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Assessment of students' crisis communications skill increase based on classroom instruction and Second Life™ training

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ABSTRACT

Crisis communication training and skill development are critical to ensure the sustainability of the agriculture industry. The purpose of this study was to assess students' perceptions of knowledge, ability, and skills on select crisis-related skills, tasks, and activities in order to identify the potential effectiveness of a Second Life™ (SL) simulation. Pre- and post-test data were collected to determine the potential changes in skill in the seven crisis communication constructs of (a) related knowledge; (b) mass, group, and intrapersonal communications; (c) contingency planning; (d) use of related supplies and tools; (e) identifying learning and training needs; (f) related areas of expertise; and (g) personality traits. Participants also identified their SL Performance Expectancy as it pertained to crisis communications training. Of the population of study (N = 15), 12 usable pairs (n = 12) were analyzed and described in the findings. Participants identified their current competency level in each of the crisis communication skill areas using a 6-point Likert-type scale that ranged from "no knowledge/experience" to "expert". A grand mean was calculated for each construct with differences between pre- and post-test scores being examined. The resulting difference in each of the seven crisis communication constructs represented a large effect when comparing pre-test/post-test scores. Based on data, participants increased in knowledge, ability, and skills on associated items. Each item could be used to improve a communicator's ability to effectively manage a crisis. Virtual worlds appear to be an effective training mechanism and additional research should be focused in this area.

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MEET THE STUDENT-AUTHOR

Gregory C. Jernigan

I am from the Searcy area and graduated from Searcy High School in 2008. I graduated from the University of Arkansas with a bachelor's degree in Agricultural Business in May 2013. Throughout my collegiate career, I have been involved in multiple organizations including Sigma Pi Fraternity International.

I plan to begin my M.S. degree program in Agricultural Economics in the fall of 2013 under the guidance of Dr. Jennie Popp. My concentration will lie in finance.

I would like to give special thanks to Dr. Leslie Edgar, the mentor of this project. Without her guidance this would not have been possible. I will be forever grateful for the opportunities she created throughout this research.

INTRODUCTION

Crisis communication management is an important aspect of the agricultural industry, particularly because agriculture is crucial to human existence (Edgar et al., 2012a). Agricultural progress and success can be hindered by a variety of environmental, economical, and social issues. In such situations, "communication professionals must be prepared to manage the people involved with the crisis and reduce negative impacts" (Edgar et al., 2012a, p. 1). Crises are inevitable, especially in the agricultural sector. Therefore, knowing how to combat these issues and maintaining a favorable image to the public is vital to agricultural success. Individuals must be armed with skills in crisis communication through thorough training so that messages can be disseminated effectively (Edgar et al., 2012a).

Extensive research has been conducted regarding the use of technology in education (Kotrlik and Redmann, 2009; Kotrlik et al., 2003; Murphrey et al., 2009). Agriculturally related technologies have expanded over the past decade, and virtual education can be used as a key component. Training individuals using various forms of technology, such as Second Life™, may play a key role in preparing crisis communicators for the agricultural industry. Second Life™ can be used to encourage experiential learning (Leggette, et al., 2012b), because it incorporates real world situations and uses them in the classroom as an educational tool (Bowers, et al., 2009; Johnson, 2006). Second Life™ instructional potential exists, although research on its capabilities is narrow at this time (Leggette et al., 2012a).

The purpose of this study was to assess students' perceptions of knowledge, ability, and skills on select crisis-related skills, tasks, and activities in order to identify the potential effectiveness of a Second Life™ simulation. Objectives included a pre- and post-assessment of the following: (1) determine graduate students' perceptions of knowledge, ability, and skills on select crisis communications competencies and (2) determine graduate students' perceived expectancy performance on select Second Life™ tasks used to enhance crisis communications competencies.

MATERIALS AND METHODS

The population of the study consisted of students enrolled in a crisis communications course at Texas Tech University during fall, 2011 (N = 15). Prior to curriculum being taught, students completed a questionnaire regarding perceptions of knowledge, ability, and skills on skills, tasks, and activities related to crisis communications. After completion of the course and after participating in a virtual crisis simulation using Second Life™, students completed a post-assessment of perceptions of knowledge, ability, and skills on the same competency areas.

Questionnaires referenced critical crisis communication topics and skills as identified in a Delphi study involving crisis communication experts throughout the U.S. and Canada (Edgar et al., 2012b). The instrument consisted of seven constructs including: Knowledge, Communication Skills, Contingency Plans, Supplies and Tools, Learning and Training Needs, Area of Expertise, and Personal Traits. Second Life™ Performance Expectancy was also assessed. Individual items for each construct were scaled statements ranging from either "no experience/knowledge" (1) to "expert" (6). All data for selected constructs were summated and inferential analyses were performed using Cohen d (IBM SPSS 20.0.), which is an effect size used to indicate the standardized difference between two means, in this case the pre-test M and the post-test M. The "descriptor" denotes the strength of the effect. Of the population of study (N = 15), 12 usable pairs (n = 12) were analyzed and described in the findings.

RESULTS AND DISCUSSION

The following results demonstrate the assessment of students' perceptions of knowledge, ability, and skills associated with crisis communication expertise, and the use of Second Life™ as a means to train students to manage crises in agriculture. Participants were predominately Caucasian, master's degree seeking students. Students' responses after instruction completion were significantly different than before the implementation of the treatment (crisis communications course). Mean differences between the two data collection points were calculated and resulting standard deviations and effect sizes were noted (Table 1). In all seven competency areas, large effects between mean differences were found. Each of the seven competency area scores for participants were summated and results are shown in Table 1. Each competency area contained seven to 16 statements that were used to determine the summated score.

Participants were asked to identify their Second Life™ Performance Expectancy based on 19 specific items, which were assessed using a 6-point Likert-type scale that ranged from "strongly agree" (6) to "strongly disagree" (0). The largest effect size was noted in "I intend to use Second Life in the next 12 months" (M = 3.00, SD = 1.00, d = 3.00, Table 2). The remaining 18 Second Life™ performance expectancy statements with corresponding mean differences, standard deviations, and effect sizes were reported.

Data revealed a large effect size for each of the seven crisis communications competency areas assessed. This indicated a significant increase in each competency between pre- and post-tests. While participants did not indicate a certain intention to use Second Life™ in the next 12 months, participants did increase in knowledge, ability, and skill level on associated items needed to effectively manage a crisis. Materials and topics covered increased the abilities of students enrolled in the course based on previously identified critical crisis communication topics and skills (Edgar et al., 2012b). Future research should focus on the value of virtual simulations and how technology selection and acceptance impacts learning. The importance of utilizing Second Life™ as a platform for educational experiences should be assessed in relation to the creation of superior learning experiences as compared to those not offering virtual components (Mason, 2007). This research demonstrated virtual education as an effective tool in training communicators. Additional research should explore virtual educational platform usage at other universities. The value of virtual training methods for crisis communication education should be explored in relation to assessing perceptions of knowledge, ability, and skills of participants, especially those involved in disseminating information to the public.

The significance of this study for international agricultural and extension education relates to the potential to use technology effectively to deliver crisis communication training. Arming individuals with skills in crisis communication enables effective communication in times of dire need especially in international settings. This study provides key findings to enable agricultural and extension educators to understand the importance of crisis communication and methods to achieve related training.

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Table 1. Difference in competency areas through course intervention.

	M[a]		*SD*			
Competency	**Pre-test**	**Post-test**	**Pre-test**	**Post-test**	**Cohen's *d***	**Cohen's *d* descriptor**
Knowledge	2.53	4.59	0.82	0.98	1.57	Large
Communication	3.53	4.66	0.86	0.76	1.12	Large
Contingency	1.48	4.40	1.15	1.19	1.71	Large
Supplies	2.00	4.75	1.18	1.02	1.91	Large
Learning	1.56	4.36	1.22	0.97	2.17	Large
Expertise	2.88	4.67	0.94	0.95	1.38	Large
Personality	4.06	4.96	0.87	0.64	0.92	Large

Notes: M^a = mean difference between pre- and post-assessments; 0 = No Knowledge/Experience; 1 = Entry; 2 = Novice; 3 = Proficient; 4 = Skilled; 5 = Mastery; 6 = Expert. Competency areas were summated and grand means were used to calculate mean differences.

Table 2. Second Life (SL) performance expectancy statements.

	M		*SD*			
Competency	**Pre-test**	**Post-test**	**Pre-test**	**Post-test**	**Cohen's *d***	**Cohen's *d* descriptor**
Using SL in my education would enable me to accomplish assignments more quickly.	3.00	4.00	1.41	1.58	1.42	Large
Using SL would enhance my effectiveness in learning.	3.60	5.20	1.52	0.84	1.79	Large
Using SL would make it easier to do my assignments	3.40	4.40	1.52	1.52	1.00	Large
I would find SL useful in my education.	3.60	5.60	1.51	1.14	2.85	Large
If I use SL, I will spend less time on routine assignments.	3.60	3.80	0.89	1.30	0.15	Small
Learning to operate SL would be easy for me.	4.40	5.20	1.51	1.09	0.61	Large
My interaction with SL would be clear and understandable.	3.80	5.20	1.10	1.48	0.92	Large
I would find SL flexible to interact with.	3.60	4.40	1.14	1.34	1.81	Large
It would be easy for me to become skillful at using SL.	4.00	5.20	1.22	1.09	0.67	Large
I would find SL easy to use.	3.60	4.60	1.14	1.67	1.00	Large
Using SL takes too much time from my normal assignments.	3.60	3.60	1.14	1.82	0.00	Trivial
Overall, I believe that SL is easy to use.	3.60	4.80	0.89	1.79	1.10	Large
People who are important to me think that I should use SL.	4.40	4.00	0.89	1.41	0.23	Small
I have the resources necessary to use SL.	5.00	5.40	1.00	1.34	0.35	Large
I have the knowledge necessary to use SL.	3.80	5.00	1.09	0.71	0.73	Large
Given resources, opportunities and knowledge it takes to use SL, it would be easy for me to use SL.	4.60	5.20	1.14	1.64	1.11	Large
I think that using SL fits well with the way I like to learn.	3.40	4.60	1.34	1.51	1.10	Large
Using SL fits into my learning style.	3.20	4.60	1.10	1.52	1.22	Large
I intend to use SL in the next 12 months.	6.00	3.00	1.00	1.22	3.00	Large

Note: 0 = Strongly disagree; 1 = Disagree; 2 = Moderately disagree; 3 = Neither agree nor disagree; 4 = Moderately agree; 5 = Agree; 6 = Strongly agree.