Comfort with nursing topics and terms
____ Information connected between classroom/clinical experience
____ Evidence of critical thinking /thought
____ Expression of what was learned/discovered
____ Caring and Meaningfulness
____ Caring attitude/ empathy for patient
____ Reflection on experience (personal meaningfulness)

Other: _____________________________________________

Students’ audio-recording a reflective journal is a viable way for them to fulfill a journaling assignment. Y N

Would you consider using students’ recorded voice-journal as a means for fulfilling a reflective assignment in a course you teach? Y N

If you planned to use a recorded voice-journal for your course, would you consider imposing a time limit length? Y N

What would that time range be? _________________________

Do you have any other thoughts or comments about voice-journals you would like to share?

How many years have you been a nurse? _____________

How many years have you been teaching nursing in some capacity? ______________

Are you currently teaching clinical? Y N
If you are not currently teaching clinical, have you taught clinical in the past, and how long ago?  Y  N  How long ago ____________________________

Which position most closely aligns with your current teaching position:
• adjunct clinical instructor
• adjunct classroom instructor
• full-time faculty instructor
• department chair or administrator

Which of the categories/areas of nursing below do you consider your specialty area at this time:
▪ Pediatric
▪ Geriatric
▪ Palliative Care
▪ Obstetrics
▪ ICU
▪ Oncology
▪ Psychiatric
▪ Nurse Practitioner
▪ Other, or provide a additional more specific category if desired ________________

My age is: _______

I am Female  Male
Appendix D

Phase Two Online Recruiting Email

Dear _____________,

My name is Dana Tindall and I am writing to request your assistance.

I am student at the University of Cincinnati working on my dissertation for completion of an Ed.D. in Instructional Design and Technology. My research examines student and instructor perceptions of recorded voice-journals used as reflective assignments after clinical experiences by nursing students.

In my study nursing students as part of a semester-long journaling assignment were asked to audio (voice) record their reflective journals after clinical experiences and send them to the instructor rather than provide them in text as they would normally.

This phase of the study seeks to get information from instructors of nursing. There are three sequential parts: answering a survey question, listening to a single short “voice-journal” sample, and answering other brief survey questions. All survey items require you only make a choice, none require text input. All three steps are administered online, and can be completed anytime and anywhere with an Internet connection. The survey data is anonymous, and beyond asking some demographic data, does not collect any personal information. The entire process will take approximately 10 minutes of your time.

If you are interested in helping, please click the hyperlink at the bottom of this email to go to the University of Cincinnati IRB study consent form. Clicking a hyperlink at the bottom of that consent form will signal consent to participate and will then take you directly to step one of the study procedure.

Thank you very much for consideration. If you have any questions please feel free to contact me (dana.tindall@thechristcollege.edu or at my work number: 513-858-4026).

Click here to go to the consent document

Again, thank you,
Phase Two Online Consent Form

Consent Form for Research – Instructor and Students
University of Cincinnati

College of Education, Criminal Justice and Human Services

Division of Teacher Education

Principal Investigator: Dana Tindall
(513-585-4026 / mailto:tindalda@email.uc.edu/
dana.tindall@thechristcollge.edu)
Faculty Advisor: Kyeong Ju Seo, PhD

Title of Study: Student Reflection with Technology: Blogging Using Voice Discussion Boards

Introduction:

You are being asked to take part in a research study. Please read this carefully and ask questions about anything that you do not understand.

Who is doing this research study?

The person in charge of this research study is Dana Tindall of the University of Cincinnati (UC) Division of Teacher Education. He is being guided in this research by Dr. Kyeong Seo.

What is the purpose of this research study?

The purpose of this research study is to explore the following two questions.

1. What are students' and instructors' perceptions of voice-based student reflective journal to text-based student reflective journal?
2. How is the content and substance of student journals different between voice-based and text-based versions?

Who will be in this research study?

Up to 600 people will take part in this study. You may be in this study if you are an instructor of Nursing.

What will you be asked to do in this research study, and how long will it take?

The investigator is interested in discovering what factors unique to reflective voice-journals do nursing instructors perceive for assessment of student reflection. There are three steps for you to complete as a consenting participant in this study. It will take approximately 10 minutes of your time to complete all three steps. The research will take place online at a time of your convenience, and at a location of your own choosing.
1. By clicking “I Consent to Participate in the Study” hyperlink at the end of this consent document, you will be taken to a survey website and asked to select answers to two short questions.

After making those selections, you will be asked to listen to a short (approximately 2-3 minute) sample of a student’s voice-journal.

2. After listening to the voice-based journal you will then select answers to some survey questions asking you about the factors you noticed when listening, along with some demographic information.

Are there any risks to being in this research study?

There are no risks from being in this study. None of the questions ask for sensitive personal information, and all questionnaire data collected is anonymous.

Are there any benefits from being in this research study?

There are no benefits to you from being in this study. However, this study may help educators use technology more effectively.

What will you get because of being in this research study?

You will not receive anything because of participating in this study.

Do you have choices about taking part in this research study?

You have a choice whether or not to take part in this study. There is a hyperlink at the end of this page to indicate your choice to participate. If you do not want to take part in this research study you may simply disregard this request for participation and close this webpage.

How will your research information be kept confidential?

No identifying information about you will be collected. Your responses are confidential and anonymous. The information you provide will be taken offline, stored digitally on a password protected hard drive locked in the researcher’s office. The data will finally destroyed by digital deletion 5 years after the study is complete.

Though great efforts for security will be taken, the researcher cannot promise that information sent by the Internet or email will be private.

Agents of the University of Cincinnati may inspect study records for audit or quality assurance purposes.

What are your legal rights in this research study?
Nothing in this consent form waives any legal rights you may have. This consent form also does not release the investigator, the institution, or its agents from liability for negligence.

**What if you have questions about this research study?**

If you have any questions or concerns about this research study, you should contact Dana Tindall at dana.tindall@thechristcollege.edu phone: 513-585-4026 or Dr. Kyeong Seo at 513-556-2531.

The UC Institutional Review Board reviews all research projects that involve human participants to be sure the rights and welfare of participants are protected.

If you have questions about your rights as a participant, complaints and/or suggestions about the study, you may contact the UC IRB at (513) 558-5259. Or, you may call the UC Research Compliance Hotline at (800) 889-1547, or write to the IRB, 300 University Hall, ML 0567, 51 Goodman Drive, Cincinnati, OH 45221-0567, or email the IRB office at irb@ucmail.uc.edu.

**Do you HAVE to take part in this research study?**

No one has to be in this research study. Refusing to take part will NOT cause any penalty or loss of benefits that you would otherwise have.

You may start and then change your mind and stop at any time.

**Agreement:**

I have read this information and have received answers to any questions I asked. By clicking on the “I Consent to Participate in this Study” hyperlink below I give my consent to participate in this research study.

**BY CLICKING ON THE HYPERLINK BELOW YOU INDICATE YOUR CONSENT FOR YOUR QUESTIONNAIRE ANSWERS TO BE USED IN THIS RESEARCH STUDY.**

Click here: I consent to participate in this study

**PLEASE CLICK HERE TO DOWNLOAD, PRINT, AND SAVE THIS CONSENT INFORMATION FOR YOUR REFERENCE.**
Appendix E

Phase Two Survey Start Message:

Thank you very much for agreeing to participate in this study.

For this study junior-level students of nursing at a Midwestern college, as part of a semester-long reflective journaling assignment, were asked to audio record their journals after a clinical experience and send them to the instructor rather than provide them in text as they would normally. Students were required to respond to a common set of prompts for this assignment.

There are three steps for you to complete. First, you will select an answer to a question. You will then be played a short sample of a nursing student's voice-journal (about 2-3 minutes long). After listening to the voice-journal you will be asked to select answers to a few short questions. This will complete your participation in the study.

Phase Two Survey Instrument

Q1. When listening to a student's voice journal, which of the following categories are most important to you? Using the small arrows please click and drag the items to rank them from top (most important) to bottom (least important).

- The student’s manner of speaking
- The recording quality, and the tone of the student’s voice (inflection)
- The students orientation to tasks and learning
- Care and meaningfulness

In this step you should listen to a single voice-journal. Please click a check box next to any one of these journals excerpts below, and then click the "play arrow" next to your selection to listen. (you only need to listen to one)

- Voice-Journal
- Voice-Journal
- Voice-Journal
- Voice-Journal
- Voice-Journal

Q2. When I listened to the voice-journal I noticed: (please check all that apply)

- A professional manner of speaking
- An informal tone in speaking
- An organized manner of presentation
- An enthusiastic tone
- A bored or frustrated tone
Q3. Assume you are assessing a student’s voice-journal submitted as an assignment for your course; please rank each item below from 1 to 5 in terms of its significance to your assessment. (choices provided: not important at all = 1, not very important = 2, neutral = 3, somewhat important = 4, very important = 5 not applicable = 0)

- Students manner of speaking
- A professional manner of speaking
- An informal tone in speaking
- An organized manner of presentation
- The recording quality, and tone of student’s voice (inflection)
- An enthusiastic tone
- A bored or frustrated tone
- A superficial or distracted tone
- The presence of background sounds/voices
- Student’s orientation to tasks and learning
- A simple list of tasks performed
- Evidence of task prioritization
- Comfort with nursing topics and terms
- Information connecting the classroom and clinical experience
- Evidence of critical thinking/thought
- An expression of what was learned/discovered
- A caring attitude/empathy for patient
- A reflection on experience (personal meaningfulness)

Q5. Please list any other factors you noticed, or feel are important for assessing a student's voice-journal here. Yes/No

Q6. I think students’ audio-recording a reflective journal is a viable way for them to fulfill a journaling assignment. Yes/No
Q7. I think voice-journals are useful. Yes/No

Q8. Would you consider using students’ recorded voice-journal as a means for fulfilling a reflective assignment in a course you teach? Yes/No

Q9. If you planned to use a recorded voice-journal for your course, would you consider imposing a time limit length? Yes/No

Q10. If you did choose to impose a time limit length, what would that limit be?

Q11. Do you have any other thoughts or comments about voice-journals you would like to share?

Q12. Please enter below the number of years you have been a nurse.

Q13. Please enter below the number of years you have been teaching nursing in some capacity.

Q14. Are you currently teaching clinical? Yes/No

Q15. If you are NOT currently teaching clinical, have you taught clinical in the past and how long ago?

Q16. Please indicate your present primary teaching position.
   - Adjunct Clinical Instructor
   - Adjunct Classroom Instructor
   - Full-Time Faculty Instructor/Professor
   - Nursing Department Chair or Administrator
   - Other (text response)

Q17. Which of the categories/areas of nursing below do you consider your specialty area at this time:
   - Pediatric
   - Geriatric
   - Palliative Care
   - Obstetrics
   - ICU
   - Oncology
   - Psychiatric
   - Nurse Practitioner
   - Other (text response)

Q18. Please enter your age (optional)

Q19. Please indicate your gender
Phase Two Finish Message

Thank you very much for your assistance with this study. You may close this browser window.