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Using VoiceThread to Facilitate Asynchronous Communication: A Design Case

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ABSTRACT Online courses have traditionally used text as the only medium to communicate. However, new technologies make it easier than ever before to integrate audio and video communication into online courses. The purpose of this design case study is twofold. Firstly, we sought to describe the different instructional activities designed for an Instructional Design online graduate course. Secondly, this study undertook to explain the integration of VoiceThread (a Web 2.0 tool with multimedia capabilities) to facilitate students' interactions and the revisions made on some activities that used this tool. Data collected from two surveys administered at the end of the course showed the effectiveness of the changes implemented in the instructional activities and the advantages of using VoiceThread.

KEYWORDS Online education, VoiceThread, multimedia, instructional design.

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El uso de VoiceThread para facilitar la comunicación asincrónica:
un caso de diseño

RESUMEN Tradicionalmente, los cursos en línea han utilizado el texto como el único medio para comunicarse. Sin embargo, las nuevas tecnologías hacen que sea más fácil que nunca integrar la comunicación de audio y vídeo en los cursos en línea. El presente estudio de caso de diseño tiene dos objetivos; por una parte, se ha tratado de describir las diferentes actividades de instrucción diseñadas para un curso de postgrado en Diseño Instruccional en línea. Por otra parte, pretende explicar la integración de VoiceThread (una herramienta Web 2.0 con capacidades multimedia) con el fin facilitar la interacción de los estudiantes y las revisiones realizadas en algunas de las actividades que utilizan esta herramienta. Los datos recogidos a partir de dos encuestas, realizadas al final del curso, mostraron la eficacia de los cambios implementados en las actividades de instrucción, así como las ventajas de utilizar VoiceThread.

PALABRAS CLAVE educación en línea, VoiceThread, multimedia, diseño instruccional.

Usando VoiceThread para facilitar a comunicação assíncrona:
Um caso de design

RESUMO Cursos on-line têm tradicionalmente usado o texto como o único meio para se comunicar. No entanto, as novas tecnologias tornam mais fácil do que nunca integrar a comunicação de áudio e vídeo em cursos on-line. O objetivo deste estudo de caso de design é duplo. Em primeiro lugar, procurou-se descrever as diferentes atividades instrucionais destinadas a cursos de graduação online de design Instrucional. Em segundo lugar, este estudo objetivou explicar a integração de VoiceThread (uma ferramenta de Web 2.0 com capacidades multimídia) para facilitar as interações dos alunos e as revisões feitas em algumas atividades que usaram essa ferramenta. Os dados foram recolhidos a partir de duas pesquisas ministradas no final do curso para demonstrar a eficácia das alterações introduzidas nas atividades de ensino e as vantagens da utilização do VoiceThread.

PALAVRAS CHAVE educação on-line, VoiceThread, multimídia, design instrucional.

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Introduction

This design case used three sections of a graduate course entitled Instructional Design (ID) occurring during summer and fall 2014, and spring 2015. In fall 2013, a new textbook (Larson & Lockee, 2014) and a case-based textbook (Ertmer, Quinn & Glazewski, 2014) were required for the ID course. The intention was to update the course content and introduce case-based scenarios. Although the course has received consistently good reviews, some students' comments in course evaluations from previous semesters (Fall 2013 and Spring 2014) showed the course needed improvements. Examples of students' reviews are:

1. "I would have liked to have seen more opportunities for collaboration and feedback"

2. "Weekly class discussions were focused around the readings, but it would have been nice to have them focused somewhat on questions or problems we encountered while working on our individual projects."

3. "There was a lack of social presence... In an online course, when this social presence is lacking it feels isolating…"

Initially, text- and image-based tools like blogs or wikis were the first technologies integrated in educational settings that allowed communication and collaboration among students. Technological advancements have increased the capacity and quality of these tools and added other channels of communication such as audio and video. Studies have supported the use of Web 2.0 technologies in distance education (Abdelmalak, 2015; Dunlap & Lowenthal, 2011; Gunawardena, et al., 2009; Hsu, Ching, & Grabowski, 2014).

One relevant tool that supports asynchronous communication is VoiceThread (www.voicethread.com). This is a cloud application that supports different types of file formats such as documents, presentations, images, audios and videos. With this application, participants can leave comments to discuss about them. These comments can be posted using text, audio, or video. Recent studies have shown the relevance of VoiceThread to support communication (Pacansky-Brock, 2014), collaborative learning (Ching & Hsu, 2013), and social presence (Borup, West, & Graham, 2013) among students in distance education environments.

Thus, the purpose of this design case is to describe a pedagogical intervention where (1) critical decisions were made during the integration of VoiceThread into a graduate online course to facilitate students' communications and interactions, and (2) situations were addressed in which instructional decisions did not work as planned, as well as a description of the subsequent revision of the case-based integration. Specifically, this study addresses the following general sections:

- A description of the context that includes the online master's program, a discussion of the instructional design course, and the students involved

- A description of the initial design of the course and feedback obtained from students that show problems after the implementation.

- A description of changes made to the design based on the feedback obtained

- A reflection on the experience

Method

Participants are students enrolled on a required three-credit instructional design course as part of their core classes in an online graduate program of Educational Technology. The enrollment capacity is twenty-three and students are geographically dispersed, with most of them living in the United States. Many of the students are school teachers from elementary and secondary classrooms (K-12), while others are college instructors, technology coordinators, technical writers, and instructional designers in corporate settings. Moodle is the learning management system used in this course.

The instructional design course has four different summative activities. First, at the beginning of the course students need to develop a job scenario in instructional design that includes an introductory summary of the job, a detailed list of skills required/expected, knowledge/background required, and a list of "like to have" knowledge or skills. The goal is for students to demonstrate their understanding of the essential skills and knowledge a good instructional designer needs to have. Secondly, groups of students prepare a VoiceThread presentation where they present the main ideas of the content selected to discuss.

ARTÍCULOS

9

RPE

Additionally, they help lead the asynchronous discussions. Thirdly, students not belonging to the leading group are required to participate in the five one-week long discussions designed for the course. Finally, students are required to follow the ADDIE model to analyze, design, develop, and evaluate an instructional design project. Students need to submit the report in two different phases, making a final submission of the complete project at the end of the semester.

Based on the comments from the students suggesting the need to increase opportunities for communication and collaboration in order to foster more social presence, additional data collection was conducted in order to make informed design changes in this graduate instructional design online course. Starting in summer 2014, students who participated in the study answered a sense of community survey (Rovai, 2002). This survey has twenty Likert-scale questions composed of two subscales of connectedness and learning, and it was administered at the end of the course. Additionally, four questions were added to the course evaluation in order to gain a better understanding of the students' perception about the use of VoiceThread.

Design

VoiceThread was implemented in this course in two different ways. First, an introductory activity at the beginning of the course was developed as a social icebreaker to allow students to get to know one another academically, professionally, and personally. The instructor created a VoiceThread presentation where each slide contained the name of the student and his/her email address. During the first week of the course, students were asked to introduce themselves by creating a video clip on the appropriate slide, and make comments on at least three other classmates' presentations in which they had something in common. The goal was for students to have the opportunity to interact asynchronously before the course started. The video and audio features of VoiceThread allowed students to hear one another's voices and see one another's faces, thereby gaining a clearer sense of their classmates' actual personalities than they would from exclusively text-based interactions. Subsequently, a group of students who led a discussion was required to

create a VoiceThread presentation to summarize specific course content and analyze three cases studies. Presentations had between 12 to 15 slides with audio comments ranging from 1 to 3 minutes per slide. All group members were required to participate in the presentation, and it was recommended that students initially work on a Google presentation to create the slides, ensuring that the same format (background, font, layout, etc.) would be used on each slide, and providing additional space for interactions among members of the leading group.

During the second week of the course, students were assigned to a group to lead one of the discussions. Leading groups of three or four students worked collaboratively, using Google presentations and VoiceThread to design a presentation with audio narration, summarizing and analyzing three case studies. These presentations were offered as an introduction to the content of the weekly asynchronous discussions. The only difference between summer (8 weeks long) and fall sessions (14 weeks long) was the time each group of students had to prepare the presentation and discussion questions. A second responsibility of the leading groups was to offer comments and questions to their classmates during the discussion.

The design of the online case-based discussions was adapted from the instructor's experiences and different resources on asynchronous discussions, along with the discussion approach to instruction (Gibson, 2009) and first principles of instruction (Merrill, 2009). Students are exposed to case-based reasoning in two ways. First, students need to participate in four discussion forums during the semester; each forum includes questions related to some chapters assigned from the instructional design textbook and from three case scenarios. These cases were chosen taking into the account the ideas discussed in the ID textbook. Additionally, the ID case book features cases from three different audiences/contexts: K-12, postsecondary, and corporate. Since learners are from different backgrounds, one case is chosen from each context on each weekly discussion for a total of three cases per discussion.

Discussions are 1 week long and contain two questions related to the content assigned for the week. One specific question is related to the two or three chapters assigned for the week. The goal is to discuss more in-depth specific content that

may need clarification. The second question is related to one of the case-based scenarios, to allow students to discuss the potential problems presented in the case as well as potential solutions. Based on their research into how experts solve ill-structured problems, Ertmer et al. (2009) recommend a checklist to help students analyze cases: (a) use your own words, (b) focus on the "big picture" rather than surface details, (c) make assumptions about missing information, (d) focus on root causes rather than quick fixes, (e) consider the core issues (those that are most central to your understanding of the situation), (f) consider the critical issues (those that are likely to have the greatest impact on a successful resolution), (g) if you identify multiple issues think about how those issues fit together, and (h) think about where the issues you identify fit within the instructional design theory.

Data from the SoC survey were very similar for the courses taught in summer and fall. Results indicate that students tended to agree that the activities in the course promoted a sense of community. From the additional questions added to the course evaluation in order to understand students' perception of the different asynchronous activities (Table 2), students rated levels of agreement from 1 (*strongly disagree*) to 5 (*strongly agree*). Based on the results from summer and fall, students on average tended to agree that the introductions at the beginning of the course helped them to connect with their classmates (M = 3.8; M = 4.0), and working on a leading group creating a VoiceThread presentation helped them understand the cases assigned (M = 3.6; M = 4.1). However, students who watched the leading group's presentations were neutral about the usefulness of these presentations in improving their understanding of the case studies in instructional design.

Design Revisions and Results

Based on the results from students' course evaluations and the SoC survey, two core design revisions were made in the leading group presentations for spring 2015: (1) since students were making a summary of the cases before presenting issues and possible solutions, instructions were modified to ask students to focus on analyzing the cases without summarizing the case. The intention was to dedicate more time to the analysis of the cases in VoiceThread and help viewers (who already read the cases) to focus more on the problems involved. (2) The second revision aimed to increase the use of VoiceThread and its multimedia capabilities; in fact, one of the two discussion questions was posted inside of the VoiceThread presentation so that students could use audio to respond. Additionally, since students were already using the content of the ID textbook to analyze and discuss the case studies, both discussion questions were specifically related to the case studies instead, of using one question to discuss a topic from the ID textbook.

Data collected from students who took the course in Spring 2015 confirm the effectiveness of the design changes implemented in the activities. It can be seen in the SoC survey (Table 1) that students agreed that the activities in the course helped them to perceive the course as a learning community. From the additional question in the course evaluation survey, positive perceptions of the use of VoiceThread were stated by students as well (Table 2). Asked about "which aspects of this course were most valuable to your overall learning experience?" students had positive opinions about the use of VoiceThread in its usefulness for group collaboration and discussion. For instance, they stated the most valuable aspect was the

1. "High use of VoiceThread, collaboration with other students on projects…"

2. "… case study analysis presentation with other classmates was terrific for building connections."

3. "… case studies and the discussions greatly helped me see what an Instructional Designer truly does. I felt like I could step into the role of an ID after having done the readings and participated in the discussions."

4. "… collaborating with other classmates especially using voicethread."

TABLE 1. Descriptive Statistic of the SoC Survey

ITEMS	Summer 2014 (n=15)		Fall 2014 (n=19)		Spring 2015 (n=11)	
	M*	*SD*	*M**	*SD*	*M**	*SD*
Classroom community	71.27	8.15	73.20	11.57	86.5	8.5

*Total possible classroom community scores range from 20 to 100, with higher scores reflecting a stronger sense of community. Connectedness and learning subscale scores can each range from 10 to 50.

TABLE 2. Students' Perception of VoiceThread Implementation

QUESTION	SUMMER 2014 (*n*=19)	FALL 2014 (*n*=25)	SPRING 2015 (*n*=18)
VoiceThread introductions at the beginning of the course helped me to connect with my classmates.	3.79	3.95	4.00
VoiceThread presentations supported my understanding of the cases assigned each week.	3.21	3.64	4.22
VoiceThread presentations helped me analyze the case assigned in the discussion forums more effectively.	3.05	3.54	4.11
Creating a VoiceThread presentation with my group improved my understanding of the case(s) assigned.	3.58	4.00	4.17

Note: 1=Strongly disagree; 5=Strongly agree

Discussion

Following Smith's (2010) recommendations to establish trustworthiness in this design case, this study analyzed several graduate courses in instructional design from Summer 2014 to Spring 2015. The author was the instructor of the three courses allowing a close relationship with the learners and a direct observation of the impacts related to the different instructional changes. Instructional design changes were driven by data collected in the previous semesters such as course evaluations, SoC survey, and follow-up questions related to VoiceThread. In general, results (Table 1 and 2) showed that the decisions to change several guidelines to use VoiceThread presentations helped learners to connect with each other better and supported their understanding of the instructional design field. Although the author is aware that other variables could have affected students' sense of community and learning, observations and students' opinions support that the use of VoiceThread in the different activities was an important element in their overall learning experience. While it is tempting to say that the online course contains relevant activities that allow students to improve their instructional design skills and it doesn't require any more changes, this process is far from over. Future plans under consideration include the use of role-playing strategies during the VoiceThread presentation to foster deeper analysis of the different stakeholders' point of views. Additionally, questions are the most basic tool of discussion teaching (Gibson, 2009). Reflecting on the type of questions posted on each discussion forum, not all questions required higher level thinking. In the next iteration, I will try to focus the discussion questions on the higher levels of Bloom's taxonomy to promote students' critical thinking.

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ARTÍCULOS

13

RPE