

DIGITAL STORYTELLING: EFFECTIVENESS ON STUDY ABROAD EXPERIENTIAL LEARNING

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1 ABSTRACT

Digital storytelling is a short digital media production that allows ones to share their life story. It has gained popularity in higher education since the late 1990s in the US due to a great extent that media production techniques, hardware and software are becoming much more accessible and affordable. The purpose of the study was to assess the effectiveness of digital storytelling as a reflection technique in the study abroad setting. In this paper, we introduced the process, result and evaluation of the application of digital storytelling on a course taught abroad. In summer 2015, a group of Texas A&M University undergraduate students went to Germany to learn about sustainable communities. Students were required to submit their individual digital storytelling videos in which they must reflect on their five-week learning and evaluated their perceived benefits of different learning and assessment tools near the end of the program. The results show that digital storytelling was rated the most effective one among four other assessment tools in terms of their perceived effectiveness in reflecting the abroad experience. In summary, digital storytelling is a promising tool for reflecting study abroad experiences and is a suitable assessment tool in a study abroad setting, particularly for programs that are based on experiential learning strategies. We also found that current college students seem very capable of learning digital storytelling in a meaningful way and within a short period. We provided recommendations to landscape architecture educators on how and when to use digital storytelling to facilitate deep learning in landscape architecture courses.

1.1 Keywords

Digital storytelling, reflection, study abroad, assessment, global education, experiential learning

2 INTRODUCTION

Digital storytelling is a short digital media production that allows ones to share their life story. It utilizes low-cost digital cameras, non-linear editing software and laptop computers to create short, multimedia stories (Meadows 2003). Started by Joe Lambert and the late Dana Atchley in the late 1980s, digital storytelling “allows computer users to become creative storytellers through the traditional processes of selecting a topic, conducting some research, writing a script, and developing an interesting story” (Robin 2008, p.222). Also defined by Davis (2004), a digital story is “a form of short narrative, usually a personal narrative told in the first person, presented as a short movie for display on a television or computer monitor or projected onto a screen.” Digital storytelling has gained popularity in higher education since the late 1990s in the US due to a great extent that media production techniques, hardware and software becoming much more accessible and affordable (McLellan 2007; Center for Digital Storytelling 2015).

In recent years, digital storytelling has been used to archive study abroad records and experiences in higher education. Such adoption of digital storytelling as a means for enhancing experiential learning may continue and become stronger because current higher education seeks for high-impact learning methods. According to Kuh (2008), study abroad is considered one of the high-impact educational practices in higher education because it brings the benefits of cultural exchange, global vision, diversity and so on. Also because study abroad takes place in a setting different from a typical classroom, assessment tools such as homework, exam and test may not be ideal. Hence, digital storytelling is gaining attention for documenting study abroad experiences and is used as an assessment tool, as well as for performance measurement. Presently, some colleges and universities have published digital stories about study abroad online, including Beloit College, George Washington University, University of Colorado Denver, University of Minnesota, and University of Wisconsin-Madison. Materials presented on these universities' websites remain up-to-date and organized. The University of Colorado Denver even offers a graduate certificate in digital storytelling.

Reflection is important to high impact learning and can be performed in various formats such as discussion, term paper or presentation. Donald Schön's 1987 book entitled *Educating the Reflective Practitioner* literally focused on how reflection, or “reflection-in-action” in his words, facilitates learning, particularly for architectural professional education. According to Schön (1987), reflection on the past experiences or trials sets the stage for the next trials, by which new things are learned. Clarke and Adam (1987) surveyed students in the arts and humanities disciplines and reported that although a study abroad experience can open a student's mind and ignite one's curiosity in learning about other cultures, it is through reflection that studying abroad can be explored more deeply. Sharma et al. (2011) also confirmed the importance of reflection from their examination of pre-service teachers who participated in a 5-week summer program in Honduras. They found that a critical reflection approach further promoted pre-service teachers' multi-cultural competence. Because most college students have not had any abroad experience, many new things are to be learned if they have the chance to study abroad. Therefore, using reflection as one of the teaching techniques specifically in an abroad setting is a worthy experiment, and research of its effects on learning is needed.

Although digital storytelling is gaining much traction in higher education, research on its effectiveness in reflecting study abroad experiences appears to be less visible. In the 2015 EDUCAUSE Learning Initiative annual conference, Melody Buckner (2015) of the University of Arizona presented a poster of a study titled “Digital Storytelling: As An Assessment Practice in Study Abroad Programs.” Buckner surveyed college students of different disciplines and collected their digital story artifacts to investigate two questions: 1) what effect does digital storytelling have on the learning experience of students and 2) what impact does digital storytelling have on demonstrating expected learning outcomes. Buckner (2015) concluded that digital storytelling is a good assessment for personal reflection but is light in academic rigor. While Buckner believed that digital storytelling's reflective process enhances the learning experience, it cannot completely replace traditional assessment tools but is a good compliment. Todd (2013) investigated how well digital storytelling helped nursing students return to their program after their study abroad experience. She found that reflection during study abroad re-entry is critical to ensuring learning outcomes, and digital storytelling is an effective medium for reflection. Todd (2013) suggested that critical reflection during re-entry would be more effective if it is incorporated into a course. Overall, digital storytelling has been evaluated on its effect on student learning outcomes. For example, Sadik (2008) evaluated Egyptian teachers in their application of digital storytelling in teaching and assess whether students were engaged in authentic learning tasks using digital storytelling. Sadik (2008) found that the digital storytelling projects could enhance students' understanding of curricular content and teachers were willing to modify their

pedagogy and curriculum to adopt digital storytelling. Similarly Smeda et al. (2014) investigated the pedagogical aspects of digital storytelling and the impact of digital storytelling on student learning in classrooms in an Australian school and found that digital storytelling is a powerful tool to integrate instructions with learning activities to stimulate more engaging and exciting learning environments.

The purpose of the study was to assess the effectiveness of digital storytelling as an assessment tool with a reflection component in a study abroad setting. The effectiveness was evaluated by comparing digital storytelling among other assessment tools typically used in classroom teaching. In this paper, we introduced the process, result and evaluation of the application of digital storytelling on courses taught abroad. Because study abroad is an important or even required component in many landscape architecture programs, we concluded by recommending to landscape architecture educators on how and when to use digital storytelling to facilitate deep learning in landscape architecture courses as well as internships.

3 PROCESS AND METHODS

3.1 Participants

In summer 2015, 13 Texas A&M University (TAMU) undergraduate junior and senior students went to Germany to take credit-bearing courses about sustainable communities. Twelve out of the 13 students were in the general studies program with a concentration in architecture. One student was from the business major. For the general studies students, study abroad is required in their curriculum. Seven students were male; six female. Their age ranged from 20 to 22. None of the students have participated in study abroad learning before.

3.2 Study Abroad Arrangement

The staff of the Academy for International Education (AIB) based in Bonn handled logistics, arranged tours/conference registration, and invited guest speakers while TAMU faculty delivered lectures in classroom and participated in all arranged activities by AIB. All students stayed with host families during the program. Only two were together with the same family; others were individually attended by host families. The AIB study center is located near the city center of Bonn. Each day students took public transportation (bus or train) from their host family's residence to the AIB study center. The commute time varied between 15 to 40 minutes. The entire program lasted five weeks. The first four weeks were in Bonn; the last in Berlin. When the entire group moved to Berlin, they stayed together in a hotel that week. During the regular work week, formal activities occurred from Monday to Thursday. Friday through Sunday were weekend. The program was relatively heavy on field trips in order to witness and experience sustainable practices in communities, in comparison to the time spent in the classroom at AIB.

3.3 Learning Methods

In a study abroad setting, learning is typically not limited to the arranged activities in a classroom. The list below summarizes the various learning opportunities, intended and unintended, in the five-week program. For the purpose of this paper, we use them for discussion.

- Host family setting (casual, spontaneous, life-related, experiential)
- In-class educational lectures/discussion (purposeful)
- Guided outdoor field trips such as gardens, biking, canoeing, hiking, cities, etc. (purposeful, experiential)
- Guided indoor field trips such as museums, heating plant, waste management, etc. (purposeful, experiential)
- Attending a conference (2015 Resilient Cities, purposeful, experiential)
- Interaction with classmates (casual or formal)

In addition, four assignments designed to facilitate learning about sustainable communities were given to students. They are explained in the next section.

3.4 Assignments

Assignment 1: sustainable host family. Students perform a sustainability assessment for the residence of the host family and create a narrative with illustrations, diagrams, photos of the systems in place. Students should interview the host family about how the five systems work, including transportation, energy, food, water and recycling. Students are to describe actions on a daily, weekly or monthly basis that demonstrate an attitude towards sustainable living in their host family's house. Expected length of this assignment is 5-7 pages with illustrations and 900-1,200 words.

Assignment 2: sustainable transportation. In this assignment, students document and map/illustrate the network of transportation methods that they can utilize to get from their host family home to AIB. Students should communicate the network of connections (by foot, by bicycle, by bus, tram, etc.) in which they move and compare with the single mode of movement that most of them utilize in Texas. Same expected length and format as Assignment 1.

Assignment 3: visual diary of social and physical components of sustainable practices. In this assignment, students should document AIB-arranged and any of their personal tours in a diary using a slide template. The template lists six categories to facilitate organization: urban agriculture, low impact development, walkable & bikeable communities, renewable energy, public and social places, and other sustainable practices.

Assignment 4: reflective digital storytelling video. In this assignment, each student creates a 3-minute video in which they must reflect on their learning before, during and after the 5-week living in Germany, and tell stories using their voice.

Prior to the trip, students were instructed to bring a laptop computer with video editing capabilities for the trip. After arriving Germany, students learned about digital storytelling, collected photos and video clips, and wrote a script for the video during the course period. At the end of the 4th week, students presented their rough cuts. After completing the program and returning to the US, students submitted their final videos. Required components of the video include:

- Still images (photos, sketches, screenshots, etc.)
- Motion pictures (recorded footages, borrowed films, animation, walk through animation, etc.)
- Narrative voiceover by the student (music is optional)
- Cite at least two of the assigned readings
- A page that lists all readings cited
- Credit and acknowledge page

During the video preparation stage, students used a storyboard to develop their video. Draft storyboards were submitted for instructor's review and comments. Students also wrote scripts for their stories and submitted drafts for review and comments.

3.5 Survey and Data Collection

Students were surveyed at the end of the 4th week after rough cuts were screened to the entire group. Participants' background information such as gender, video production experience, and understanding of digital storytelling was collected. Questionnaire of the survey included rating video-related tasks in terms of how helpful they were for reflecting the Germany experience, comparing digital storytelling with other assessment tools, and ranking different learning methods and assignments. Students could also provide comments on the overall learning experience.

4 RESULTS

4.1 Effectiveness of Digital Storytelling

Students rated various video-related preparation tasks on their effectiveness in helping them reflect the Germany experience. With the scale of 1 being very useful, 3 neutral and 5 not at all, all tasks were perceived helpful because the average scores were all less than 3 (neutral) (see Table 1). The most helpful task was reviewing visual materials such as photographs and videos students took during the trip,

followed by draft storyboard and reviewing rough cuts with the group. Students appear to perceive reading the script they wrote less effective than any other tasks. Interestingly, students tend to prefer visual materials over writing and reading for reflecting the study abroad experience.

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Table 1. Average rankings of video-related tasks in terms of how helpful they were for reflecting the Germany experience.

| Tasks | Average Score (SD)* (N = 13) |
|---|---------------------------------|
| Reviewing the photos/videos taken during the trip | 1.54 (1.13) |
| Storyboard (1 st draft) | 2.00 (1.22) |
| Reviewing classmates' rough cuts | 2.00 (1.25) |
| Relating the actual experience to assigned readings | 2.36 (1.21) |
| Writing the script | 2.46 (0.97) |
| Storyboard (final) | 2.54 (1.51) |
| Reading the script (voice over) | 2.64 (0.67) |

*: 1-very helpful, 3-neutral, 5-not at all

Students were asked about other assessment methods' effectiveness in reflecting the Germany experience, including writing a paper, taking an exam, making a 10-minute final presentation or working on a team project followed by a final report. None of them was rated more effective than digital storytelling for such reflection (see Table 2). Among all other assessment methods, taking an exam was the least favorite by students.

Table 2. Average scores of comparison between digital storytelling and other assessment methods in terms of their perceived effectiveness in reflecting the Germany experience.

| Assessment Methods | Average Score (SD)* (N = 13) |
|--|---------------------------------|
| Making a 10-min final presentation | 2.25 (0.62) |
| Doing a team project and turning in a final report | 2.45 (0.52) |
| Writing a paper | 2.45 (0.69) |
| Taking an exam | 2.64 (0.81) |

*: 1-better, 2-same, 3-worse

4.2 Comparison of Learning Methods and Assignments

Among the seven learning methods presented in Table 3, guided outdoor field trips (M=2.69, SD=1.89), host family (M=2.85, SD=1.99) and guided indoor field trips (M=3.54, SD=2.11) were rated the most effective ones for understanding sustainable communities, followed by in-class lectures (M=5.62, SD=3.07), attending a conference (M=6.69, SD=3.22) and interaction with classmates (M=6.92, SD=3.20). The result is reasonable because German families have lived more sustainably than contemporary Americans for a longer period of time. Our students living with them had the opportunity of witnessing the lifestyle and practiced it in person. Guided field trips (indoor or outdoor) were led by experts in respective subject areas and evidently have done a good job in delivering the sustainability message to the students.

Assignments were rated low, compared with the seven learning methods for understanding sustainable communities. Among the four assignments, Assignments 3 and 4 were rated lower than Assignments 1 and 2 (Table 3). This result confirms a known fact, that is, students do not like to be evaluated or “judged.” Because assignments are an assessment tool, students rated them low, in comparison with the seven learning methods that are all delivery tool. The result of the assignment rating could be attributed to the fact that Assignments 1 and 2 were simpler and due in just one week. Assignments 3 and 4 were comprehensive and had to cover the entire 5 weeks, which is much harder to complete.

Table 3. Average rankings of seven learning methods and four assignments in terms of how helpful they were for understanding sustainable communities.

| Methods or Assignments | Average Ranking* | SD | Range | |
|---|------------------|------|---------|--------|
| | | | Highest | Lowest |
| Methods | | | | |
| Guided outdoor field trips | 2.69 | 1.89 | 1 | 7 |
| Host family | 2.85 | 1.99 | 1 | 6 |
| Guided indoor field trips | 3.54 | 2.11 | 1 | 8 |
| In-class educational lectures/discussion | 5.62 | 3.07 | 1 | 10 |
| International resilient cities conference | 6.69 | 3.22 | 2 | 11 |
| Interaction with classmates | 6.92 | 3.20 | 3 | 11 |
| Personal tours during weekends | 7.54 | 3.28 | 2 | 11 |
| Assignments | | | | |
| Assignment 1 (host family summary) | 5.92 | 2.27 | 2 | 10 |
| Assignment 2 (sustainable transportation) | 6.85 | 2.34 | 3 | 10 |
| Assignment 4 (digital storytelling video) | 8.23 | 1.83 | 5 | 11 |
| Assignment 3 (digital diary) | 8.33 | 1.87 | 5 | 11 |

*: 1 represents the most helpful method; the larger the value, the lesser the helpfulness

4.3 Participants' Digital Literacy

All students brought a laptop computer to the trip and used them to complete the assignments. All but one student had video editing software installed in their computer. Five out of 13 students have never produced a video before the trip. For learning how to produce a video, two never learned; the other 11 students self-taught themselves. In terms of digital storytelling, eight students have heard of them before and only three have done digital storytelling before the trip. We provided light instruction on video editing and production in the beginning of the five weeks. All students were able to produce a video as required for Assignment 4. No one complained about learning video editing and production.

4.4 Written Comments Related to Digital Storytelling

Overall, all students were satisfied with the courses. Excerpts of comments that are related to digital storytelling are listed below.

“I think that by doing a visual diary and a video, I can remember what occurred in my time here. I think that this is the most valuable way for us to record and remember.”

“So far I have enjoyed the projects. They made me aware of the local life. The papers and especially the video, I can watch in later in life and remember parts of the trip I might have forgotten.”

“I would not make the class do the PowerPoint project, have them put all energy in the video diary. I think this was the most reflective and educational project.”

5 CONCLUSIONS AND RECOMMENDATIONS

This paper presents the result of the effectiveness of digital storytelling as a reflection technique in five-week study abroad teaching. The paper also includes the comparison result of learning methods and assignments for helping students understand an intended subject matter. Conclusions of the study include:

- Digital storytelling is a promising tool for reflecting an experiential learning experience in an abroad setting.
- Digital storytelling may facilitate deeper study abroad learning than traditional assessment tools such as writing a paper, taking an exam, making a final presentation or working on a team project with a required final report.
- Reviewing visual materials help reflect on abroad experiences. Host family and guided field trips help students understand the sustainable practices the best.
- Current college student's digital literacy appears at a level ready or near ready for producing a short video.

These conclusions provide some guidance to landscape architecture educators because many landscape architecture programs embrace or require a study abroad experience. Moreover, the studio pedagogy deeply employed in landscape architecture education can benefit from what is learned from the experiment of digital storytelling used in this study. Our recommendations are an extension from the findings of the study beyond the study abroad setting:

- Integrate digital storytelling as a required component in courses that include experiential field learning. For example, service learning projects can be considered.
- Use experts to deliver lectures or guide field trips. If possible, require students to reflect on these activities using digital storytelling.
- Consider using digital storytelling for reflecting internship experiences. Internship has similar high-impact learning experiences as study abroad. Digital storytelling may be an effective tool for such reflection.

Finally, we encourage landscape architecture educators to experiment with digital storytelling in their teaching because, as Ohler (2006, p.47) stated, "creating a digital story taps skills and talents – in art, media production, storytelling, project development, and so on – that might otherwise lie dormant within many students but that will serve them well in school, at work, and in expressing themselves personally." We believe that the use of digital storytelling intensifies the power of reflection on a field trip-based study abroad program because the experiences can be more vividly represented through visual and auditory recordings.

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