Enhancing an Online Digital Storytelling Course for Older Adults through the Implementation of Andragogical Principles

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Abstract: In earlier research on face-to-face digital storytelling courses for older adults 65 years of age and over, findings showed that this activity provided an opportunity to forge social connections with others through story as well increase the technical proficiency of participants. A digital story is a type of movie that embeds multimedia such as narration, photographs, music and text. In these courses, participants created legacy digital stories that reflected significant events, people and places in their lives. To reach a wider audience, our original face-to-face course was transformed to a fully online course. In this paper, we describe the andragogical approach used for designing this course for older adults and the perceptions of their learning experience within the context of these principles. Our findings show that participants prefer the facilitator take a greater role in discussion forums and providing technical assistance.

1   INTRODUCTION

By 2050, it is estimated that 30% of the world's population will be over 60 years of age (WHO, 2014). This change in demographics has created an interest in how the quality of life can be maintained as we age. While supporting physical and cognitive health is important, well-being can also be enhanced by activities that involve creativity, social engagement and lifelong learning (Hanna et al., 2015).

Digital storytelling incorporates the elements of the traditional story structure but moves it to a digital medium that allows it to be easily shared with others. Our research focusses on personal stories that capture an important moment in an individual's life. Our online digital storytelling course is oriented to older adults who wish to leave a story as a legacy for their family and friends. For older adults, writing their legacy story can be an opportunity for reflecting on experiences and sharing how they overcame life's challenges.

Creating a digital story not only enables older adults to create their own life stories but also offers an opportunity to develop a greater level of technical literacy (Behmer et al., 2006) which has been shown to enhance the lives of older adults (Mitzner et al., 2010) and help them overcome some of the cognitive, physical, and social limitations that accompany the ageing process.

Storytelling is thought to be pivotal to the way humans make sense of their world (Polkinghorne, 1988). Stories help us to contextualize experience, retrieve memories, and use them to cope with new situations that occur throughout life (Schank and Cleary, 1995). Story can be a medium for presenting difficulties and how they can be overcome (Hunter, 1991). Legacy stories in particular can be venue for embedding memories and exploring identity (Birren and Deutchman, 1991). Because of these characteristics, digital storytelling can be a valuable method for exploring and sharing life experiences while becoming more familiar and comfortable with technology (Hausknecht et al., 2017).

A digital story is a kind of movie that combines multimedia such as audio, photographs, video, animation, music, text, with a voice-over narration. To create a digital story, the author writes and scripts the story, finds the resources to illustrate the story, for example, using family photos and found images, then publishes the story online. The digital story format was established by the Center for Digital Storytelling in the early 1980s (Rule, 2010) and later taken up by Cardiff University in the UK, in partnership with the BBC. From there the concept has spread to other countries and has been deployed for a variety of purposes (Robin, 2008).

Through digital storytelling, individuals become raconteurs of local or personal history (Klaebe et al., 2007). Though telling their personal stories, a bond can be between generations while helping older adults to be socially engaged (Hausknecht and Kaufman, 2018). By digitalizing stories, authors have the possibility to reach a wider audience (Burgess, 2006) and because of this, have the potential to raise the visibility of authors who may be members of a marginalized group (Sawhney, 2009). According to Hausknecht et al (2016), digital storytelling builds empathy with others and creates meaning through self-reflection. As such, this medium can enhance the lives of older adults who have limited opportunities to be heard because of issues associated with ageing such as isolation and immobility. In addition, as authors develop story elements such as character and plot, engagement and involvement deepen, supporting comprehension and memory (Laurillard, 1998) while helping them to keep their legacy alive and increase their sense of value (Cruikshank, 2013). For older adults, producing digital stories presents the opportunity to gain experience with new technologies (Czarnecki, 2009) that support greater social connectedness.

Since digital storytelling is a multimedia production, the combination of narrative and media has the capacity to support learning in a rich learning environment. Mayer points out that multimedia presentations have a greater impact on retention and transfer than using words or pictures by themselves (Mayer, 2001). Paivio suggests that visualization can support learning and recall because images and words are processed in different parts of the brain (Paivio, 1991). The addition of multimedia elements can produce a more complex, authentic environment for learners to interpret a variety of visual, auditory, and nonverbal cues that can help prepare viewers for a variety of real-life problems (Hoffman and Ritchie, 1997). For example, in medical education, rich narrative text cases combined with multimedia have shown potential to provide a context for developing empathy and understanding of a patient's perspective among health professionals (Bizzocchi and Schell, 2009).

With the assets of digital storytelling revealed in the literature and our multi-year research (Hausknecht et al., 2017), our next goal is to develop an online version of the original face-to-face course designed for older adults. The face-to-face sessions included a story creation phase, followed by media production phase. The entire course was delivered over a 10-week period. Facilitators were available to help participants develop storytelling skills and use a free software called WeVideo to digitalize their story. The in-person courses provided a social learning environment and offered a personalized experience. Over three iterations of the course, there were 40 participants aged 55+ in seven groups who completed evaluation forms. Researchers noted the following results in relation to course facilitation, process, and software.

- All were able to use the software with varying degrees of assistance
- Two thirds of the participants found the difficulty of the course at an acceptable level
- The level of facilitation was found adequate in terms of communication (70%) and helpfulness (82.5%)
- Close to 82.5% of the participants rated the software used as "good" or "very good"

The researchers acknowledge that although online learning has proven to be a credible and valued component of higher education (Merriam, Caffarella and Baumgartner, 2007), it can be a new environment for older adults who may have limited technical literacy. Furthermore, a search of the literature reveals that online course design for older adults is a subject that has not been deeply explored despite the growth of this demographic. In this paper, we examine andragogical approach to developing an online course for those 65+: and outline how we applied these principles. We then review some of the feedback gathered through interviews with the online course participants to better understand their perceptions and assessment of their learning experience in light of andragogical framework used when designing the course.

2 APPLYING ANDRAGOGICAL PRINCIPLES AS A FRAMEWORK FOR ONLINE COURSE DESIGN

Malcolm Knowles pioneered the theory of andragogy which describes the assumptions behind how adults learn. Merriam et al. (2007) summarizes these assumptions as:

- Adults bring deep, valuable life experience and draw upon these experiences when learning
- Adult learners are more motivated by their own internal goals and are less motivated by external goals

- Adult learners are interested in understanding the value of what they're learning
- Adult learners are self-directed and independent
- Adult learners are ready to learn

The theme of legacy stories is expected to be of interest to an older audience because they may be motivated by a desire to share stories that reflect their deep life experience with their family and friends. In the face-to-face digital storytelling course the older participants reported they found creating a digital story a positive socio-emotional experience, and welcomed the opportunity to share their legacy digital story with others.

The online course consists of 10 course modules, and a final 11th module used to share participants' digital stories with each other. Each course module begins with an overview of the content and lists the activities the learner will carry out in that module. As older adults are expected to be self-directed and independent learners, it is possible for participants to take a self-paced approach, using less or more time as needed.

The first five modules in the online version were designed to help participants acquire the skills necessary to craft a compelling story. In the second half of the course, a series of step-by-step instructional videos demonstrate how to digitalize their story. The online course modules included:

1. Course Outline
2. Your Legacy Story
3. Writing Your Story
4. Bringing in Digital Story
5. Sharing Your Story
6. Preparing Your Script, Images, and Storyboard
7. Starting with WeVideo
8. Recording Your Voice
9. Adding Your Photos to Your Narration
10. Adding Music and Publishing Your Story
11. Sharing Your Movie with Others

A diversity of activities is needed to provide learners with the opportunity to apply new knowledge and skills across a range of abilities and life experience (Rose and Meyer, 2008). Adult learners are interested in examples that model and develop their metacognitive skills (Stacey, 2005). To support this process in the online course, there is a variety of examples, resources, and assignments that help participants from generating story ideas to publishing the final version of their digital story. For example, since imagining potential story ideas was found to be quite challenging for some in the face-to-face course, we designed activities to assist online participants to find a topic for their digital story. In one activity, learners are asked to think of a story of how they dealt with a difficult situation in their lives. To encourage participants to begin to think how pictures and text can propel a story forward, learners are asked to write a short paragraph inspired by one of a series of photographs displayed in the course.

Defining learning objectives and the activities and resources necessary to achieve them helps to illuminate the value of the course to the adult learners. Mapping the goals to course content and assessments must be transparent to learners in order to create a coherent message over the arc of the course. In the digital storytelling course, the outcomes were made clear on the opening page and described what the learner will know how to do by the end of the course. The learning objectives were:

- Identify story ideas for your digital story.
- Write a compelling short story about two to three pages long.
- Develop a script from the story you've written.
- Use the script to record and tell your story.
- Select and digitalize photos to illustrate your story.
- Add your images to your audio track that visually describe your story.
- Add music to add to the feel of your story.
- Add titles and credits.
- Publish your digital story

Discussion forums offer a venue for participants to validate new concepts with peers and learn from fellow participants. In discussion forums participants can meet fellow learners, practice writing, develop ideas for stories, share stories, and contribute and receive feedback from one another if they wish. Anticipating some older adults could be new to online discussion forums, instructions describe how to post in a discussion forum and provide constructive feedback to others.

Although andragogy cannot explain every aspect of adult learning, it offers a framework for the design of online courses that respond to their desires and needs. The following table briefly describes andragogical principles and how they were applied on the online digital storytelling course.

Table 1: Summary of Andragogical Principles and Design Applications.

Andragogical Principle	Example of Application in Online Course Design
Adults bring deep, valuable life experience and draw upon these experiences when learning	Developing legacy stories are built on the life experience of the participants. Personal resources of each learner are considered the essential ingredient of the online experience.
Adult learners are more motivated by their own internal goals and less motivated by external goals	The subject of this online course is oriented to older adults.
Adult learners are interested in understanding the value of what they're learning	The course theme of digital story telling has been shown to be of value to older adults. Examples throughout the course model what is expected at each step in the production process. Learners are provided clearly defined learning objectives and activities make the value of the course transparent. The modular organization supports a consistent theme throughout the course.
Adult learners are self-directed and independent	Learners are free to go through the course at their own pace. Resources are provided for learners to use as they wish to help them to develop their own stories.
Adult learners are ready to learn	The learners are offered the resources they need to develop their own story. Learner's diverse learning preferences are considered and implemented through a variety of resources and activities. Learners can apply new skills and knowledge immediately.

Our online digital storytelling course has been developed on Canvas, the institutional Learning Management System (LMS). An institutional LMS provides a standardized look and feel that offers a consistent design and approach throughout the course such as frequent entry and exit points, persistent metaphor, and visual organizers. Boll and Brune advocate simple user guidance, along with clear, consistent, and abbreviated menu structure (Boll and Brune, 2015) and in Canvas, the menu items can be reduced to only those that are needed.

While in the face-to-face course, facilitators were available to help participants to use WeVideo to produce their digital story, in the online course instructional videos provided step-by-step assistance at each stage of the production cycle. These videos describe how to accomplish digital storytelling procedures and techniques such as how to digitalize photos, find images on the Internet, and how to select appropriate photos to illustrate their stories.

3 PARTICIPANTS

The online digital storytelling course designed by our research team was offered to participants who lived at two retirement residences where the face-to-face digital storytelling course had been offered in the past. In addition, an invitation was sent out through our university's 55+ Program classes. Both versions of the course were offered free to the participants.

The choice was made to recruit a small number of participants for the pilot phase in order to collect data that could be used to improve the course design before working with larger groups of participants. Nine participants were enrolled in the initial offering. All were female. While one was less than 60 years of age, four participants were between 65 and 69, and four participants were between 70 and 74. Eight of the participants used a computer on a daily basis while one participant used a computer a few times a week. Three participants rated their computer skills between fair or good while six others rated their computer skills as very good. Six of the nine participants had not taken an online course before.

The course may have attracted participants depending on their interest in creating a legacy life story, and perhaps, their confidence with technology. To encourage a more diverse audience, we recommended participants work with family or friends to produce their digital story and it was not necessary to work alone.

4 SUMMARY OF PARTICIPANT PERCEPTIONS OF THE LEARNING DESIGN

This section of the paper discusses the participant's perspective on their online course experience within the context of the andragogical framework shown earlier in Table 1.

Data on the participant's perspectives were gathered through personal interviews with all nine participants carried out in real time on Skype. The interviewer asked participants: 1) about their experience in the course, 2) what they liked best about the course 3) what they liked least about the course, 4) did the written instructions and instructional videos clearly explain what to do in the modules 5) their perceptions of the role of the facilitator 6) how the course could be improved, 7) if they wished to add anything else.

Their responses were analysed in relation to the guiding andragogical principle, how it was applied in the design, and the participant's experience of the design implementation.

Principle: Adults bring deep, valuable life experience and draw upon these experiences when learning.

Applied: Developing legacy stories are built on the life experience of the participants. Personal resources of each learner are considered the essential ingredient of the online experience.

Participant Experience: All participants created stories that were a reflection of an important specific time in their lives. There were numerous comments on how valuable they found the process of telling their story and how much they appreciated the positive response they received from their family. They also were impressed with stories told by others in their course. As Erin said, "..other people's stories, that was interesting once I began to read them…it really was inspiring.". Pat found that: "…other people's stories were very interesting. Showing women are capable…. We can actually handle a crisis."

Principle: Adult learners are more motivated by their own internal goals and less motivated by external goals.

Applied: The subject of this online course of sharing a legacy story with family and friends is important to older adults.

Participant Experience: Participants found the process of telling their own story resulted in a meaningful experience for them. Sue describes how, "Immersing into memory, retrieving meaningful events, reflecting on them, choosing one and bring it to life through images and reports brought to me an importance that I had not noticed before. But the fact of reorganizing memories and trying to understand them from the point of view of life's lessons, …brought a re-significance of these lessons of life."

On the other hand, some of the external goals of the developers were not as compelling to our participants and considered an unnecessary limitation. For example, several remarked on our 10-week course timeline as a constraint that called for too much of time commitment from them. As Liz mentioned, "the course was longer that I expected." However, Liz's suggestion is one we could easily implement in the next iteration of the course. She suggested clearly showing the range of time needed for each module or each activity.

Principle: Adult learners are interested in understanding the value of what they're learning.

Applied: The course theme of digital storytelling has been shown to be of value to older adults. Examples throughout the course model what is expected at each step in the production process. Learners are provided with clearly defined learning objectives and activities to make the value of the course transparent. The modular organization supports a consistent theme throughout the course.

Participant Experience: Legacy stories were important to our participants and they appreciated the positive response to their stories from their families. Pat describes her feelings about the feedback from her brother saying how impressed he was and how her story revealed something about her they didn't know about her.

Only one person referred to the examples shown throughout the course to model various activities. This may be because the question posed in the interview asked whether the written instructions clearly explain what course participants needed to do to complete each module, so the answer was often a simple affirmative.

All achieved learning objectives, so from that point of view, the objectives could be described as clear and attainable. However, in terms of the activities in the course, the value and goal of discussion forums were not perceived as clearly explained or supported in the course. As Lynn suggested" …maybe, that's an indication that they didn't understand. What the purpose of that [a discussion forum] and how to share things. There's a bit of a knack to commenting on other people's work."

Structurally, participants seemed to find the course easy to follow and the instructions were clear.

Anne agreed, "Yeah, it was very clear. You could focus …the modules were broken out and they would lead you to the process step-by-step."

Principle: Adult learners are self-directed and independent.

Applied: Learners are free to go through the course at their own pace. Resources are provided for learners to use as they wish to help them to develop their own stories.

Participant Experience: Some participants had explicit goals in mind when considering taking part in the online digital storytelling and often this goal related to their wish to share their story with their loved ones but in some cases, participants wanted to develop new skills with technology as well. For example, Jane stated her intended goal: "My initial goal was to do a project that allowed me to share some of my information about my life with my children. The second part was to learn some other technology."

Others asked for more help from the facilitator to achieve their goals. Jane found the technology challenging, "Once I got to the technology part of it, I found it was so confusing….I need someone to help me with that."

Discussion forums were provided as a resource to learners as a venue for sharing and receiving feedback on their stories. However, since participants moved through the course at their own pace, the discussion forums did not function as intended because the participants were at different points in the course and their conversations did not overlap in real time. Lynn described this problem: "At least not at the time when I made my comments and I was behind most of the people. I mean, it seemed to me as I went through the course that most people were further ahead than me…So when I got the end, I was kind of surprised that not more people had put comments at the very last module."

Principle: Adult learners are ready to learn.

Applied: The learners are offered the resources they need to develop their own story.

Learner's diverse learning preferences are considered and implemented through a variety of resources and activities. Learners can apply new skills and knowledge immediately.

Participant Experience: Participants found that they had the resources and activities they needed to build their digital story if one considers that all participants achieved the learning objectives and completed a digital story with images, audio, music and credits. Nevertheless, it's important to note that there is a huge range of experience and ability among those over 65 years of age. As Lynn

described, "…when you talk to seniors and you're talking about people from 65 to 95, that's covering a whole range of abilities and levels of experience with computers and stuff like that." Lynn pointed out the technical instructions could be repetitive but conceded this approach might have been needed, "to cover all the bases every time in case somebody has forgotten or can't remember [the steps]."

Summary of Results

Overall, it may be necessary to develop a greater variety of resources and activities in the online course to address the enormous diversity among older learners. The abilities and experience of a 65-year-old could be vastly different from someone who is 95. The oldest participant in our study was 74 and all had some technical expertise.

As learning designers, it seems we need to be more cognizant of technical terms and online activities that may not be familiar to older adults such as those mentioned by the participants: file management, setting up a file, and most significantly, discussion forum activities. More information and modelling is needed to define the proper etiquette and purpose of a discussion forum in the course. A greater degree of facilitation would be a welcome addition to the written instructions and instructional media available to guide and build storytelling and technical skills. A greater level of facilitation may have also enhanced the online discussions.

The analysis of the data collected in the personal interviews is only one aspect of the overall data collected during the entire ten weeks of the course. An andragogical framework offers a perspective that focuses on the adult learner specifically.

5 LIMITATIONS & FUTURE WORK

Although andragogical theory considers adult learners to be self- directed and independent, it was discovered that the role of the facilitator was more important to the success of the participants than originally expected. Although many of the participants did not need personal time with the facilitator to successfully use the WeVideo editing software, four participants accepted the facilitator's offer of assistance through one-on-one Skpye sessions.

In the future, it may be possible to identify new, easier to use, free video editing software. We could also integrate personal help through Skype sessions with the facilitator into the design of the course from the beginning rather than offering this service on an ad hoc basis. Overall, it might be useful to include more facilitator time throughout the course particularly in the discussions forums and when the participants start using the WeVideo technology.

Taking part in discussion forums was a new experience for nearly all our older adults in the course, and because the potential benefits associated with online forums to support peer learning and social connectedness, an expanded role of a facilitator could create a more effective social and learning environment in future iterations.

6 CONCLUSIONS

Our goal was to create an online course that enhances the online learning experience for an age group that is a rapidly growing worldwide. Online learning design for this demographic is an area that has not been widely studied.

In our previous research, Hausknecht et al (2016, 2017, 2018) discovered that participants found digital storytelling in the face-to-face environment a positive learning and social experience. The online participants also found that sharing their story in a multimedia format fostered social connections both within the course and outside of it.

In general, the facilitator played a significant role assisting some participants to complete their digital story and this is a role they would like to see expanded. Also, the facilitator could take a greater role in guiding discussions and encouraging constructive feedback on the participant's stories. In general, our participants responses seem to indicate that an andragogical perspective on learning design can provide a framework for developing materials and activities for older adults through the process of digital storytelling as well as help identify where online course design could be improved.

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