

**Teaching the Human Dimension in Agricultural and Natural Resources: Lessons Learned
from a Field Experience Examining the Impact of Hurricane Michael**

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Introduction and Theoretical Framework

Impacts from hurricanes can include widespread damage in agricultural organizations and communities, with recovery sometimes taking years (Grattan, 2020). As noted by the U.S. National Research Council (2006), responding to disasters takes an interdisciplinary approach, bridging social sciences and natural sciences. However, the NRC (2006) went on to say that social sciences often hold a marginal position when compared to natural sciences. By extension, it is reasonable to assume that many natural scientists may not have a good understanding of the social science aspects of an agricultural disaster.

Many of these natural scientists teach technical courses in universities and these universities are tasked with developing skilled graduates who will eventually work in these organizations and live in these communities (NRC, 2009). These graduates may very well be impacted by an agricultural disaster in their lifetime. However, it is hypothesized that technical courses taught by natural scientists may not adequately address human dimensions, especially as it relates to agricultural disasters.

A USDA Higher Education Challenge project was designed to provide contextualized professional development experiences for faculty and doctoral students in food, agriculture, natural resources, and related sciences by visiting communities and organizations to hear the first-hand stories of leaders impacted by Hurricane Michael. The field experience was facilitated using Mezirow's (2003) transformational learning theory, which involves critical reflection to recognize and analyze prior assumptions after the experience.

Purpose

The purpose of this study was to examine the results of this experience. The objectives were to: (a) assess the extent which the stories from leaders impacted by a hurricane impacted participants' learning experience and (b) assess participants' intentions to use the experiences to teach leadership content in technical agricultural curricula.

Methodology

An exploratory approach (Stebbins, 2001) was selected to investigate if and how hearing first-person accounts of the impacts of hurricanes impacted participants' attitudes about their professional development field experiences and their intentions to teach leadership content to their students. All participants ($N = 12$) attended a field experience focused on Hurricane Michael in Florida. There were four females and eight males representing four universities in the southeast United States. Six participants were faculty, and six participants were graduate students. The cohorts included individuals with national origins in Costa Rica, Mexico, the United States, and Germany. The academic departments represented by the participants were crop, soil, and environmental sciences; agricultural education; forestry and environmental conservation; and animal science.

Data were collected in September 2021 during a formal group reflection session conducted at the conclusion of the field experience. A semi-structured interview guide was used, and interviews were audio recorded and transcribed with Otter.ai. The transcriptions were reviewed for accuracy and corrections were made by the researchers. Participants then received the opportunity to

member check the transcripts for accuracy, as recommended by Lincoln and Guba (1985). Some corrections were made.

The constant comparative method was applied to identify emerging themes from the data. One member of the research team took the lead in reading the transcripts initially. Then, that team member reviewed the transcripts a second time and began the coding process following Strauss and Corbin (1990). Identified themes were shared with the remaining research team for triangulation. All research team members were participant observers during the five-day field experience. One possible source of bias was the research team's predisposition to believing in the importance of leadership following a weather-related disaster, so quotes from the participants have been used to aid the reader in determining credibility.

Results and Conclusions

The two dominant themes emerging from the research were impact on faculty and infusing leadership concepts in technical agricultural curricula. Due to space limitations, a summary of results is presented.

Impact on Faculty

R4 explained, "I was making an effort to separate the part that was hitting my soul, versus my mind. I am going to take to my class how the experience affected me." R5 shared,

I've learned a lot more compassion and empathy just hearing these people's stories. One of the women there, she lost her husband, so he was one of the 26 people that lost their life and knowing that when you see these numbers, there are people behind these numbers that are directly impacted."

R1 described,

I now have a connection to it and just like with any kind of learning if you have a past experience to be able to connect to the new information being taught that connection and then engraving of the information is that much stronger.

Leadership

R6 shared,

When I was looking at leadership, kind of just humanized leadership I think it's this grandiose thing like get to be this person or this credential to be a leader. I would really want to emphasize that in the classroom.

R9 reported,

Students need to be prepared for a response from the people that they're trying to help, that it's affected heavily affected by how they are feeling and their emotional state and in their mental health at that particular time. So, I think they that needs to be taken into consideration all across the board.

Interacting directly with leaders personally and professionally impacted by a hurricane led participants to have greater empathy, more passion, and an improved ability to teach the content to their students because of the field experience. The transformational experience (Mezirow,

2003) provided participants an opportunity to step outside their comfort zone, reflect on the experience, and develop contextual examples of their science to better develop agricultural leadership competencies (Strong et al., 2013) in their students.

Recommendations/Educational Importance/Impact on Profession

Transformational learning experiences can enhance individuals' understanding of contextual issues. Creating opportunities for current and future faculty to engage off-campus and in communities is recommended to improve instruction related to real-world problems, like hurricanes. Instructors' ability to develop students' understanding of the human dimension of technical disciplines is crucial to translating science that impacts the next generation of leaders and current stakeholders.

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