

## **Digital Storytelling: Conveying the Essence of a Face-to-Face Lecture in an Online Learning Environment**

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### **Abstract**

As the percentage of university-level courses delivered online continues to increase, instructors who rely on storytelling approaches to convey key concepts in lecture-based coursework will likely face the need to translate their oral storytelling modules into one or more formats that are suitable for use in an online learning environment. While in simple cases it may be sufficient to supply text-based transcriptions of stories and narratives or straightforward “talking head” style videos to online learners, more elaborate storylines may require the application of advanced multimedia presentation technologies, often referred to as digital storytelling. In this paper, the selection and preparation of video-based digital storytelling learning modules is discussed in the context of meeting the self-directed learning preferences of students enrolled in a senior-level undergraduate leadership course. An example video produced on the topic of mentorship illustrates how the gap between personalized face-to-face storytelling in a lecture-based course and the less personal asynchronous learning in an online section of the same course may be bridged to maintain student comprehension of the key concepts involved.

**Keywords:** Digital storytelling, video, self-directed learning, higher education, mentorship.

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Within contemporary post-secondary education, it is no longer possible to unequivocally state that the most effective way to teach and the most effective way for students to learn is to have both parties physically meet in a classroom where traditional lecture-based instruction fills the day. Long gone are the days when undergraduate programs are exclusively populated with traditional eighteen to twenty-something year old students who take a full schedule of classes and work less than a few hours per week. Today’s undergraduate student population is significantly more diverse, with a mixture of traditional students, older, returning students, part-time students attempting to balance their schooling with a full-time career, and family-focused students who may be largely consumed by a combination of parental and job-related responsibilities.

In higher education, effective knowledge transfer and retention can be both topic-specific and highly dependent on the situation of the individual learner. Educational venues also span the gamut from traditional lecture-based courses to fully online courses with hybrid variants falling at multiple points in between the two extremes. Thus, in designing and

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implementing effective coursework, educators increasingly face a matrix of student needs and wants that include not only multiple learning styles, but also multiple modes of course delivery.

Designing instructional modules that can work well across all of the aforementioned combinations of parameters can be a daunting task, yet it is one that is worthwhile – especially when faced with the prospect of teaching multiple sections of the same course across a variety of venues. This paper explores the development of one type of instructional module, the video media clip based on digital storytelling best practices, that has proven highly effective in a variety of undergraduate business courses. Equally appropriate for use in lecture-based, hybrid, and online courses, short instructional videos can provide direct knowledge, stimulate course discussion on key topics, and encourage learners to pursue further study.

### **Storytelling in the Digital Age**

Storytelling is often cited as an excellent method of increasing a listener's comprehension of complex concepts and ideas (Chung, 2006). Humans are natural storytellers and the ability to convey information through a well-constructed story is frequently mastered at a very early age, adding both form and function to a society's communications. Once in school, students are typically encouraged to further develop their storytelling abilities through both written and oral assignments while teachers use storytelling as an essential aid in delivering the curriculum (Ballast Stephens, & Radcliffe, 2008).

In discussing storytelling as pedagogy, Coulter, Michael, and Poyner (2007) suggest that storytelling in education is far more than just entertainment since the individual awareness that occurs when the process is done well moves storytelling into the educational content of the curriculum. In an educational setting, good storytelling encourages students to think back and recall previous lessons that helped to build the foundation for understanding the current story (Schank, 1990; Zull, 2002). Similarly, a good story encourages further inquiry and study to learn what happens next – often challenging students to interact more amongst themselves in pursuit of further knowledge (Bruner, 1996). The end result is an increased level of instructor-student and student-student interaction through the storytelling process.

Whereas traditional storytelling methods used in education relied largely on oral communications from instructors to students, perhaps enhanced with basic visual aids, contemporary efforts are moving rapidly into the digital realm with multimedia presentations and other computer-driven enhancements that substantially enrich the storytelling experience for instructors and students alike (Xu, Park, & Baek, 2011; Hung, Hwang, & Huang, 2012). Basing their comments on earlier works by Kang, et al. (2003) and Shin and Park (2008), Xu and co-workers created an all-encompassing definition of digital storytelling as "...storytelling that is conducted using digital technology as the medium or method of expression, in particular using digital media in a computer-network environment" (2011, p. 181). The addition of digital technology, in any of its variations is a significant one that enables storytellers to develop more sophisticated learning modules that include vid-

eo clips, professional music, voiceovers or audio streams from others involved in the original subject matter of the story. Digital technologies allow stories to be reproduced, transmitted and replayed for remote audiences and, importantly, allow students to replay stories multiple times if needed to comprehend the material. This added flexibility increases the value of the storytelling proposition without diluting its foundation in one of the most basic forms of human communication.

As studied by Hung and co-workers, digital storytelling technologies also enable students to take an active role in the storytelling process by participating in creating and documenting their own project-based digital stories (2012, p. 369-71). The authors observed that the project-based approach using digital technologies assisted students in pulling together their own observations and story elements in a logical format, but it also assisted them in interacting with other learners as they worked collaboratively to understand how best to deliver their materials (2012, p. 376). Moreover, knowledge documentation, archiving, and presentation for the class as a whole increased substantially in terms of thoroughness and quality when the digital storytelling process was expanded to function as a collection of the students' individually compiled works. When students have direct input into the digital storytelling process by creating their own stories, additional benefits are provided beyond those of the instructor, alone, employing digital storytelling technologies. Supporting studies available within the literature include those of Xu et al. (2011), Haigh and Hardy (2010), Reitmaier, Bidwell, and Marsden (2010), and Jonassen, Peck, and Wilson (1999).

### **Connection to Self-Directed Online Learning**

While the majority of the studies referenced above employed digital storytelling in traditional, lecture-based classroom settings, the technology is by no means limited to that single educational venue. Students enrolled in courses taught online, for example, can benefit greatly from instructional approaches that include learning modules based on digital storytelling processes. In online learning situations, video clips, multi-media presentations, audio files and other similar digital tools represent the most effective and efficient ways to bring the presence of the instructor to the students who are studying in a manner that is both asynchronous and frequently isolated as compared to their lecture-based classroom counterparts. Numerous studies within the literature document the successes of digital storytelling in online learning either in a uni-directional mode of instructor-originated content or in a bi-directional mode where traditional university-age students and also adult learners are responsible for generating a portion of the digital content as part of their assignments and projects (Jenkins & Healey, 2012, Palacios, 2012; Rositer & Garcia, 2010; Rigney, 2010).

Research by Lindgren and McDaniel (2012) suggests that it is also possible to drive student learning beyond what is possible in a lecture-based classroom using advanced digital storytelling technologies and associated computer applications. The authors were able to demonstrate increased student comprehension of course concepts and increased satisfaction with coursework by introducing a combination of advanced computer visuals in digital storytelling modules and personalized interactive instruction where students could

choose how to approach and master the concept under study. Their argument that these features take online instruction in a direction that differs from traditional lecture-based formats is intriguing and worthy of further examination. It would be similarly interesting to test their approach in a traditional lecture-based course where the advanced digital storytelling modules are used to supplement regular classroom instruction.

A review of the research in this area published a year earlier by Tsai, Chuang, Liang, and Tsai (2011) is complementary to the work described by Lindgren and McDaniel (2011). Tsai and coworkers (2011) noted that self-directed success in a traditional lecture-based learning environment, itself, is not an accurate predictor of self-directed success online (Tsai et al. 2011). It is often necessary for self-directed learning skills to be “rebuilt” in online learners due to the different modes of delivery used for course content and the potentially different ways that learners access supplementary resources. The digital storytelling approach has found good success both with traditional university-age students and with older, adult learners in these situations by linking learning content with events familiar in learners’ everyday lives (Chu et al., 2012; Chu & Tsai, 2009). Learners find grounding in familiar situations, stories, and/or events and are more likely to begin to form their own personally defined (and thus self-directed) learning spaces to fill in skills and knowledge that they lack. Such learners can rely on many of their attitudes and approaches to learning from traditional lecture-based learning environments to help them in this process, but they must also possess sufficient Internet skills and information evaluation skills to be able to navigate comfortably in the online learning environment (Lai, 2011).

Commensurate with the findings of these researchers, there is additional evidence within the literature to support that online learners may gravitate toward interactive learning modules, including advanced forms of digital storytelling, because these learners tend to prefer self-directed educational opportunities. Self-directed learning is a concept that was defined by Knowles as “... a process in which individuals take the initiative with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating outcomes” (Knowles, 1975, p. 2). The foundation of self-directed learning lies within the constructivist theory of learning whereby “... the learner ‘constructs’ his or her understanding of the environment from his or her interactions with it rather than the environment creating new stimulus-response connections (Svinicki, 2010). Self-directed learners control their own learning processes while “[the] instructor simply helps the learner by providing a rich environment from which the learner can learn” (Svinicki, 2010, p. 74).

Looking more closely at the ideal learning environment for self-directed learning, it will be one with both sufficient freedom and sufficient resources to satisfy the curiosity and drive of the learner. Researchers have shown that self-directed learning success is enhanced if learners are able to define their own learning spaces within the larger environment of the course (Pata, 2009; Lai 2011). The optimum environment for encouraging self-directed learning will be one where multiple routes are available for learners to use in creating their preferred pathways between Point A and Point B. Advanced forms of digi-

tal storytelling, often with interactive components, should be particularly appropriate for learners preferring a more visual approach with access to graphical data, pictures, flowcharts and other similar aids. As noted by Pata (2009), instructors should gather feedback on the resources most useful to learners and optimize the overall resource blend to meet learner needs through future iterations of a course.

The use of video-based learning modules in this context has been shown to enhance student learning in an online environment, both by objective measures (Donkor, 2010) and by anecdotal information gathered from end-of-term qualitative student surveys (Donkor, 2011). While there is little disagreement in the literature regarding the overall value of adding video-based learning modules to online courses, an important watch-out suggests keeping topics focused on concepts and information transfer as opposed to problem solving (case studies) where text-based materials may still be more successful at encouraging deep thinking (Roy & McMahon, 2012, p. 432-3). Preliminary data indicate that the success of problem solving-type videos may be enhanced by moving from unidirectional videos where learners watch and listen to content to bidirectional or interactive videos where learners actively participate by answering questions throughout the video session (Vural, 2013, p. 1322).

### **Digital Storytelling in an Undergraduate Leadership Course**

The present study originated from a need to develop new supplementary learning materials for the online version of a popular senior-level undergraduate leadership course. The course had been taught successfully for many semesters in a traditional lecture-based format and had routinely included a number of personal experience stories on selected leadership topics – delivered from my viewpoint as the instructor. Students routinely commented on how the stories had helped them to understand the topics involved and learnings from the stories frequently were fed back through students' written assignments in the course. When the online version of the course was designed and implemented, many of the stories were converted to text-based supplemental readings while others were captured as relatively standard video clips of me, as the instructor, telling the stories to a class.

While overall student success in the new online version of the leadership course compared well to that of students taking the traditional lecture-based version of the class, it was noted that online students referred less frequently in their written assignments to the specific topics contained in the stories, made available to them through transcribed texts and/or simple “talking head” narratives. Given the high popularity of the stories when recanted face-to-face, it was decided to explore whether or not an enhanced video experience, similar in intent to the advanced video modules described by Lindgren and McDaniel (2012) could increase online student interest in the topics to the level seen in the lecture-based sections of the course.

Due to the existence of a reasonably large portfolio of stories that had been shared in the lecture-based class, it was decided to proceed with a single advanced video, selected with student input. Once the video was produced, student input would again be used to evalu-

ate whether or not the video captured the essence of the story. Table 1 lists the top seven story topics that were selected by students who had participated in a lecture-based version of the leadership course. All students had experienced listening to the stories firsthand and were therefore well-qualified to vote on which story would form the prototype for the advance video production. Topics are listed in rank-order by student preference (N=50 students).

**Table 1. Leadership Story Topics for Advanced Videos.**

Student Rank	Topic
1	Mentorship
2	Leading a Team
3	Managing Difficult Employees
4	Communicating with Customers
5	Setting Goals
6	Creating a Shared Vision
7	Setting/Managing Budgets

Although all of the story topics listed in Table 1 had originally been carefully developed to blend leadership theory and practice with solid examples, it was actually not surprising to me that students selected “mentorship” as the recommended story for conversion to an advanced video learning module. This particular story was developed around a very special experience that I had a number of years previous and was always immensely popular with the students. It was also a topic that had not translated well into a simple “talking head” style video – most likely due to not capturing the intensely personal nature of the interaction involved.

### **Advanced Video Strategy and Production: Creating the “Nice Old Guy” Video**

To understand the strategy behind how the prototype video learning module was created it is first necessary to know the storyline that formed the basis for the script. While attending graduate school in the early 1980s, I had occasion to attend a banquet where the featured speaker was Nobel Laureate Dr. Linus Pauling. As luck would have it, I ended up seated next to Dr. Pauling for dinner. Not being in the sciences, I had only a general lay-person’s knowledge of his background, but I found him to be a wonderful conversationalist. As we talked, he expressed a tremendous amount of interest in my background and in where I wanted to go with my developing career. He talked about his own career philosophies and offered me some suggestions – all focused on becoming the best that I could be. It was a fascinating conversation that I have cherished to the present day.

Dr. Pauling’s comments to me that evening sparked much of my own interest and efforts over the years in mentoring students at the university level and also formed the basis for the story that I related to each lecture-based leadership class. In telling the story, I kept the identity of my famous mentor a secret until the end, and the students would always

remember how the story built toward that revealing conclusion. It was this type of story progression that I endeavored to capture in the prototype advanced video learning module for online use.

The video storyline was constructed as a ballad about a “nice old guy” who befriends a university student at dinner and offers career advice against a background of always working to help others succeed. A video montage of scenes from Dr. Pauling’s career plays in the background while a musician sings the ballad to the accompaniment of a simple ukulele score. Dr. Pauling’s identity is not revealed in print or in the lyrics until late in the video to maintain an element of surprise, although to scientists viewing the screen, his identity becomes more quickly evident.

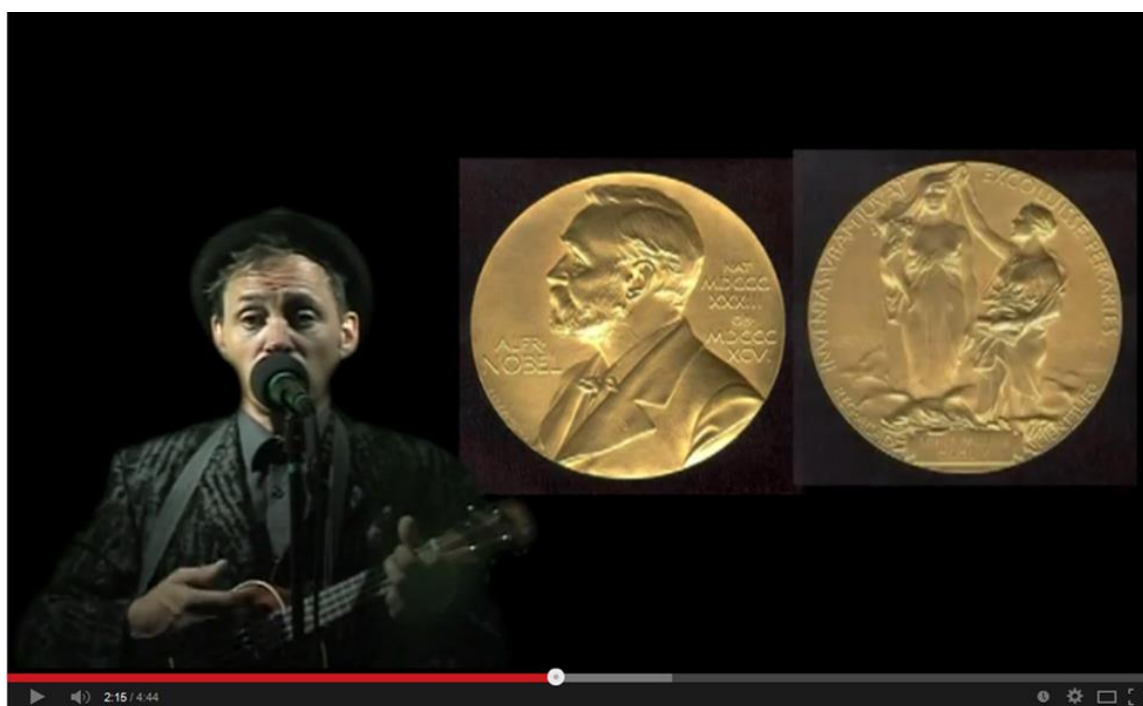
The video was produced in collaboration with a professional musician, Mr. David Cassel. I provided the storyline and lyrics while Mr. Cassel was responsible for the musical score, performing the ballad, and creating the video montage that appears in the background. The video length is 4:44 minutes and it may be viewed in its entirety on YouTube® at <http://youtu.be/gIoM4oYHB9s>. Figures 1-4 illustrate selected scenes from the finished video. A script of the full lyrics is available from the author.



**Figure 1. Video begins: Title, introduction and chemistry background.**



**Figure 2. Video progression: Partial identity revealed through photo and DNA structure.**



**Figure 3. Video progression: Dr. Pauling's two Nobel Prizes shown.**





**Figure 4. Video ends: Friendly photo of Dr. Pauling and recap of mentorship message.**

## Discussion

The “Nice Old Guy” video learning module was first revealed to students in a section of my lecture-based leadership course. These students had previously heard the face-to-face version of the story and I was most interested in learning their feedback on whether or not the video captured the intent and spirit of the story before using the video in online sections of the course. Overwhelmingly, students approved of the new video and liked the way that the message was delivered in a fun to watch format, but still contained the mentorship message in a way that could not be missed. As in my own case when I first met Dr. Pauling, most of the students were not scientists and were not overly familiar with his accomplishments. Thus, the “slow reveal” of his identity during the video maintained strong interest and encouraged them to watch through to the conclusion.

In terms of constructive feedback, the students stated that the one thing they would miss if they were in an online section of the course and only viewed the video was the opportunity to ask questions after the story, such as additional details about Dr. Pauling, or more specifics regarding how his mentorship had influenced me through the years. This point was well-taken since we normally had a fairly lengthy and robust classroom discussion as a follow up to the narrative version of the story. This feedback would be addressed when the video was introduced to the online course sections. As an additional point of feedback, the students suggested that if I made other advanced videos based on other stories from the lecture-based leadership course that I should try to maintain a gen-

erally common theme or format. They felt that such continuity would help learner comprehension, much as other recurring elements of the course, such as supplemental readings, assignments, etc., shared common themes for similar reasons.

To date, the new advanced video learning module on mentorship has been used in online sections of the leadership course for two semesters. Student feedback on the video has been excellent. To address the feedback regarding lack of a discussion period after the story, I implemented two new course features. First, a series of questions designed to stimulate discussion was added to the interactive online course forum. Students received points for posting their opinions to the forum and also for commenting in a peer-to-peer mode on the opinions of other students. As the instructor, I was an active participant in these discussions to answer questions or offer supplemental information as needed. Second, the topic of the video was introduced in one of the live chat sessions associated with the course. Students were able to interact in real time with their peers on what they learned. Both features generated strong student participation, with the discussions capturing a very similar feel to that of the in-class discussions held in the lecture-based version of the course.

### **Suggestions for Future Research**

Results generated from the production and implementation of the advanced video learning module on mentorship have been very positive, but it is important to note that this first video represents the initial step in a larger research effort to develop and incorporate a variety of multi-media learning modules into my online courses. Future research efforts are focused on a combination of activities that may be classified into three general areas.

First, my intent is to develop several additional advanced videos using topics from those outlined in Table 1. Each video will involve a story taken from the lecture-based leadership course and, while the message delivered will be similar in scope to that of the “Nice Old Guy” video, I plan to experiment with different musical genres, different styles of lyrics and different background videos. For example, the “Nice Old Guy” video used a “folk ballad” style of music and lyrics. Plans moving forward include using themes from rock, country, reggae and hip-hop to accompany different types of subject matter.

Second, all results to date have been qualitative in nature. While qualitative assessment is extremely helpful in the early stages of a project because it provides information and direction on how to improve materials, I am a strong proponent of evaluative rubrics and quantitative assessments to more rigorously measure the effectiveness of new teaching initiatives. Once several advanced videos are in hand and have been reasonably well optimized, my intent is to set up a controlled study comparing student comprehension of the concepts involved as delivered in a conventional storytelling manner within the lecture-based sections of the course and as delivered via the video learning modules within online sections of the same course. Results from student examinations and writing projects on the selected concepts will provide the data necessary to undertake a quantitative assessment of the success of the advanced video storytelling approach.

Third, my intent is to ultimately move in the direction of interactive video learning where students viewing the video learning modules will be able to stop and interact directly with the material to further maximize comprehension. This effort, still under development, is likely to explore ways that students may be able to respond to the videos online through their own video creations or perhaps create and explain their own “video playlists” from the available material much as individuals assemble their own preferred audio playlists from music downloads available online. Student project grades in this example could be based on explaining the choice made of what material to include and in what order they are delivered to fellow learners.

The process of developing and implementing advanced video-based learning modules has the potential to substantially enhance online learning courses. Due to the self-directed learning preferences of many online learners, there is a natural gravitation toward approaches that allow personalized interaction with course materials. Further research into how best to maximize this type of interaction using the video-based storytelling approach is definitely warranted.

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