

Digital Storytelling

An Innovative Technological Approach to Nursing Education

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This study investigated the impact of using digital stories in promoting deeper understanding in nursing students about palliative care concepts. Students (N = 134) created a 5-minute narrated digital story utilizing VoiceThread technology that synthesized and applied knowledge that had been presented in class and course readings. Postsurvey and focus group evaluation data revealed that through the writing and sharing of digital stories, students embraced the personal and complex nature of palliative care.

Keywords: digital storytelling; nursing education; palliative care education; teaching methods; technology innovation

Digital stories are multimedia movies that may include photographs, video, animation, sound, music, text, and often a narrative voice.¹ Storytelling is an effective medium that can be used to capture and share tacit knowledge, enhance reflective learning, and promote communities of practice.² Thus, digital storytelling marries the strength of narrative and technology. To fully realize the learning potential of digital storytelling, stories must be shared among learners, and individuals need opportunities to collaboratively reflect on them.³ The process of creating, sharing, and discussing digital stories, therefore, can be a bridge linking abstract concepts to personal experiences that overall enhances the learning experience.

This study investigated how digital storytelling affects learning processes, and how educators can effectively scaffold learners' creation of digital stories and leverage new technologies to facilitate peer learning and sharing. The research questions for this study were as follows:

1. How can digital storytelling be used to enhance the student learning experience about palliative and end-of-life care?

2. How does sharing and peer feedback of digital stories impact the students' learning experience?
3. What are the essential elements of information technology needed to support the digital storytelling process?

Background

The interest in applying digital storytelling in educational contexts has grown in recent years. Prior literature has documented many cases in which educators have explored the use of digital storytelling in classrooms, professional training in organizations, and various communities.⁴⁻⁶ In higher education, students come to learning contexts with a wide variety of levels of prior knowledge and experience. In order to fully realize the learning potential of digital storytelling, stories must be shared among learners, and individuals need opportunities to collaboratively reflect on the stories.³ As students provide feedback on their peers' work, individual learners can extend their own knowledge through the continuous collaborative discourse.^{7,8}

Prior research on digital storytelling has demonstrated the power of sharing to promote collaborative learning. For example, Hardy⁹ found that health care professionals were able to use digital stories to grow their empathy with others, leading to positive changes in their attitude and practice that can ultimately transform and humanize the delivery of health care. Sharing and discussing digital stories among peers can expose learners to different experiences, cultures, and perspectives within the common course context. Instructional scaffolding is the provision of sufficient support, with appropriate fading over time, to promote learning when concepts and skills are being first introduced to students.^{10,11} However, little is known about how to leverage technology tools and instructional scaffolding to promote the effective use and sharing of digital stories.

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Methods

The subjects for the study were fourth-year nursing students (N = 134) enrolled in the Nursing Care of Patients With Complex Needs II course at a large Midwestern university. The palliative care content is 1 module of learning in this course. The course educates students to synthesize knowledge and skills required of new graduates including refinement of clinical judgment and reasoning, problem solving, priority setting, time management, and interdisciplinary collaboration and communication. Students are expected to demonstrate increased independence in planning, implementing, and evaluating nursing care for multiple patients with complex needs.

Pilot Study

An investigation of how digital storytelling affects the nursing students' learning experience of palliative and end-of-life care concepts was conducted in Fall term 2012. This initial study investigated differences in students' perceptions about having a reflective paper-based assignment versus a digital storytelling assignment. This study also served as an opportunity to test and refine the technology choices and initial scaffolding. Approval from the university institutional review board was obtained for the use of the data collected from the student sample groups. Student anonymity was maintained in the data analysis.

Senior-level undergraduate students (n = 66) were assigned prelearning work of readings, videos, and a voice-over Microsoft PowerPoint (PPT) presentation about the tenets of palliative care. In class, a 4-person panel of patients and/or family members shared their personal stories and experiences with palliative and end-of-life care and answered questions from the student audience. Patients and family members are routinely used in this institution's nursing education programs, and participation was secured through the affiliated health system's Patient and Family Centered Care Program.

The students were then evenly divided into 2 groups and assigned to complete a reflection assignment about palliative care, in a 1-page paper or a 5-minute video. Both assignments were graded using a 5-point rubric, which evaluated organization, identification of salient concepts, application of concepts to professional practice, following guidelines, and incorporation of course materials. After submitting these assignments, the paper and video groups were rotated, and students were assigned the other format. The learning goals for the first reflective paper and video assignments were to have students identify what they thought were the most salient points from the module on palliative and end-of-life care (the online modules, film[s], and patient/family panel) and identify how they would apply this in their own professional practice and/or daily life. The second assignment's learning goals were to have students think about the most salient points in management of dyspnea in patients with advanced illness or end of life and then tell the story about how these points affect or relate to the care of their patients, including their own experiences and beliefs. The instructors chose 4 videos that best exemplified project objectives to discuss with students during a summary class session.

Students participated in an online post project evaluation survey following completion of both projects. The survey contained 6 items that asked students to rate their agreement on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree) as to whether each project promoted new insights,

fostered deep learning, helped them to think more critically, changed their perceptions, and would help them apply this content to their practice. Another item asked students to rate both assignments on a 7-point Likert scale from 1 (dislike extremely) to 7 (like extremely). There were also 4 open-ended questions that queried students about what they liked and disliked most about each assignment.

Pilot Study Results

Students rated both the paper and video assignments neutrally on scales measuring their perceptions of the assignments helping to promote new insights, think more critically, and foster deep learning. Students rated the paper (mean, 4.03 [SD, 1.22]) significantly higher than the storytelling video (mean, 3.18 [SD, 1.39]) assignment ($t_{64} = 4.018, P < .001$). Students reported (positively) that the paper assignment was easy and simple and helped them think and reflect about the concept. Conversely, they (negatively) stated that the paper was too short to adequately express their opinions, the instructions lacked specificity, and the learning outcomes were unclear. The comments about the storytelling video assignment stated (positively) that it encouraged creativity; was unique, fun, and easier than a paper; and (negatively) had significant technical problems, was time consuming, and lacked direction from the instructors. Overall, students thought that more directions, examples, and time to complete both assignments would be necessary for future iterations.

Despite significant video technical problems presented by different versions of voice-over PPT and different hardware configurations, students demonstrated the potential for deep integration and synthesis of course concepts and application to their clinical experiences. Their reflections included critical thinking about core concepts including professionalism, communication issues, interprofessional relationships, and individualized and tailored nursing care (vs prescribed care). Furthermore, the faculty recognized that additional supports were needed to assist students with project scaffolding and development.

Main Study

A second study was implemented during the Winter term 2013 with the remaining senior nursing students (n = 68). To alleviate the technical issues presented by using voice-over PPT, the investigators used an online software tool called VoiceThread (<http://voicethread.com/>), which allows users to upload content, record narration, and share the material with instructors and/or other students more easily.¹² VoiceThread is an application that runs inside the Web browser and allows sharing of one's work (documents, PPT, video, etc) into a place for viewing and discussion. Discussions are not live but take place asynchronously, when convenient for participants. Discussion feedback from participants can be written or oral. Each participant is identified by their own icon/picture so that all participants can hear and/or read each other's feedback.

Scaffolding was provided in terms of specifying the elements of digital storytelling presentations and included point of view, dramatic question, emotional content, gift of voice, power of the soundtrack, economy, and pacing. Scaffolding also included modeling professional presentation behavior, increased specificity of the assignment directions, and explanation to the students justifying the time and effort required for digital storytelling.

Based on the results of the pilot study, the instructors decided to forego the reflective paper and instead focus on the digital storytelling video assignment. Small group sharing and commenting were added using the software, providing students with prompts, coaching, a grading rubric for assignment elements, and story ranking procedures.

Procedure

The nursing students completed an online presurvey as part of their assigned coursework prior to the introduction of the palliative care content. This survey collected students' perceptions about palliative care nursing competencies¹³⁻¹⁵ and their perceptions about their engagement¹⁶ in the course and nursing overall.¹⁷ Students were then assigned prelearning work similar to the pilot study's materials. These materials were designed to provide a common grounding and shared understanding as well as help students recall their prior knowledge.^{18,19} Several patients and families who had personal experiences with palliative care were invited to share their stories with the students in an interactive panel during class. This panel provided an opportunity to "trigger" students' sense-making processes that can ultimately increase the learner's understanding and awareness.^{9,20,21}

Following the panel, the instructors introduced the digital storytelling assignment, including the learning goals and evaluation rubric. To assist them in developing their individual stories, faculty directed students to additional resources and use of the VoiceThread technology. The students were instructed to create a 5-minute digital story that synthesized concepts from the prelearning elements of palliative and end-of-life care with the students' prior experiences and knowledge. Students were encouraged to collect media (visual, audio, etc) that enhanced their story and were in compliance with HIPAA regulations. Use of Creative Commons-licensed multimedia materials (<http://search.creativecommons.org/>) was encouraged. To avoid constraining students' creativity, the instructors did not share digital stories from the previous term.

After the students' submission of their digital story, they completed an online midterm survey that replicated the engagement questions from the presurvey and also asked students to provide feedback about the digital story creation process, the scaffolding provided, and their experience with the digital tool. The timing of this survey was critical to assess students' engagement while their recollection was still strong and not biased by the peer sharing and commenting component of the digital storytelling process.

Next, the nursing students were organized into groups of 6 to 7, and their digital stories were shared online within their peer group using the VoiceThread technology. Each student was required to comment publicly on all of the digital stories in their group. Instructions for giving constructive feedback were provided by the faculty. Students completed an online evaluation in which they ranked each video in their group, other than their own, and provided a short explanation for their rankings. The grading rubric was restated in this form to prompt students' ranking choices. These types of prompts help learners reflect, plan, and monitor their learning.²²

The instructors graded the students' digital stories using the rubric, which guided the evaluation of students' synthesis of palliative care and end-of-life concepts with their prior experiences and knowledge, as reflected in their digital story.

The grading rubric for the assignment is in Figure, Supplemental Digital Content 1, <http://links.lww.com/NE/A172>. The instructors also identified student videos that had been ranked highest by the peer groups to share with the entire class.

Following the in-class presentation of the highest peer-ranked digital stories, the students completed an online post-project evaluation survey to provide feedback on the overall digital storytelling process and specific feedback on the peer sharing, commenting, and rating activities. Student's ratings and qualitative feedback on these surveys were used to inform the protocol for follow-up student focus groups. Four focus groups of 4 to 6 students each were asked to provide specific feedback on the digital storytelling assignment, their peer interaction, the technology tool, and other aspects of the research project. The focus group sessions were recorded and subsequently transcribed, then analyzed for themes using the thematic content analysis approach, adapted from Glaser's and Strauss's grounded theory methodology.²³ Instructors were also prompted to reflect and comment on students' knowledge and synthesis as demonstrated in the digital stories.

Results

How can digital storytelling be used to enhance the student learning experience about palliative and end-of-life care? Students were given the option for developing their digital stories about palliative and/or end-of-life care, and the story could be from a personal or professional perspective. The overwhelming majority of students chose to use a story about a family member. Types of stories that were produced included the illness of an immediate or extended family member or a personal friend.

One student's personal end-of-life story revolved around her father's terminal illness and subsequent death that occurred while she was in high school. Her story extended through her college years and marriage, with the major point being that her family could experience happiness once again.

An example of a palliative care project from a professional perspective involved the care of a chronically ill 2-year-old child who was living most of her life in the hospital away from her family. The student recognized that the hospital staff had become surrogate parents for this child with a life-limiting illness. Another palliative care story from a personal perspective was about a student's brother who had a potentially terminal illness. The student stressed family decision making around palliation that occurred regarding her brother's treatment and care during his illness, which lasted several years. The brother subsequently survived the illness and has gone on to lead a normal life. These examples show the breadth of stories that were told by the students and application of class concepts used retrospectively in development of their stories.

How do sharing and peer feedback of digital stories impact the students' learning experience? Students identified that they were able to relate to the shared stories and that bonding of classmates occurred. Students indicated that the "real" stories grabbed their attention versus case studies that may be hypothetical or linear. Students' assignment perceptions indicated that the project promoted new insights (mean, 3.1 [SD, 0.98]) and would help them apply content to practice (mean, 3.08 [SD, 1.00]), but that it fostered deep learning the least (mean, 2.6 [SD, 0.96]) (Table 1). Students also recognized the value of storytelling for making interpersonal connections with

Table 1. Student Evaluation of Digital Storytelling Assignment^a (n = 68)

Project Evaluation	Mean (SD)
Promoted new insights	3.14 (0.98)
Fostered deep learning	2.62 (0.96)
Helped me think more critically	2.80 (1.01)
Changed my perceptions	2.78 (0.94)
Will help me apply this content to my practice	3.08 (1.00)
Was a good assignment for this content and course	2.75 (1.00)

^aScale 1 (strongly disagree) to 5 (strongly agree).

patients and their families, that is, understanding the patient as a person and not as a diagnosis. They realized that the personal story was powerful and effective and increased their depth of understanding of palliative care and end-of-life concepts. Students felt that they learned about culture and spirituality and the uniqueness of each person's and family's end-of-life experience. Students evaluated the elements of the project and liked receiving comments from peers the most (mean, 3.11 [SD, 1.38]) but disliked ranking their peers' stories (mean, 2.63 [SD, 1.25]).

What are the essential elements of information technology needed to support the digital storytelling process? Analysis of focus group responses indicated that students liked the creativity and flexibility of the digital storytelling format, which allowed them to put together palliative care knowledge with a personal experience; adding pictures and media, and the ability to narrate their story. Students believed that the VoiceThread program was easy to maneuver and enjoyed the interactive, conversation-type nature of it. Students rated the ease of story assignment requirements from 3.3 to 4.0 on a scale of 1 to 5, listening to other students comments the easiest (mean, 4.0 [SD, 0.78]), and putting story elements together in a video most difficult (mean, 3.3 [SD, .91]) (Table 2).

Discussion

This study indicates that the digital storytelling project may be an effective method to enhance student learning about complex topics through the application to personal stories and experiences. The digital storytelling project is displayed in Figure, Supplemental Digital Content 2, <http://links.lww.com/NE/A173>. Nursing students often struggle with the personal nature of severe illness and being equipped to have discussion with patients and families, especially those facing potential life-limiting illness, and being able to recognize their own beliefs and values. Through the writing and sharing of digital stories, students embraced the personal and complex nature of palliative care. The student stories were powerful in emotional understanding about the lived experiences of people in their journeys with advanced illness and dying. Students enjoyed the creativity of the digital project, which promoted sharing of peer's stories in a personal and effective way. Students found that increased comfort with end-of-life and palliative care concepts occurred through their own story development, as well as through the sharing of peer stories.

Faculty recognized from student feedback that students need to be comfortable with their personal values and beliefs to be able to care for patients and their families in palliative

and end-of-life situations. The personal nature of the assignment allowed the students rehearsal and exposure to identifying unique patient and family needs, as well as initiating difficult conversations. Faculty also observed how ill prepared students were to be able to tell a story. Initial projects lacked introduction, logical organization, context and appropriate summaries, credits, and references. Faculty needed to be much more concrete with directions in identifying essential elements of the story. Millennial students also appear to be used to sharing content via social media without ethical, copyright, or HIPAA considerations. Once the students were given better scaffolding, faculty were impressed by the increased quality and creativity of the presentations.

In the year following this study, the digital storytelling technique using VoiceThread has become further integrated into other courses with individual and group projects. In response to student concerns, faculty have allowed more time for project completion and eliminated the peer-ranking requirement. Students continue to review and provide narrated feedback to peer projects and, through open discussion, select a project from their group to show to the entire class that they believe best exemplifies the objectives for the project. Faculty have emphasized that project grading is not about their personal story, but rather the elements of the digital storytelling process and application of salient concepts to their story (see Figure, Supplemental Digital Content 2, <http://links.lww.com/NE/A173>).

Limitations

Limitations of this study include lack of generalizability due to the use of a small, convenience sample from a single, large university. Additional limitations include the absence in control of contextual and confounding variables, such as previous personal or professional experience with palliative care, end-of-life concepts, and computer technology. Researcher bias may have influenced focus group responses; however, the focus groups were carried out by a researcher who did not have previous contact with students, nor did she implement or grade the assignments.

Relevance of the Project

This project can serve as a model for using digital storytelling to enhance reflective and collaborative pedagogies within nursing education (see Figure, Supplemental Digital Content 2, <http://links.lww.com/NE/A173>). Moreover, this study provides a model for how to leverage existing technologies to support innovative pedagogies. Nurse educators should encourage

Table 2. Student Perception of Ease of Digital Storytelling Assignment Elements^a (n = 68)

Digital Storytelling Element	Mean (SD)
Planning my story	3.32 (0.981)
Collecting media (images, music, etc)	3.40 (0.996)
Putting my story elements together into PPT	3.32 (0.908)
Uploading my story to VoiceThread	3.77 (0.759)
Narrating my story in VoiceThread	3.50 (0.969)
Sharing my story with my group in VoiceThread	3.55 (0.909)

^aScale 1 (extremely dislike) to 5 (extremely like).

assignments that integrate personal and real patient stories so as to enhance student holistic understanding of complex topics beyond what linear case studies can accomplish.

Conclusion

The use of digital technology appears to be an effective collaborative pedagogy, which engages students, fosters creativity, and promotes several professional skills including presentation, peer feedback, communication, and deportment. This study found that the use of digital storytelling fostered creativity and may have promoted affective learning. Further study is indicated to identify essential technical and pedagogical elements of a sustainable information technology system and approach to support the digital storytelling process. Nurse educators should explore other avenues in which this technique can be used for teaching complex concepts, collaborative learning, and sharing.

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