Proceedings of the 22nd Annual Emergency Management Higher Education Symposium

Imagination, Improvisation, and Innovation in Emergency Management Education

June 1–4, 2020

FEMA

11/4/2020

Table of Contents

Symposium program, presentation slides and videos, and original illustrations available at: (chds.us/ed/items/20875).

Materials were submitted by the presenters and student reporters. They have been edited for format and length, not for content.

Information about non-federal entities is provided throughout this document. It is provided for informational purposes and is not meant as an endorsement by FEMA or DHS.

Symposium Presentations

Welcome and Opening Remarks

- Chad Gorman, Acting Assistant Administrator, National Preparedness Directorate, FEMA

Student Report:

Prepared By: Megan McClintock, M.S. Emergency Management, University of New Haven

Mr. Gorman opened the Symposium with food for thought. He spoke of a paradigm shift in emergency management (EM), which is the change of thinking and new ideas being implemented, especially as daily routines are adapted to this pandemic. As new hazards continue to challenge FEMA, it is time to embrace the evolution of new ideas and technology, even when it challenges old methods. It is important to have discussions on what can be done to improve and move forward from challenges that the EM field may face.

Mr. Gorman spoke on resiliency, and how it takes on a new meaning for him personally. It has become a common dinner table discussion as every day brings on new challenges in our professional and personal lives. He discussed the importance of talking about the world around us and embracing these conversations with the people that surround you. FEMA has been extending these messages for years, such as Ready.gov, a family tool to aid in the teaching of children on how to be prepared for emergencies.

Risk management has become very complex. As mass amounts of unprecedented data has become available, the speed of communication globally has become rapid as well. This speed combats complexity as the spread of new ideas are accessible. Additionally, generational thinking has become a factor. While education evolves and new methods are taught, people with different education and experience move to higher positions, creating a more diverse pool of information and leaders.

Mr. Gorman spoke about books he believes can help the growth of leadership. The first book discussed was *Call Sign Chaos* written by Jim Mattis. The book discusses the need for continual education and growth in order to be functional in a profession. Looking back at sustained experience cannot be enough to maintain knowledge in order to educate others or make executive decisions. These ideals resonate with homeland security (HS) and EM as constant learning and self-evaluation are taking place to improve tomorrow's response capabilities. Other leaders/authors that Gorman recommends are Robert Gates, General Stanley A. McChrystal, Steve Jobs, and Jocko Willink. Their stories can help us understand their accomplishments and failures so that we can apply them to develop our own leadership style.

Mr. Gorman also touched upon empowerment and how that relates to leadership. He believes that imagination, improvisation, and innovation in the community are useful tools but are hard to apply while in leadership positions. By growing a sense of empowerment in the organization, leaders can tap into these tools in people at all levels of an organization and through different

types of communities. One person alone cannot be an innovator. By setting an idea and having people join in, all levels of an organization can find different opportunities they may not have had before. Relating EM to the military, bold action is an essential function. He believes it is important to read military leaders' books to gain a sense of their capabilities to create a leadership culture in an organization.

Turning back to the question of how to prepare future leaders at all levels of an organization to use these leadership tools and feel empowered, Mr. Gorman referred to the teachings of General McChrystal. FEMA would not be successful if one person was making all the decisions for the organization. Future leaders should listen and learn to understand that one may not have the deep understanding needed to make all the decisions. Second, communicating for consensus allows all levels of an organization to establish trust and create a shared purpose. The power of purpose is important as it allows an organization to have a clear vision of the objective. For teams to move as a unit towards these goals, it is also important to have organizational relationships with one another. This establishes trust and allows individuals to not fear failure.

In the world today, none of what has been accomplished would be possible without courage in an organization. Courage relies heavily on the trust between people, and not allowing failure to inhibit the organization from moving forward. To be bold and innovative can change the course of a community, along with new ideas and thinking. This way of thinking can be applied to EM to allow the growth of a new generation of leadership.

First Steps in Effective Emergency Management Administration: Igniting Imagination to Build and Sustain Community Impact

- Lee Rush, M.Ed., Executive Director, justCommunity, Inc.

Description of Presentation:

Based on the work of Peter Block (*Community: The Structure of Belonging*), participants will be introduced to six essential conversations that create possibilities for personal transformation, organizational change and community impact. As the title suggests, relationships in communities must precede EM when possible. Key points during this talk will be: 1) the power of invitation and hospitality, 2) imagining new possibilities, 3) the value of ownership without blame, 4) how dissent is different from resistance, 5) integrity in relationships is embedded in promises kept, and 6) acknowledging the gifts in self and others is what makes relationships matter.

This methodology using six conversations is called "A Small Group." It has been used across the world in business sectors, educational settings, community grass roots organizing meetings, collaborative problem-solving sessions, faith community gatherings. Recently, it has been used in cities exploring the development of "economies of compassion" or neighbor-to-neighbor connections.

My approach to building "restorative communities" is centered on the belief that global change occurs at the local level. Participants will be asked a simple question at the beginning of the workshop – "Do you want to change the world?" Of course, the answer is usually "yes." The follow up question is, "How do we go about that task?" The answer is "One room at a time and this is the room for today."

This workshop will then unpack the six essential conversations to have and teach participants both the physical structure (room layout) and the linguistic mechanisms to use to initiate such change. Each participant will be provided with a 35-page booklet outlining the protocols and methods used.

Noted Outcomes:

Introducing essential conversations to help build connections was the primary aim of the talk. One of the most important happenings during a talk of this kind is to demonstrate the process. Conducting the talk on a virtual platform created a challenge since people had to migrate to another URL to be placed in a smaller breakout room. To some extent, we were still able to achieve this goal.

Student Report:

Prepared By: Bijaya Dhital, Master of Public Health (MPH), University of New Haven

Collaboration and leadership are key to effective emergency management (EM). Mr. Rush introduced the importance of leadership, building relationships with others, and the power of imagination and possibility. Mr. Rush shared stories from his life experience on the importance of crafting relationships and impressions. During our breakout session, participants were given the opportunity to share their responses to the question "What crossroad do you find yourself at this point of your life or your work?" Mr. Rush explained the purpose of this question was to allow participants to explore the realm of "possibilities." The session ended with an opportunity for more discussion and concluded with remarks to think about what we just experienced and learned.

Mr. Rush explained that leadership is based upon relationships, so it is important to be completely authentic. He said that leadership is learning the art of convening and holding space for others to discover that they have a choice in many situations where they may not think they do. He then talked about his career crossroad starting his own nonprofit, just Community, Inc. He quoted one of his mentors "If you want to change the world, sit in your own house and take care of yourself, the answer to the question of how we change the world is one room at a time. You change the room you are in at the moment." He stressed the importance of taking care of oneself by finding support in one's own life to help mitigate the stresses in day to day living.

As mentioned above, the question we discussed in our breakout room was "What crossroad do you find yourself at this point?" Mr. Rush explained that a question such as this has three ingredients that make it a rich question: 1) it is personal, 2) it is ambiguous (there is not right or wrong answer), and 3) it even creates a bit of anxiety (in order words, makes one think and to take a risk. He also offered the best way to end "a small group" is to share the other participants

in your group a gift they saw in the other. This act of gifting is the best way to show appreciation to others to let others know the impact they may have had.

After the breakout session, when we all returned to the large group, Mr. Rush made a point that he never asks people to "report out" what they just talked about. A more powerful way to bring the small groups back into the fold of the one large group is to ask, "What struck you about the conversation you just had?" He explained this question creates energy versus a question that consumes energy. Sitting and listening to multiple checks can get boring and repetitive. Learning what struck others creates connections. One example of what struck a participant was this answer, "I was stuck how close we got in a short time. Other people were so open, and we just met."

Mr. Rush highlighted the nature of human beings, how we are connected with each other living in a society, and building community depending on relaying on others for support. He encouraged participants to read the book *Community: The Structure of Belonging* by Peter Block. In Block's book he lays out the methodology for creating "small groups" and ways to use questions as a means to build community. More information on Small Groups can be found at: (asmallgroup.net).

People from various sectors such as police officers, social workers, school officials, state leaders, and nonprofits should be connected and talk about the vision for the community we want to create and leave for our children. He also suggested that we make promises without any expectation of anything in return.

The session was opened for Q & A. One of the participants asked, "How can you be a comfort to people who are really struggling in the state of the world today?" Mr. Rush noted that there is a lot of discomfort going on today. He said sometimes by being in small group conversations, people find out they are not alone. Small groups can reduce loneliness and hopelessness. Mr. Rush ended his talk by encouraging people to keep hope alive. He said, "It's understandable sometimes to not be so optimistic based on what is going on in society at large but keep your hope alive for better days because once hope is lost, then we are in real trouble."

Academic Contributions to COVID-19 Response and Recovery

- Dr. Jack Rozdilsky, Associate Professor and Graduate Program Director, Disaster and Emergency Management, York University
- Dr. Jennifer Tobin, Deputy Administrator, Natural Hazards Center, University of Colorado, Boulder
- Dr. Eric Stern, Professor and Chairman of Faculty College of Emergency Preparedness, University at Albany SUNY
- Glen Woodbury, Director, Center for Homeland Defense and Security (CHDS), Naval Postgraduate School

Student Report:

Prepared By: Fouad Jajieh, B.S. in Homeland Security with a minor in Emergency Management, National University

The COVID-19 global pandemic creates a unique demand for academic research, resources, and support to response and recovery efforts. The moderator, Glen Woodbury, presents a distinguished panel who will provide examples of their academic contributions to COVID-19 response and recovery. The panel will engage the audience, explore some of the challenges that we have in research, and focus on areas to best meet demands of frontline agencies and decision makers. The main question that is being addressed is: how can academics best support practitioners during this global pandemic?

The first panelist, Dr. Jack Rozdilsky, begins by comparing the deaths and recovered cases of COVID-19 in Canada with the U.S. Dr. Rozdilsky then discusses the two main types of COVID-19 research efforts in Canada: medical countermeasures, which includes medical research and vaccine development, and social and policy countermeasures, which include understanding social, behavioral, and policy aspects of COVID-19. He discusses his two main research projects. The first project aims to understand the consequences of COVID-19 as experienced by Chinse communities in Toronto and Nairobi, including the social impacts of discrimination and Sinophobia on personal well-being and livelihoods. The second project focuses on "problem solving in action" to identify and address immediate term gaps related to COVID-19 responses by a First Nation's Council in Saskatchewan. Dr. Rozdilsky then discusses several barriers to research, including the health and economic impacts of COVID-19; how academic learning has shifted from on-campus to remote/online learning; and how research has shifted from in-person to remote interviews. He ends the panel by stating that more COVID-19 research is needed, opportunities exist, and it is important to acknowledge the challenges, including ethical challenges, that are present during COVID-19 research.

The second panelist, Dr. Jennifer Tobin, discusses academic contributions to COVID-19 resources, research, and training. Dr. Tobin begins the panel by introducing the Natural Hazards Center, which focuses on translating and sharing information; facilitating connections through webinars, virtual forums and workshops; training and mentoring the next generation by sharing resources to students and professionals; and advancing new social science and interdisciplinary knowledge. In 2018, the NSF-CONVERGE Initiative was introduced, which is dedicated to coordinating and advancing ethical, scientifically rigorous, interdisciplinary, extreme events research. The Initiative is about connecting and collaborating within hazards and disaster research and connecting people with resources and training with the goal of conducting more ethical and scientifically rigorous research in the field. Dr. Tobin also discussed the Natural Hazards COVID-19 Resources page, which is dedicated to gathering resources helpful to those seeking further information on COVID-19. The page provides news articles, related research, and resources that include toolkits, guides, and specialized response information. Dr. Tobin also discusses the COVID-19 quick response research grants, in which 18 research proposals were funded. Dr. Tobin's team also opened a COVID-19 Research Registry for public health or social sciences research. The goal is to build a global registry for public health and social science research to enable information-sharing among researchers worldwide. Dr. Tobin also highlights

other COVID-19 specific contributions for resources, research, and training, including the CONVERGE Training extreme events research check sheets. She ends the panel by discussing the theme of "active hope." Active hope is about recognizing our present condition and establishing what we desire for ourselves, our communities, and our organizations. It is about coming together as a global community and addressing systemic issues that have been occurring for so many years to create a more just and sustainable society for all.

The final speaker, Dr. Eric Stern, focuses on how to build cultures of preparedness through universities and colleges. He identifies three main roles in the context of COVID-19: promoting campus resilience; preparedness education by mainstreaming specialized programs to ensure students, faculty, and staff are prepared for challenges; and providing direct assistance on and off-campus for disaster response and recovery. Dr. Stern briefly mentions campus resilience at University of Albany through activities such as academic continuity task forces, teleworking and temporary remote learning, resources for students, faculty and staff, and emergency financial aid. One of the campus resilience activities to keep the community together at University of Albany is a virtual townhall to share research about COVID-19 and give individuals an opportunity to talk about on-campus issues. Other forms of direct assistance were to activate a student-led virtual operations support team, which consisted of trained students on call for crisis response and fulfilled campus situational awareness. Other university-led initiatives that provided direct assistance included supplying 3D printing face shields for local hospitals and responders; creating drive through testing centers on campus; providing assistance through local resources via the student-run ambulance service called Five Quad; supporting seniors through food banks and NGOs, and student volunteers that assist with contact tracing at the State Department of Health. Dr. Stern was also involved in leading an international rapid reflection team to emphasize crisis leadership in COVID-19 response and recovery. Some of the topics that were addressed through these articles were crisis leadership, crisis coordination, managing teams in crisis, sustainability, crisis communication, and adaptive leadership.

Overall, academic institutions play an important role in conducting research and putting together effective resources to support the COVID-19 response and recovery efforts. This panel highlighted various academic contributions to COVID-19 response and recovery initiatives. Each panelist shared their insights, experiences, and contributions, and allowed the audience to think about ways in which academics can help advance research efforts to support this pandemic. Some of the key initiatives carried out by the panelists include promoting campus resilience activities; coordinating and advancing training for COVID-19 research; collaborating through resources and training to promote ethical and specialized response information and research on COVID-19; and the barriers and challenges that are present during COVID-19 research.

The Scholarship of Teaching and Learning in Homeland Security and Emergency Management: Preparing, Instructing, and Assessing for Success in Online Courses

- Dr. Caroline Hackerott, Assistant Professor, North Dakota State University
- Dr. Alyssa Provencio, Assistant Professor, University of Central Oklahoma
- Dr. Cameron Carlson, University of Alaska Fairbanks
- Dr. George Schwartz, Assistant Professor, Immaculata University

Description of Presentation:

The presentation covered past as well as current efforts of the Scholarship of Teaching and Learning (SoTL) Special Interest Group (SIG) and focus group. The presentation provided a forum to share what has been developed by the three sub-groups and their members on topics including the use of simulations in an online environment, online access and inclusion, and the preparation, teaching, and assessment aspects required of homeland security and emergency management (HS/EM) programs in our current environment.

Dr. Hackerott presented a general overview of the principles associated with SoTL, the value of such scholarship to the disciplines of EM/HS, and the opportunity provided by participating in the SoTL SIG. The previous work was reviewed and themes for future research identified. Hackerott then introduced representatives of each SoTL focus group sub-team, who provided overviews of their ongoing research projects.

Dr. Provencio*: Online Education: Challenges Associated with Access and Inclusion*. Our sub-group is exploring issues of access and inclusion in the online learning environment in EM education. The COVID-19 pandemic and resulting shift to the virtual environment has highlighted disparities in the way students and faculty experience online education. The critical question asked is, "Can all faculty and students access online learning in equitable ways?" Especially pertinent to the discussion is how people of color, first generation, non-traditional, disabled, and other disenfranchised groups are included and served equitably.

Dr. Carlson: *The Scholarship of Teaching and Learning in Emergency Management and Homeland Security: Preparing, Instructing, and Assessing for Success in Online Courses*. Utilizing past focus group reports and experience from members, this team is conducting a systemic review to identify best practices regarding the delivery of EM/HS HiEd. The team is examining the development of core curriculum and key facets of instruction. This project also reviews the role of assessment in confirming program and course quality.

Dr. Schwartz: *Use of Simulations in the Classroom to Educate Students and Develop Leadership Skills*. Starting with the premise that we "train for certainty and educate for uncertainty," simulations have a long history of use for skills training (e.g., medical, mechanical). For EM/HS HiEd, simulations can be used to develop leadership skills. Simulations may be as simple or elaborate as the developer desires, and the more life-like the simulation, the higher the student

satisfaction. Even a simple role-playing/table-top exercise can be invaluable to teach decision-making.

Noted Outcomes:

- Significant outcomes include the review of prior SoTL group reports, the consensus that the AERA and SoTL sub-groups are ideal opportunities for participation by members in the FEMA HiEd Program community, and the overviews provided by each of the sub-groups.
- Five session participants joined the SoTL SIG.
- Each sub-team received valuable feedback from participants.
- The SoTL SIG committed to facilitating a webinar series to support community education regarding SoTL. The first webinar will involve course design for engaging online education.

Student Report:

Prepared By: Christopher Somma, Master's in Homeland Security and Emergency Management, National University

The first speaker was Dr. Caroline Hackerott. She began by explaining how the HiEd Program has sponsored a focus group through the American Educational Research Association (AERA) and attendance by the focus group members at their conference. Dr. Hackerott stated, "This has allowed us to examine and study how we teach to improve the process and ensure learning takes place." She recommended the participants take a closer look at what the previous groups have done. She mentioned how the HiEd Program has recognized that they cannot just do what has been done in previous years. Those involved at the top level of the focus group must create sub-teams and pursue research papers for publication. That means those involved would need to find a focus area of research and work together. Once COVID-19 happened, plans have been up in the air. Focus group representatives are tentatively slated to attend the Association for Study of Higher Education (ASHE) conference in September 2020.

The next presenter, Dr. George Schwartz, posed several pertinent questions: "Can disaster simulation be set to value/measure learning?" "How can we assess leaders before, during, and after disaster simulation?" "How can simulations be used in EM/HS HiEd to develop the leadership skills needed to manage emergencies and crisis?" The following websites were placed in the written chat for all participants to access lessons learned and other useful information from past FEMA training sessions.

- Lessons Learned from Attendance at the 2017 Annual American Higher Education Research Association Conference in San Antonio, Texas: (training.fema.gov/hiedu/docs/latest/2017_508%20compliant%20report%20_discipline_fg_and_aera_conference.pdf)
- FEMA HiEd Program website 2018: (training.fema.gov/hiedu/latest/2018.aspx)
- Lessons Learned from the 2019 AERA Conference in Toronto, Canada: (training.fema.gov/hiedu/docs/latest/2019_aera_lessons_learned.508.pdf)

- A Proposed Research Agenda for the EM Higher Education Community: (training.fema.gov/hiedu/docs/latest/2018_fema_research_agenda_final-508%20(march%202018).pdf)

Dr. Schwartz recommended participants think about how simulations are used in the medical field, such as how doctors use mannequins to develop their technical skills and leadership skills, specifically decision making. He discussed how in certain career fields; academic leaders go from pre-K to post graduate level education. Simulations continue to grow as an assessment tool and will most likely be used as an assessment tool more in the future than today, given the technological advances in virtual reality and the "gaming" path being utilized to give participants as close to a "real-life feel" as possible. He mentioned that "the 2019 report specifically addresses crisis theory." He said "We have been looking over this educational research to see where we can apply these learning standards into use in our EM community. You have to prepare the learner, be flexible in your approach, and go over learning after." Dr. Schwartz stated he believes we can get better at simulations in the EM community. He said there are "different questions we are still looking at in this area." One resource of EM simulations training can be found at: (paxsims.wordpress.com/). The key to simulations is to get beyond learner satisfaction and to get skills learned. We think to "train for certainty", which is a concept we borrowed from the military. Dr. Schwartz finished his presentation by asking, "How can we adapt the next generation with a competency set that can be used with the next group of emergency managers?"

The next presenter was Dr. Alyssa Provencio. She began by recommending that academic leaders start by first assessing their material and ensuring they can understand it. Dr. Provencio asked, "Can people actually get to it and do they understand the material? Is it presented in such a way that they can do that? Whose perspectives are being included?" These questions were commented on by several participants. Dr. Provencio pointed out that with the pandemic and everyone being forced to take or teach courses online, we began asking questions. Some of these questions included "Do people have internet access, computers, etc. to take these courses at home? Do these people have the training/experience to navigate these online resources?" The overall response was "no." She discussed how DeeDee Bennett did a study on the state of EM HiEd programs. It was found that 73% of all EM HiEd programs were delivered online and 83% of programs delivered some of the curriculum online. Highlighting the issues of accessing internet and virtual resources is an ongoing effort and struggle. Dr. Provencio reminded all participants that COVID-19 is not the first time "we" have been pushed into an online environment. She cited Hurricane Maria as another incident where many of those impacted had to use the online educational environment. The stigma of online education being inferior to face-to-face education is a long-standing issue.

Dr. Cameron Carlson spoke next. Dr. Carlson mentioned that he worked with David McEntire and Bill Lahneman. Dr. Carlson spoke about how "Within our school, we do a great deal in the online area. We are working on developing a paper on how to prepare for and teach in an online environment." He advocated for anyone interested in mentoring or being mentored to go out and make it happen. He stated that everyone in the EM community should "be a mentor or mentee when they can in the future."

Integrating Team Based Learning in the Asynchronous Online Environment

- Beth Gray, MBA, JD, Associate Professor, Arkansas Tech University
- Chris Sheach, MA, Visiting Instructor, Arkansas Tech University
- Sandy Smith, RN; Ph.D., Professor, Head of the Department of Emergency Management, Arkansas Tech University
- Jamie Stacy, Ph.D., Associate Professor, Arkansas Tech University

Description of Presentation:

Faculty from the Department of Emergency Management (EM) at Arkansas Tech University (ATU) utilize Team Based Learning (TBL) in the undergraduate asynchronous online environment. Dr. Smith provided parameters for discussion of TBL by setting an overview of online instruction. Then Dr. Stacy introduced the TBL approach and clarified how it differs from more traditional group work, with four distinct components. Dr. Smith shared how ATU aligns their program objectives with the Next Generation Core Competencies, and explained how TBL not only helps complement program objectives as a modality, but also serves to achieve course objectives by the very nature of the approach itself (e.g., team building as a course objective).

Dr. Smith and Mr. Sheach highlighted four challenges their department has identified in the implementation of TBL in the online environment: 1) implementing Team Readiness Assessment Tests (T-Rats), 2) simultaneous reporting of Applied Learning Activities, 3) implementing a post-peer evaluation feedback loop, and 4) overcoming technology barriers.

Mr. Sheach and Dr. Gray each presented the results of introducing TBL in their courses, including best practices, lessons learned, and areas for improvement. Mr. Sheach supplied examples from a 1000 level Intro to EM course, and Dr. Gray presented from a 3000 level Policy and Politics course. Dr. Gray concluded by sharing an example TBL assignment: the team resume. The session was opened for Q & A, moderated by Dr. Stacy, with a quick poll of the participants, “Do you use the Team Based Learning model/approach?”

Noted Outcomes:

Based on the Chat box and Q & A, participants:

- Demonstrated a significant level of interest in TBL in an asynchronous online environment and the potential value of such an approach.
- Shared some of their own challenges and suggestions in attempting to use teams in various ways in their own courses, which helped make the session interactive.
- Indicated a desire to explore the adaptation of TBL in online learning environments.
- Indicated a desire to have additional discussions, sessions, or information on how to apply TBL, and develop learning activities, especially for online learning environments.

Student Report:

Prepared By: Megan McClintock, M.S. Emergency Management, University of New Haven

In this session, participants were able to enhance their knowledge on the format of online classroom learning and create a space for innovative ideas to be heard. Dr. Stacy discussed the different capacities of online learning, the components needed for a successful course, and the value of team-based learning (TBL).

Dr. Smith noted that in the age of a pandemic, it can be quite challenging to engage students that must move to an online format. The rapid change forced many to quickly adapt to this new method when some students have never taken an online course before. Outside of the classroom, students are also facing their own personal challenges with COVID-19, which can create an impact on their progress through a course. Remote learning may not be a normal learning environment, but it does come with its own unique qualities.

Mr. Sheach spoke on the difference between an asynchronous versus a synchronous online learning environment. A synchronous environment is when students must meet virtually in "real time" and follow the course layout at the set pace like the approach in a co-located face-to-face classroom.

An asynchronous online learning environment allows students to work on assignments on their own time. Dr. Gray emphasized that this flexibility is extremely important to allow these online students the chance to absorb the material on their own time, especially since they may work fulltime, and they still must face the ever-growing challenges our society brings.

TBL has proven to be effective, even in an asynchronous online learning environment. There are four components to this methodology that must be followed for successful implementation. First, TBL must have an orientation. It is important that the students understand the method and get acquainted with group learning, as their teams become important through the process. TBL should be introduced at the beginning of the semester. Second, readiness is needed to kickstart a healthy flow of the course units.

This is done for each unit with the Readiness Assurance Process using an individual readiness assurance test (iRAT) and a team readiness assurance test (tRAT). These are tests to ensure students understand the information they studied to prepare for the unit by taking an individual test first before grouping together with their team and taking the same test. This can also include appeals, where the students can state that a question was poorly written or mistakenly coded to get points back. One important statement in the presentation was that failure is a part of group work. TBL may be utilized to break the stigma of failure and focus it as a learning point. The third component is applied learning activities, which follows a "four 's'" standard:

- Significant problems
- Same problem
- Specific choice
- Simultaneous reporting

This would allow students to understand the situations they are given and fully grasp the material, which they apply to the situations. The final component is peer evaluation, where students can provide individual reflection and peer feedback to their group. This helps students understand what concepts might still need work or how each individual group member contributed to their assignments. This also can help address if someone on the team was not doing their part in completing the assignments or if there were conflict(s) between members.

A key component of the teamwork is the importance of having an understanding between the students on each team. This is facilitated using a team contract. It highlights the importance of the course and expectations for all team members. The contract is used for the semester and holds students accountable for their work. A student newsletter outlining the course and its importance would also be a useful tool in order to give an orientation to the material.

Teaching with TBL in an online asynchronous environment comes with its own challenges. Not only are many students new to this type of platform, but there was a large rush of students pushed to an online setting due to quarantine during the spring 2020 semester. Adjustment times may vary per student and cause additional complications. Second, technology may not work as intended. With shortages in connectivity and bandwidth, it can leave some students struggling to access course materials. Lastly, it can be hard to replicate the energy in a co-located face-to-face classroom in a virtual learning space. Alternate methods of teaching and interacting, such as videos and discussion board debates, need to be put in place to engage students so the same energy and engagement in a class can be felt through a screen.

The session ended with lessons learned through this integration. First, the course cannot fall back on traditional ways. If TBL is not working in some aspect, it is not in the students' best interests to abandon TBL and move to previous ways of online learning simply because they may feel more comfortable. A period of evaluation and adjustment must begin in order to move the class forward and perhaps come up with new innovative ways to tackle the challenge. Though online learning is not new, the need to move quickly to 100% online learning caused by quarantine is new. There are other reasons for moving to more online learning, such as student need due to work schedules and other obligations. This calls for ideas such as TBL to be integrated into such platforms so that students can get as much out of their online course as if they were in the co-located face-to-face classroom.

The Scholarship of Teaching and Learning: Understanding the Concept and its Application in Academic Programs and Emergency Management

- Dr. Ekong Peters, Assistant Professor of Emergency Management, Arkansas Technological University

Student Report:

Prepared By: Onifade Jaiyeola, Master's in Public Health, University of New Haven, CT

Dr. Peters commenced with the introduction of the SoTL concept. He described education as the foundation and bedrock of a Nation, and it gives competitive edge to Nations in economic, technological, social, and cultural development. He referred to the SoTL process as a facilitator of systemic review and content analysis of some vital current literature on SoTL. He went on to highlight the significance of SoTL in identification of challenges and opportunities facing disciplines and emergency management (EM). He pointed out that SoTL transformation and innovation aimed at improving the effectiveness in teaching and learning. SoTL allows educators to seek evidence of "what works" and is the core of current transformation in HiEd. SoTL also focuses on methodological pluralism as there is no methodological approach in SoTL.

Dr. Peters then proceeded to the historical origin of the SoTL. He used Boyer's Scholarship Model Application which also describes SoTL as the link between the Scholarship of Teaching, Discovery, Application, and Integration. Existing SoTL literature describes SoTL as a variety of traditional and digital means of teaching and learning. SoTL has the goal of effective communication and dissemination of ideas and findings to academic community. SoTL research may also include reflection and analysis, interviews and case studies, questionnaires and surveys, analysis of existing data, and observations. Methods of inquiry in SoTL also include virtual and physical classrooms, which bring about engaging ways of teaching and learning. Although SoTL was also said to be roundly criticized by Boshier (2009), SoTL has been accepted worldwide and is gaining popularity as an effective and essential tool in transforming pedagogical approaches and the methodological pluralism it invokes "thinking outside the box."

Dr. Peters went on to explain the Disciplinary Application of the SoTL. Its application includes improvement techniques, shared mechanisms, outcomes, and making SoTL work as career path. SoTL is applied within engineering and science, public administration, political science, law, healthcare, family science, communication studies, history lessons, English studies, interdisciplinary programs, management sciences, sociology, psychology, mathematics, and chemistry.

SoTL provides several benefits including bringing innovation and transformation in education, pluralistic methodological pedagogy with discipline-specific context, cutting across disciplines while improving education standards, disseminating academic findings to broad audiences, helping faculty develop rigorous SoTL, improving students' learning experience, molding teachers and students, and also having positive outcomes in discipline and profession.

Dr. Peters then described the application of SoTL with online opportunities to the field of EM, a discipline classified as having a poor state of SoTL research. SoTL could moderate EM student's decision making before they enter the profession. Also, due to the interdisciplinary nature, the EM discipline has advantage over others by applying the scholarship of integration. With new advances in technology, EM faculty have opportunities to utilize these platforms (e.g., web-based/online, WebEx and Zoom). The emerging technology such as cloud computing can enhance SoTL and aids educators practice their profession.

Finally, he said for future consideration, of SoTL, for sustainability and broader reach, scholars should be encouraged to embrace SoTL and colleges and universities according to Hutchings (2011) should provide an environment that encourages SoTL. The future of what SoTL may look like was also theorized by Shulman (2006) by observing three distinctive areas of scholarly fidelity, changes can be expected in the work of individual scholars resulting in convergence of methods, and institutional transformations leading to the establishment of teaching academics.

In conclusion, Dr. Peters recapped that education has gone through transformation and innovation aimed at improving effectiveness in teaching and learning, resulting in critical thinking and skills development. One of such processes is said to be SoTL, and that it cuts across academic fields and barriers with a pluralistic methodological approach. SoTL is also said to be widely accepted, popular, and has a bright future.

Poster Competition

- Monroe Molesky, Jarod Arendsen, Willard Rose, and Brandon McDaniel, Students of Alma College
- James Budrick-Diaz, Student of Alma College
- Taylor Alexander, Alexander Kingsley, and Quinton Moeggenborg, Students of Alma College
- Brian Iveson, Chris Dougherty, Chase Beecher, and Jacob Dean, Students of Alma College
- Diego Otegui, Student of University of Delaware

Description of Presentation:

In this competition, five research teams present their posters, which were reviewed and accepted in advance. Every presenter has five minutes and all Q & A will be held at the end.

Noted Outcomes:

- Molesky et al. is selected as the winner of Dr. Tom Phelan poster award (title: *Using Innovative Blockchain Technologies in Emergency Management and Disaster Response*).
- Alexander et al. is selected as the winner of the People's Choice poster award (title: *Equitable Disaster Relief Can be Hindered by Appearance*).

Play Well with Others: Improvisation, Emergencies, and Collaboration

- Andrew Phelps, Director, Oregon Office of Emergency Management

Description of Presentation:

The presentation provided an overview of what collaboration means, why it is important, and an example of a specific group of people who excel at collaboration: improvisational theater

performers. Barriers to collaboration, like territorialism, competing priorities, and unclear roles were discussed.

Common principles used by improvisational theater performers to tell a story or create a narrative were described. They are:

- Progress the action
- Yes, And…
- Allow what is presented to change you
- Make your fellow players look brilliant
- Serve the good of the whole

Each of these principles was then cross-referenced to the barriers to collaboration and how the principles could help overcome those barriers. The presentation concluded with a practical exercise, applying the "yes, and…" principle to an emergency response scenario, melding the work of emergency managers and first responders with a key principle of improvisational theater and demonstrating how that principle can help overcome collaboration challenges.

Noted Outcomes:
The workshop achieved the stated objectives.

FEMA Resilience Keynote

- Carlos Castillo, CEM., Acting Deputy Administrator for Resilience, FEMA

Student Report:
Prepared By: Bijaya Dhital, Master of Public Health (MPH), University of New Haven

FEMA Resilience aims to build a culture of preparedness through insurance, mitigation, preparedness, continuity, and grant programs: (fema.gov/resilience). As Acting Deputy Administrator for Resilience, Mr. Castillo provides oversight for these programs. Previously, he oversaw FEMA's Individual and Public Assistance Programs and led development of the Agency's National Disaster Housing Strategy. He has more than 35 years of emergency and disaster management leadership experience at multiple levels of government. Mr. Castillo holds a Master's in Public Administration from Florida International University and has represented the U.S. internationally in disaster management, working with the United Nations, the North Atlantic Treaty Organization, and the Asia-Pacific Economic Consortium.
Mr. Castillo started his career at the local level in Miami-Dade County, Florida where he appreciated the unique challenges of local government and as he said, "It is really where the rubber meets the road." Mr. Castillo added he has a long-standing appreciation for HiEd. He was a visiting lecturer at the University of Miami, Florida International University and University of Maryland School of Business where he saw first-hand an innovative partnership between academia and practitioners. He provided an example of guest lecturing at the University of Miami where he co-developed and taught a course to prepare Master of Public Health (MPH) students to go into the field to develop a survey for urban search and rescue teams following an

international response. Mr. Castillo said that this was a good example of how innovative partnerships can result in meaningful outcomes.

Mr. Castillo further explained that in FEMA, the Resilience office was working to incorporate innovation in every aspect of what we do. Resilience has a lot of definitions, but at its core, it is about household and community capacity to bounce back. For now, COVID-19 response presents an excellent opportunity to innovate, not only for future pandemics, but also to change the way we prepare and respond to other types of incidents.

Mr. Castillo said that we need to use this pandemic season to prepare for other disasters, such as the 2020 hurricane season. He added, "For example, it has been the longest activation of our National Response Coordination Center (NRCC) and it is the biggest response ever in our history. The question is, what if we get a major disaster at this time? What if there is a major earthquake?" He explained that FEMA has decided to expand the NRCC and identify another building close by, which is completely setup and equipped. He also emphasized that there are other issues to consider with the hurricane season as people have to evacuate and there will be requirements with social distancing and less response capacity. He believes disaster management is more efficient when its locally executed, state-managed, and federally supported. He explained that at the local level, they know the needs, the capabilities, and the limitations. He commented that we have already seen tornadoes in Alabama, Mississippi, and South Carolina just a few weeks ago where the Red Cross decided to put people up in a hotel for shelter, which is an example of thinking differently. FEMA also established virtual operations using pictures and videos from impacted survivors in the national flood insurance program so they can review claims in a safer, healthier environment.

Mr. Castillo remarked that the best ideas usually come from folks from the community, who are thinking outside the box and addressing challenges in this ever more complex environment. He explained it all starts in the classroom, creating opportunities for graduates to join the professional world, and leveraging faculty to support EM professionals. He also shared that while FEMA is seeing more of the EM workforce holding EM degrees, they still have work to do to bring this emerging educated workforce into the rank. FEMA currently has almost 6,000 vacant positions throughout the country. FEMA hopes to leverage academic support and urged faculty and students to check the FEMA Careers website: (careers.fema.gov) to help FEMA recruit the best and the brightest for the FEMA mission. He shared the fact that the federal hiring requirements can seem like quite a hurdle, but FEMA is working to streamline the process.

Furthermore, he explained that over the past year, FEMA has developed a council and several initiatives to improve their training, education, and professional development efforts. EM academic communities have a lot of experience and expertise the agency can learn from. Mr. Castillo encouraged all to connect with their regions and states to support building resilience. He supposed that many of the participants already have a success story to share, which he considers as the beauty of this running community practice.

Finally, Mr. Castillo shared that moving forward, FEMA has committed to strengthening academic collaboration. They have also established a new academic advisor disaster position,

which will enable them to leverage academic expertise and foster greater collaboration in research and the disaster recovery environment. Mr. Castillo added that connecting educators, researchers, and practitioners will ultimately foster the FEMA vision of preparedness and resilience. He acknowledged this is a difficult time, but he is confident FEMA will continue the partnership and we will overcome challenges together.

Mr. Castillo then participated in a Q & A session:

- It is important to know that these opportunities are open only to U.S. citizens to apply, could you talk about international collaboration because we do have some international scholars. What are your thoughts about international collaboration?
    - Mr. Castillo has seen the benefits of international collaboration. Earlier in his career, he managed to help develop a training program for Latin American and Caribbean first responders where he learned that when you go to different countries, even if they spoke the same language, people had a different language and a different way of doing things. Our role was to understand the differences and learn from them. At FEMA we can learn a lot from other countries, and we are willing to continue that.
- Would FEMA consider developing a report or video on ways that individuals and communities are communicating during COVID-19?
    - They do have a site on the FEMA coronavirus webpage: (fema.gov/disasters/coronavirus) where they have been tracking best practices; it is open to the public if anyone visits the website. Mr. Castillo said there are things to be learned from this response and FEMA wants to share.
- You mention the value of collaborating with academia, are there gaps that academic programs can focus on to better prepare their students for serving the mission as practitioners and analysts? What additional learning outcomes can programs provide to better meet the needs of the federal EM community?
    - There is a lot that academia does to support practice and it needs to continue. There has been a lot of research out there for a long time and it is important to decide on the front end if projects are implementable and perhaps even feasible. Mr. Castillo also thinks some research might take time to make a difference, but he thinks with the continuity of the process and informing policymakers, the research can make an impact. He added that FEMA likes to try new things and new ways of doing things based on data-driven decision making. It leads to better and more realistic decisions which benefit everyone. There are ways to improve and EM programs have to continue to build on that because it drives learning and training. Some of the students are heading in the right direction, as they already practice in the field and they bring a different perspective.
- Given the current global pandemic, it shows the critical role of the Nation to collaborate on solutions to threats that affect us all worldwide. In your opinion what is the number one resilience issue we as scholars could address in our research programs?
    - There are many important issues. FEMA spends the majority of the time in the disaster cycle. It is a constant challenge to make sure people are prepared. Mr. Castillo emphasized behavioral science is key, which considers how people react and how people prepare. Behavioral science is evolving, and still needs a lot of

application-based work.

- I have a bachelor's degree in EM, and I have taken graduate-level courses and am an American Red Cross volunteer however, getting on with FEMA is still difficult. How can I get a chance of joining the reserves without being sidelined?
    - "Don't give up." Some positions are more competitive than others. There are 10 FEMA Regions throughout the country and a lot of positions they are looking to fill, whether it is a reservist or full-time employee, there is always turnover when people retire or leave the agency. FEMA career links: (careers.fema.gov).
- Would FEMA ever develop a real-time knowledge management center where there is staff 24/7 and available to anyone?
    - It is doubtful FEMA would have 24/7 physical staff at the knowledge management center but, there should be that 24/7 capability to get the information. There are about 10,000 pages on the FEMA website and most of them are not that useful. That is why FEMA is working on cleaning it up. People will see changes coming in our training and education area.
- What are your thoughts on using the terms HS and EM interchangeably in the HiEd Program? Is there a difference? And if there is, how does it apply to resilience?
    - FEMA is an all-hazards agency. Regardless of the hazard, FEMA is prepared to support the state and local communities. EM is an umbrella term. The term HS was started post 9/11 when a lot of funding became available for man-made disasters. The truth is, they are used interchangeably in a lot of ways. It is FEMA's duty is to protect the homeland against natural or man-made disasters. Our approach should be consistent throughout from research to application.

Teaching with Art and Improvisation/Singing Tree

- Laurie Marshall, Educator, Artist, Facilitator | Singing Tree Designer

Description of Presentation:

As a member of a community of professionals dedicated to learning, I explored the elements of joy and play in learning, facilitating a hands-on experience for participants to make a small drawing using five simple shapes that appear throughout history and cultures. The music of Native American flute player Carlos Nikai accompanied the art making.

Noted Outcomes:

- People expressed an increase in confidence in their creativity, openness to using art in teaching, and joy in the act of creating something new.
- Several participants sent photos of their completed drawings to Mrs. Marshall, which she shared at the daily wrap up.

Student Report:

Prepared By: Megan McClintock, M.S. Emergency Management, University of New Haven

In this session, graphic facilitator Laurie Marshall taught us the power of unity through art. The Singing Tree was established in 1999 in order to facilitate unity through creativity. The idea was

inspired by the novel *The Singing Tree* written by Kate Seredy, who wrote on her father's experiences in World War I. He wrote of a lone standing tree that was filled with birds, singing a song as the world around them was plagued by war. Laurie Marshall, the creator of the project, was drawn to this as she heard an eight-year-old ask "What if the world created a painting together?" Today, 84 murals by over 20,000 people from 52 countries can be found across the world.

The co-collaboration aspect brings together people with a shared vision of success. Mrs. Marshall stated that especially in present day with mass conflict, it is important to have a medium that people can come together and have a shared vision. With a need for peace across the globe, it is a way people can have a shared experience and grow forward. This project can be found in high school classes all the way to government organizations. The trees are also meant to be intergenerational, especially as the project reached two decades of contributions.

FEMA's Higher Education Symposium's participants have been creating their own Singing Tree since 2017. Each year more birds and leaves are added. The mural addresses community challenges and brings forward solutions in a creative medium. It also provides an opportunity to honor every voice and vision present. While working on these in person, the project allows for deeper relationships to be formed with other participants, which is the primary purpose. As Symposiums continue to take place, it is important to look back and see the growth that the mural holds, allowing for reflection moving forward.

As this Symposium took place during a pandemic, it inhibited people from adding to the FEMA Singing Tree of Higher Education in person. However, this did not hinder the ability to add to the tree virtually. The program included cutouts in the shapes of leaves and birds that participants could contribute. For each cutout, questions are posed to inspire creativity. For the leaves, such questions are "When were you at the right place at the right time in your work?" and "Just as a leaf falls from the tree and fertilizes the ground, what legacy do you want leave?" Questions for the birds are "What is highest hope for your work in FEMA?" and "What is your wish for humanity at this time?"

FEMA NTED and Higher Education Program Update

- Scott Kelberg, Director, National Training and Education Division (NTED), FEMA
- Lisa Lofton, Supervisor, NTED, FEMA
- Wendy Walsh, HiEd Program Manager, NTED, FEMA

Student Report:

Prepared By: Christopher Somma, Master's in Homeland Security and Emergency Management, National University

The session's first speaker was Scott Kelberg. Mr. Kelberg is the Acting Director of the National Training and Education Division (NTED). Mr. Kelberg oversees 200+ federal staff and he is the primary liaison to Congress when they want to know what FEMA is doing to train our Nation.

Innovation, improvisation, and imagination have never been more important than during these COVID-19 times. We are here to speak on training and education today, specifically inside the FEMA world; developing the next generation of FEMA operators. Mr. Kelberg quoted Nelson Mandela, "Education is the most powerful weapon you can use to change the world." He went on to say, "Hopefully we are here to change the world for the better with our programs." He spoke on Mr. Castillo's comments on the National Response and Coordination Center (NRCC) surge effort. Once we started to realize in late February and early March that COVID-19 was real and was going to impact everyone worldwide, FEMA started talking about the need to get ready. With our response center, everyone was deployed and so many people were working tremendous hours. FEMA has never had such a long level-1 activation. We discussed how we really needed to look at a backup facility in case we have another disaster. We need to have a second space not far from FEMA HQ. We made that happen. We developed an NRCC backup roster of about 180 personnel, and we helped to train them. The training and education team at FEMA converted classroom training into Adobe virtual training in a matter of days. The team also provided an environment for on the job training very quickly over April and May, virtually and in the field while practicing social distancing. This was done with their peers working in the NRCC on the COVID-19 operation. May was an exercise month, we had two or three weeks of significant drills and exercises to get them ready. This had never been done before and there was no playbook for it. We improvised, we innovated, and we made changes on the fly. The team made it happen. In FEMA, being flexible is a job requirement.

Mr. Kelberg noted, "We use our NTED and FEMA Strategic Plan as our guides. We are always looking at the future of training. The way we are training during this COVID-19 environment, this may be the future of how training is conducted. K-12 schooling may be conducted with a hybrid of online and in-person education come Fall 2020. In this environment when everyone is working from home in virtual reality, we need to keep our messages as clear and simple as possible." He commented on how FEMA has an important mission and the entire team takes it very seriously. He quoted, "Meeting the emerging challenges of the 21st century disasters and the changing nature of the risks we face. This requires innovation and engagement with the whole community, including academia, EM professional organizations, and private sector."

Mr. Kelberg asked some important questions for all participants to think about:

- What about more intense natural disasters?
- Cyberattacks?
- Global interdependencies?
- How can we constantly be shifting and be flexible?
- Advanced analytics?

Mr. Kelberg highlighted the learning exchange between training and education. While FEMA is not hosting courses on campuses due to COVID-19, they are working to develop a campus-wide training plan to prepare for a return to on campus delivery.

The presenters addressed several questions that had been posted by participants in the chat box:

- When will the link for the continuing training grants be sent out?
    - The link will be provided when the notice of funding opportunity is out.

- Because Emergency Management Institute (EMI) is going to have more online training, can they partner with the academic community so they can give more of this type of virtual training and education? And how might this be achieved?
    - We have convened three working groups at FEMA to look at our three main modes of delivery: virtual, mobile and indirect, and resident.
- Are there any new trainings being developed as a result of the COVID-19 experience?
    - Yes. FEMA's various departments are working on several courses that are being looked over by the Center for Disease Control (CDC). Those courses should be available soon. Mr. Kelberg added, "The best way to know what is new is to go to NTED's first responders training page: (firstrespondertraining.gov)."

Ms. Lisa Lofton spoke next. She is the acting supervisor for NTED education efforts including the HiEd Program. She started more than 30 years ago with the Civil Defense Program. FEMA planned for the unthinkable and was committed to the ideal that we must learn rather than repeat the mistakes of the past. She said: "FEMA started the HiEd Program in 1994. Back then, there was only one EM degree program in the U.S. Today there are hundreds. They did that. You did that. Thank you."

The HiEd Program has had a rich history. It must continue to evolve to meet the changing needs. She believes there is still much untapped potential that we can explore together. She shared the title of a book she loves called, *A Whole New Mind* by Daniel Pink. She went on to mention how Daniel Pink talks about the power of storytelling. The HiEd community has done a lot of great things and can do many more great things. This program is a hidden gem. A lot of people do not know about it, they do not know how to tap into it. This is a tiny program with a big reach. It is easy to spread ourselves too thin. So, we will be selective about the work we take on. We are on the hunt for projects that demonstrate value and impact – the only way to grow the program in my experience. This year we are focused on information sharing. We made the decision to reduce the frequency of the newsletter to bi-weekly and to reallocate time and effort to updating the college list and the HiEd Program website. You will see improvements over the next several weeks and months as we work with the EMI webmasters.

Ms. Lofton discussed how the HiEd team has developed a new program plan, which is still a work in progress with all the changes this year, thanks to COVID-19. As part of that effort, they updated mission statement: "To engage academia, EM professional organizations and practitioners work together to foster a culture of continuous learning and innovation through education and research to meet the challenges that confront the Nation." Words matter. These words build on the language Mr. Kelberg mentioned from the FEMA Strategic Plan. We seek to foster culture through education and research. How do we do that? Lots of room for discussion there. She looks forward to hearing from everyone to work with FEMA to come up with new and improved ways to accomplish our collaborative goals.

Ms. Walsh, the HiEd Program Manager spoke last. Ms. Walsh spoke on the importance of growing the academic community of practice through listening, hearing each other, and cultivating understanding. By working together and communicating efficiently and effectively, we can all continue to excel in our community.

- Regional engagements – Four regional academic and practitioner engagements occurred since the last Symposium as well as a trend analysis of all ten engagements.
- We have been to all ten FEMA Regions by the end of last fiscal year and there was a trend analysis of our findings done.
- One focus group was held to better understand EM education at Tribal Colleges and Universities and several research and curricula developments were shared, that are available on the HiEd Program website.
- Since COVID-19, regional, academic, and practitioner engagements have been postponed and the Scholarship of Teaching and Learning (SoTL) focus group was conducted virtually.

Ms. Walsh discussed some of the major issues the regions continue to face such as wildfires in Region IX. She discussed how we must continue to have conversations and talk about what the academic community can do for the entire EM community. This would include hosting future regional engagements and looking at innovation. Ms. Walsh shared her gratitude for everyone who collaborated to keep the regional engagements alive as FEMA is here to empower the regions and local communities to take control of their own preparedness. She emphasized the importance of storytelling in teaching.

Ms. Walsh mentioned how important it is to look at culture. Culture can affect people and populations, especially during a disaster. In the past years, the HiEd community looked at ways to ensure minority groups had the same opportunities as the majority. Collaborations to engage diverse groups are so important. Historically, EMI has offered great courses to the minority populations. She asked for all participants to reach out to her or any of the staff if they want to pursue these opportunities. In closing, Ms. Walsh reminded participants to consider joining special interest groups (SIGs) and participate in the monthly community calls.

Integrating Cybersecurity into Emergency Management Programs

- Netta Squires, JD, MSL, CEM, University of Maryland Center for Health and Homeland Security
- Ben Yelin, JD, University of Maryland Center for Health and Homeland Security

Description of Presentation:

The purpose of the presentation was to discuss how to integrate cybersecurity principles into EM HiEd programs, and conversely, how to bring some principles from the EM world into the study of cybersecurity. First, the presentation outlined the landscape of current cybersecurity threats, ranging from ransomware attacks to social engineering schemes. Next, the presentation surveyed the field of EM HiEd and highlighted the relative lack of cybersecurity components. Finally, the presentation issued specific, actionable recommendations to facilitate the integration of cybersecurity and EM.

Noted Outcomes:

The presenters offered three conclusions and takeaways. First, cyberattacks, breaches, and threats can have repercussions that impact EM and are the most rapidly growing threat. It is important that emergency managers and academics realize this and help prepare the future generation of EM to combat these threats. Second, cyber incident response should be seen as part of an all-hazard approach and not in a separate silo. Cybersecurity threats should be included in risk and hazard assessment and planning. Third, EM should incorporate cybersecurity into HiEd programs to breed better equipped EM professionals. Adding on or updating a college program can be a daunting task but necessary to keep up with modern challenges.

Student Report:

Prepared By: Senorajoy (Joy) Weddington, Environmental Hazards and Emergency Management, Millersville University

Netta Squires and Ben Yelin gave an engaging and informative presentation on Integrating Cybersecurity into EM programs. The presentation captured the attention of around 100 participants, making it clear this is a timely and necessary topic. Cybersecurity is the governance of information which maximizes confidentiality, integrity, and availability of information using balanced mix of people, policy, and technology (Hasib, 2018).

Mr. Yelin started off the presentation by reviewing recent cybersecurity threats. There are a significant number of different threats within the cybersecurity realm. From denial of service (DOS) (ex. T-DOS attack on 911 centers), ransomware attacks on governments, breach of government records, and hacktivism; there are real and dangerous attacks on our critical infrastructure. Ransomware attacks are when hackers invade a government or an organization's network and lock them out of their own network for money. Breach of government records is when hackers gain access to sensitive data. Hacktivism is political activism in the form of hacking against powerful institutions. Some widely known examples of hacktivism are the Russian disinformation campaign during the 2016 presidential election and the trolling during the 2015 Baltimore City unrest.

Mrs. Squires discussed the current landscape of EM programs and cybersecurity courses. Today we have nine Ph.D. EM programs, however, none include a cyber-related course. There are 65 graduate EM programs, with only 20% of them offering a cyber-related course. There are 83 undergraduate EM programs (not including certificate programs); only 5% of these undergraduate programs offer a cyber-related course. When these courses are offered, they are usually under the HS umbrella. Mr. Yelin suggested some recommendations to increase the number of cybersecurity programs. He recommended an interdisciplinary approach to cybersecurity programs by integrating cybersecurity into EM education and integrating EM into cybersecurity as well. There are many opportunities for this integration when teaching preparedness planning, risk and vulnerability assessment, COOP planning, NIMS, and critical infrastructure. There can be many benefits for doing this. Establishing these integrated cybersecurity programs can create well-rounded and better-prepared EM and cybersecurity professionals. These programs create relevant subject matter expertise that students will be able to bring new to their prospective private and public sector employers and organizations.

The audience seemed open to this type of integration. Many of the questions were centered around curriculum, how to interest students in these programs, and how to start/create programs on campus. The presenters offered three conclusions and takeaways (see outcomes). For more information, contact Netta Squires at nsquires@law.umaryland.edu or Ben Yelin at byelin@law.umaryland.edu.

Additional Source: CHHS. (2019). The University of Maryland Center for Health and Homeland Security. Retrieved June 18, 2020, from (mdchhs.com/).

Native Traditions, Mythology and Storytelling: A Modern Framework in Education

- Jim Cedeno, Emergency Manager, Kodiak Island Tribal Nation
- Norlean Cedeno, Education and Training Specialist, Kodiak Island Tribal Nation

Description of Presentation:

- Our Story
  - Our People and Our Traditional Cultural Practices
- Our History
  - Traditional Education and Storytelling
  - Colonization and Acculturation: Shift in Educational Practices
  - Our Common Ground: Native American and Western Cultures
  - Sharing of a story: "The Story of the Sacred Medicine Water"
- Our Stories and Disaster Knowledge
  - Losing the past: Lost and Forgotten Stories
  - Current Educational Delivery Methods and Effective Learning
  - Ties to current Emergency Management (EM)
  - Our Current Capacity (Audience Poll)
- Our New Journey: Enhancing Adult Learning
  - The Boarding School - No Language, No Families = Assimilation - Lingering Affects
  - Learning Styles engaged
  - The Affective Domain of the Brain
  - Storytelling Delivery Benefits
  - U.S. Tribal Colleges and Integral Values Education
- Storytelling experiences (Audience Poll)
- HiEd's Role and The Next Generation of Emergency Managers
  - Enhancing Adult Learning: "Whole-Community" Involvement
  - Incorporating Storytelling in HiEd: Capturing non-traditional students
  - Our Shared Responsibilities and Existing Common Grounds
  - Creating ONE world: Educating and Protecting our collective people

Noted Outcomes:

Identifying storytelling as a historical and long-standing educational approach.

Hundreds of years ago, Native children and young adults did not attend schools to learn life's ways. Lessons were taught at home through storytelling, while life skills were practiced in the field by doing. Social norms were also a part of the stories to educate the community of the accepted rules of behavior that maintained community cohesion. The sharing of wisdom was the vital link relating to understanding life, family/clan, survival and interacting with nature and the animals for existence. Colonization and transculturation heavily impacted the traditional teaching and learning practices, which ultimately led to insurmountable obstacles to both standard and HiEd Program completion. Today's challenges and the complexity of disaster EM has increased the need for better prepared emergency managers and supporting personnel.

The attendees participated in a discussion in which long-standing strategies for community education were shared as ancestral educational practices, to include storytelling. These practices were used successfully in both the Native and Western worlds for thousands of years and have survived even to this day. The presenters were able to identify, beyond the literal understanding of the story, that a deeper integral meaning drew connections to many life lessons and more unexpectedly to our collective human history.

The art of storytelling to enhance adult learning for EM programs.

The presenters shared the Story of the Sacred Medicine Water, a story passed down over thousands of years. This story spoke of the Indian Nations calling on the Great Spirit to subdue the fierce Dragon from causing disease and destruction to the people and land. The Great Spirit answered their prayers and buried the dragon deep under the mountain and caused clean natural waters – healing medicine waters to flow for all the people. However, the Dragon sometimes still shakes the earth, even today, from the mountain where it is buried.

The attendees were interested in understanding the interpretation of the role of the fierce Dragon, the mountains which has it imprisoned, and the flow of the clean medicine water with the EM concept. The Great Spirit subdued the Dragon under the mountains, which still shakes of the earth, (causing earthquakes) from under the mountains. While the clean medicine water still flows from the mountains through streams and creeks.

The audience was especially intrigued with the idea of how storytelling had a connection to present day EM and known disaster threats. The presenters were able to identify and connect the current EM practices of threat identification to the historical knowledge embedded in our shared oral history.

Storytelling as an effective educational approach to HiEd and learning.

The practice of sharing oral history, storytelling, has survived hundreds of generations. Those generations were entrusted with the shared community wisdom and lived those stories in their daily life, accepted moral values, social norms, cultural traditions, rites of passage, ceremonial

knowledge, and their symbiotic coexistence with their surroundings. Storytelling engages all the senses of the learner, it is repetitive and consistent, it engrains knowledge and emotions in the learner, and we have mutually used it effectively in both the Native and Western cultures for thousands of years. Aligning storytelling practices throughout the HiEd experience can prove to be a successful approach to academic success and a means of better managing the skills demanded in todays' catastrophic disaster management strategies, as well for posturing strong life, infrastructure, and environmental protective mitigation programs within our Nation.

The attendees shared that many of them had grown up listening to stories at home and still read stories to their children but had not seen storytelling used extensively within the educational system, to include HiEd.

This presentation concluded with a video "One World: We are One" to show the audience that although we all may come from different "tribes", either Native American or Western and Non-Western Nations, here we are in "One World", and in this world, "We Are One"….and being one people we can meet our many challenges together as guardians of our collective people.

Making New, Normal: How Region VIII Leads the Way in Innovation

- Lee dePalo, Regional Administrator, FEMA Region VIII

Description of Presentation:

Mr. dePalo discussed the need for innovative approaches and solutions to perennial issues in FEMA and efforts to ensure that innovation becomes part of the culture of Region VIII. Beginning with the "Region VIII Way," a business model that focuses on the empowerment and celebration of each and every employee in Region VIII, the groundwork for ensuring innovation is part of the new normal of doing business in Region VIII was laid.

Mr. dePalo described a number of steps taken in Region VIII that could be implemented elsewhere. These included the creation of a position wholly focused on innovation (Regional Innovation Officer) and the placement of analysts in each division in Region VIII. The creation of a counter-mentor team, influenced heavily by writings from Kelly and Robby Riggs, was another step taken to ensure that new ideas grow and succeed.

Finally, Mr. dePalo provided concrete outcomes related to these steps. From new approaches to handling outreach to institutions of HiEd, to the development of a Public-Private Partnership planning cell to assist states during COVID-19, numerous examples were provided of how making innovation part of any planning process is sure to reap positive rewards.

Noted Outcomes:

Shortly after the presentation, faculty from Arkansas Tech University requested a meeting with Mr. dePalo to discuss their curriculum and any additional changes that might be made to it.

Student Report:

Prepared By: Fouad Jajieh, B.S. in Homeland Security with a minor in Emergency Management, National University

Lee dePalo is the Regional Administrator for FEMA Region VIII. He is responsible for leadership and direction of all aspects of Federal emergency management (EM) in support of the states of Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming, and 29 federally recognized Tribal Nations. Mr. dePalo joined FEMA in 2014 as a Federal Coordinating Officer who managed Federal resources during disasters. He served as Response Division Director and Acting Deputy Regional Director prior to his current role. He is also a U.S. Air Force veteran; his career spans 26 years, 14 locations, and multiple combat deployments.

In this presentation, he discusses efforts to make innovation part of a new normal in Region VIII. Two particular challenges he and his team faced were lack of trust and communication. Strengthening the team was his number one priority. Mr. dePalo used the book, *Five Dysfunctions of the Team* as a foundation to help strengthen and build his team. *Team of Teams* was the second book he used. The team also conducted offsite training to form into a strong team. Mr. dePalo dedicated $325,000 to develop his team. "We brought our team together first before we were able to do other things we wanted to do," he stated. Then he went on to say we needed to put meaning behind the development plan to be able to spend accordingly to develop the team. His team had undergone significant leadership training with an "amazing amount of detail on the organization", but they needed to focus on the mentoring aspect.

Mr. dePalo also focused on collaboration and communication between the divisions. He set up weekly meetings to review progress across the divisions while exchanging ideas and introducing new employees. Mr. dePalo showed a great leadership skill when he mentioned he gives employees a voice. When you have a voice, you realize that your opinion is valuable to your team, which boosts your performance and increases communication across the divisions.

Mr. dePalo and his team have worked on outreach to academia before and during COVID-19. He mentioned that when the pandemic began, "innovation increased." For instance, he set up a private-public partnership for both private sector and innovation outreach. This helped to strengthen and build networks as COVID-19 began to spread. One of their first successes involved delivering face shields to the University of Colorado. Another unique opportunity was being part of a network with physicists in Italy to build a low-cost ventilator solution. Mr. dePalo highlighted the importance of partnership building with the private sector to develop innovative solutions, such as Project N-95 which focused on connecting SLTT (State, Local, Tribal, Territorial) partners with a vendor that imported Italian fabrics to produce medical face masks.

Mr. dePalo and his team continued academic outreach during COVID-19. They partnered with the Colorado School of Mines and executed the Emergency Management Excellence (EMX) challenge, which provides a forum to find new ways to solve complex EM problems. Mr. dePalo and his team aimed to look at what EMX could be while looking forward to the future. The winning team formulated an approach or a solution to combine personal services, food delivery services, ridesharing, and risk analyses (a measurement of movement), public information,

updates on COVID-19, and testing locations. They also used geofencing and location services to identify the risk of exposures.

Mr. dePalo has made significant changes to his organization and promoted innovation. He and his team are working to help stop the spread of COVID-19 around the Nation and the world.

2020 FEMA Higher Education State of the Community

- DeeDee Bennett, Ph.D., University at Albany, SUNY

Description of Presentation:

The presentation provided an overview of the results of the survey. The FEMA HiEd Program Survey is annually conducted to collect and provide consistent data related to the faculty, curriculum, and students of EM programs.

Noted Outcomes:

A total of 117 U.S.-based and seven international institutional representatives responded to the survey, submitting information for nearly 155 programs. The responses to the survey, as indicated in this report, show that most programs have an overall focus on preparing students for work in the public sector. The programs are housed in various departments, schools, and colleges on campus, and the CIP codes highlight a range of disciplinary interests. However, emergency management (EM) and homeland security (HS) related are the most often used CIP codes. While responding programs have various degrees, certificates, and concentration offerings, most of the programs offer bachelor's degrees. More than 50% of the programs have offered EM curriculum between 5 and 15 years. Furthermore, the EM programs are increasingly providing the majority of their curriculum in an online format.

The data in this report indicates that over 61,000 students have graduated with an EM degree. More than 50% of the programs have seen an increase in enrollment and expect an increase in enrollment over the past three years. Over 50% expect an increase in graduation over the next three years. Of those tracked, nearly half of graduating students move on to public sector EM positions. The data also indicates diversity is steady among most programs (54%). However, some of the diverse students have increased since 2019, such as the percentage of non-traditional students (46%), women students (40%), first-generation students (34%), Black/African American students (18%), and Asian students (9%).

Responding programs overwhelmingly rely on part-time faculty. Nearly 30% of faculty (of each type) have a practitioner background. While external funding has generally been inaccessible for most problems, library resources, administrative support, local EM, state EM, and national EM support have been broadly accessible. For the programs anticipating changes before the pandemic, most expect an increase in student enrollment, new faculty positions, and restructuring of the program, department, or school. Most of the programs use the number of graduates as a metric of success.

Many programs have had significant changes during the spring semester, which had an impact on EM curriculum and coursework due to the pandemic. Approximately 24% moved to temporary remote learning, 13% have had an increase in the program from students, and 12% have had an increase in the program from their universities. Respondents also indicate several anticipated changes in their program due to COVID-19; 28% expect an increase in enrollment, 16% anticipate a reduction in funds to support their program.

Most of the programs use the independent study courses (23%), the principles of EM document (22%), and journal articles (20%) found on the FEMA HiEd Program website. However, nearly 36% of program respondents were not aware of the FEMA HiEd Program webinars. Most respondents have participated in the special interest groups (43%), focus groups (32%), and annual Symposium (54%).

The Educator's Dilemma: How Can Emergency Management and Homeland Security Professors Learn from Online Content Innovators

- Rodrigo Nieto-Gomez, Center for Homeland Defense and Security, Naval Postgraduate School

Description of Presentation:

The COVID-19 crisis triggered an existential crisis among educators, including EM educators. While most professors are probably trying as hard as they can to adapt to the new environment, a lack of core competencies to deal with the challenges in front of them limits their capacity to adapt to the new environment.

Native online content creators, on the other hand, have had success in creating educational content outside of the confines of traditional educational institutions. Youtubers, Streamers, and online academies of all types have "cracked" the code of engagement and successful educational delivery.

Using positive deviance, homeland security (HS) educators can improve, finding a good source of learning in places they would not normally look for. Also, with an understanding of flow theory, those instructors can look for those "digital" mentors that, while many are failing to engage their students, they are succeeding at curating and creating communities of learning outside of the normal university system.

Noted Outcomes:

The session was well received with most educators expressing honest curiosity about how to improve their online delivery skills. It showcased a clear need to help create opportunities for them to learn new abilities (from video producing, editing, and staging to flow state management and online community curating).

Student Report:

Prepared By: Onifade Jaiyeola, Master's in Public Health, University of New Haven, CT

Dr. Rodrigo first defined what online education means. He referred to it as a form of learning, instruction, and assessment that is mediated by use of internet. Thus, it is any strategy of education that is conducted either partially or entirely online. He described lectures to be a microcentury in which information passes from the professor's notes to the student's notes without going through the minds of either. He also referred to other ideas like distance learning not to be working as desired.

He mentioned two relevant approaches to challenges and abilities:

- **Positive Deviance** – Based on the observation that in every community, there are certain individuals or groups whose uncommon behaviors and strategies enable them to find better solutions to problems than their contemporaries, while having access to the same resources and facing similar or worse challenges.
- **Mihaly Csikszentmihalyi's model of flow** – The flow state of concentration and engagement that can be achieved when completing a task that challenges one's skills. First, the activity must be challenging but one must also possess great skill. In this state, one is completely absorbed in an activity, especially an activity which involves one's creative abilities. He depicted the flow chart to have eight elements of both low and high abilities.

The presenter challenged everyone to look for people we can draw some experience from. He then proceeded with examples of some online content innovators, what they do, and how they do it. Some of these examples are:

- **MzeroA.com** owned by Jason Schappert – Ranked No. 230 by INC.500, the most prestigious ranking of the Nation's fastest growing private companies. MzeroA.com continues to revolutionize aviation education and safety. Through these video-based training, Schappert and his team reach thousands of their online ground school members each month helping them prepare for their FAA exams. He was named outstanding flight instructor for the years 2014, 2015, and 2016.
- **Neil DeGrasse Tyson** – Teaches scientific thinking and communication. He is one of the most popular figures in modern science. He teaches how his mind works and how he connects with audiences. He encourages us to think like a skeptic, open your mind through scientific literacy, distill data, and navigate bias to discover objective truths and deliver your ideas in ways that engage, excite, and inspire.
- **Blue Apron Inc.** – An American ingredient and recipe meal kit service. It exclusively operates in the United States. The weekly boxes contain ingredients and include suggested recipes that must be cooked by hand of the customer using the pre-ordered ingredients. As of September 2016, the company had shipped 8 million meal servings and in June 2017, they went public with an initial public offering.
- **Duolingo for schools** – Viewed by many teachers and governments around the world as the perfect blended learning companion for their classrooms. Duolingo gives each student personalized feedback and practice, preparing them to get the most out of classroom

instruction. Over 300 million people around the world use Duolingo to help them learn languages. The fun, game-like lessons keep students motivated and excited about languages.

- **Quantic for Student** – A highly selective, accredited, mobile – first business schools, offering a free online MBA and a radically affordable Executive MBA as true alternatives to elite campus programs.
- **KiwiCo** – Builds children's creative confidence and problem-solving skills with award winning STEAM (Science, Technology, Engineering, Art, and Math) projects and activities. Every month, each of their lines delivers developmentally appropriate projects, inspiration, and activities created by in-house experts and tested by kids. Their offering includes seven different product lines, with age-appropriate projects for kids of all ages, from toddlers to teens. In each crate, young makers will find an educational magazine, project supplies, and detailed instructions. KiwiCo lines cover themes in STEM (Science, Technology, Engineering, and Math), art and design, geography and culture, imaginable play, and fine motor skills.

Dr. Rodrigo however emphasized that skills, learning, and the use of mentors are all required to learn about online innovators. He added that as a futurist, we should adapt to this new-normal as soon as possible.

Ethics for Emergency Management

- Dr. Sandy M. Smith, Professor and Head, Arkansas Tech University Department of Emergency Management
- Dr. Shirley Feldmann-Jensen, Lecturer and Program Coordinator, California State University at Long Beach
- Dr. Alyssa Provencio, Assistant Professor, University of Central Oklahoma Department of Political Science MPA Program
- Dr. Steve Jensen, Chair, Disaster Preparedness of the Scientific Advisory Council of the American Red Cross
- David Etkin, Professor of Disaster and Emergency Management, York University
- Jude Colle, Lecturer, California State University at Long Beach

Description of Presentation:

Professional ethics delineate expected and appropriate conduct, principles, and values for guiding practice amid known and uncertain environments. Value-based decision-making is an indispensable element within EM and resilience building considerations. A panel of Ethics SIG members shared the SIG's current work toward a professional EM ethical framework, cataloging ethics resources, and developing ethics curriculum. Additionally, the panel created an environment for discussing ethical issues pertinent to HiEd and further elaborated on the "Next Generation Core Competency of Abide by Professional Ethics."

The panel noted the three objectives of the Ethics SIG for creating a Professional EM Ethical Framework or Standards: 1) state the ethical standards of competent, professional EM practice, 2) protect the public, and 3) bring ethics into the public discourse. The panel identified the need

for an ethical framework for EM professionals as imperative for bringing ethics into the deliberations that happen in our communities, Nation, and globally.

In addition to sharing the SIG's work towards cataloging ethics resources and developing ethics curriculum for HiEd, the panel highlighted the Professional Ethics core competency found in *The Next Generation Core Competencies for Emergency Management Professionals: Handbook of Behavioral Anchors and Key Actions for Measurement*. The handbook details seven behaviors at the core of professional ethics: respect, veracity, justice, integrity, service, duty to protect, and integrates ethical principles within stakeholder discourse.

The Ethics SIG panel began the presentation with a discussion of ethical issues pertinent to the field of EM regarding pandemics. Ethical issues of duty to care, individual liberties, balancing economics with the health of humans, risk communication, and allocation of scarce resources was explored. The panel concluded the presentation with further discussion of these issues and opened the session for further questions and dialogue.

Noted Outcomes:

The session achieved its intention of creating an environment for discourse of ethical issues based upon the vigorous interaction of participants. Numerous attendees participated by asking questions or commenting within the chat box. An Ethics Webinar is planned for the future so that further dialogue may occur.

The Ethics SIG recruited several new members following the presentation. The SIG as a whole meets three times a year and its sub-groups (EM Framework; Resources; and Curriculum) meet monthly. Those interested in participating with the Ethics SIG should contact Jude Colle, the Ethics SIG Secretary.

Nursing Administration and Emergency Management: A Hybrid Master of Science in Nursing Program

- Jennifer Helms, Ph.D., RN, Professor and Graduate Program Director, Arkansas Tech University

Description of Presentation:

The MSN in Nursing Administration and EM program is a 39-credit hour program that includes 30 core courses and nine track hours in either nursing administration or EM. The program is fully online and accredited by the Accrediting Commission for Education in Nursing (ACEN). The departments of Nursing and EM provide the courses, creating a hybrid program. Support of the university and the department of EM are facilitators of the success of the program, as well as the nursing background of the EM Department Head. Challenges for the program include keeping both departments committed to a hybrid program as faculty turnover occurs and finding new ways to recruit students to a unique graduate program.

Noted Outcomes:

The workshop achieved the stated objectives.

Student Report:

Prepared By: Matthew Van, Graduate Student, California State University, Long Beach

The field of nursing and the discipline of emergency management (EM) may entail widely divergent curriculums, yet members of both professions share a common interest in safeguarding human lives. Arkansas Tech University (ATU) has a Master of Science in Nursing (MSN) degree program with a track in nursing administration and EM which aims to help graduate nursing students combine their interests. The degree program is fully online (including prior to the pandemic) and entails 39 credit hours. This curriculum is divided between 30 core hours and nine track hours for either the administrative track or the EM track. Although the program is a hybrid between the two departments of nursing and EM, it should be noted that the first and foremost emphasis is on the nursing aspect. However, since the university also has separate standalone undergraduate and graduate degrees in EM, the EM department is likewise in a position to substantially contribute to the hybrid program.

This hybrid MSN program is primarily intended to train nurses who will eventually fill higher executive leadership positions in healthcare, such as chief operating officer or chief executive officer of a hospital, for instance. Anybody currently in the field of EM can testify that EM is a highly collaborative and interdisciplinary subject. A hallmark of nursing is that the field of nursing is also similar to EM, in being collaborative and interdisciplinary as well, given the wide range of patients that a nurse may face even during everyday circumstances. The goal of the graduate nursing program is to holistically train nurses who will become familiar with and comfortable working in a wide range of healthcare institutions by fulfilling leadership roles with technical acumen and personal skills in diverse settings.

What kind of students does this program attract? Students entering the program tend to be in middle management nursing positions in clinical areas. Some students entering the program do have a more traditional EM background outside of their nursing experience from the military, police department, or fire department. In terms of student demographics, the students entering the hybrid MSN program tend to mirror the demographics of the Bachelor of Science in Nursing (BSN) program also offered at ATU. About 85-90% of students in any given cohort are female, with about 10-12% being minority students. There are also a number of international students in the graduate program, but their numbers are limited due to the graduate program requiring licensure as a registered nurse (RN) in the United States in order to matriculate. Minorities and international students who meet the admission requirements are automatically granted admission into the program.

The nine hours of track coursework can include an administrative practicum if a student opts for additional hand-on experience in administration. Alternatively, a student may instead direct those nine course hours towards additional EM coursework.

Originally, the hybrid MSN program was conceived as being a hybrid program requiring students to only be on campus once a semester. However, it turns out that students had no interest in coming to campus due to their work schedules. It has also been a great challenge even to get the students to come to campus for orientation. As a result, the program has shifted to a fully online format utilizing Blackboard, even prior to the current pandemic. The one remaining in-person class is the practicum course which occurs at a physical location, but likely nowhere near the university campus. The one clinical course does not actually involve working with patients, but instead entails working side by side with healthcare administrators. One benefit of this shift to a fully online program is that there are now fewer difficulties with scheduling classes and the program may recruit students from outside of Arkansas, notably from California and New Jersey in particular.

To offset these increased technical demands, the technical support team for the program has required significant support since many of the students entering the program have not had any experience with online coursework. A result of this investment in technical support is that the program has experienced nearly no problems this past spring semester despite the advent of the pandemic.

The hybrid MSN program combining both nursing and EM was established almost entirely by coincidence due to a discussion at an ATU long range strategic planning meeting. During the subject of potential new graduate programs, the concern about too many nurse practitioner programs potentially leading to job market saturation led to the idea of having the nursing program partner with a different university department to build upon existing institutional resources. The partnership between the nursing department and the department of EM was thus born with the first class of students matriculating in the Fall 2008 semester. Support from the university administration as well as from the Arkansas Department of Higher Education was both forthcoming and helpful, while the lessons learned from Hurricane Katrina, from shortly before the establishment of the program helped to provide an impetus for familiarizing nursing students with disasters.

Other institutions of higher learning may be able to examine the ATU hybrid nursing and EM graduate program and recognize both numerous strengths and challenges that have characterized the first dozen years of its existence. The program has had considerable excitement from all quarters involved, including from both university administrators as well as faculty from both departments. The EM department coincidentally happened to be led by a faculty member who is also an RN. This overlap helped both the nursing and EM departments cooperatively plan together, and the established positive reputation of the EM department also helped increase support for the joint program. The concept of updating or establishing standards for disaster plans to be utilized by healthcare agencies helped to make the case for establishing the joint program, particularly due to the traumatic experiences suffered by New Orleans and the Gulf Coast in the wake of Hurricane Katrina.

Despite these strengths, numerous challenges persist regarding the hybrid MSN program. The lack of a theoretical framework as well as the absence of current disaster preparedness competencies for master's level nurses has provided challenges relating to the curriculum at

times. There have been difficulties conveying the mission and purpose of the hybrid program to some prospective students wondering what they will be able to achieve after completing this degree, and some reviewers have even suggested that the program eliminate the EM track all together. This suggestion likely means that the program is likewise having difficulty explaining the mission of the program to reviewers as well.

On an academic level, the hybrid program has also faced academic scheduling difficulties on the EM side. Not all EM courses were made available online every semester prior to the pandemic, potentially complicating scheduling for students opting for the EM track. A recent sequence of retirements affecting the EM department has meant that some of the newly hired faculty in that department are unaware of the vision and purpose of the joint nursing and EM program. Past lessons have shown that a hybrid program must be built upon good relationships between faculty members of the different departments.

Beyond the interdepartmental challenges that many other hybrid programs may face, the nursing and EM MSN program faces the additional hurdle of having both of its constituent departments being housed in entirely distinct colleges – the College of Natural Health Sciences and the College of Engineering and Applied Sciences for nursing and EM, respectively. This distinction raises the additional complicating factor of two different deans potentially having different standards and viewing a joint program with divergent opinions.

Recruitment has been and continues to be one of the foremost challenges facing the hybrid MSN program at ATU. In the short term, there are barely enough students entering the program to keep the program viable. Part of this challenge is that there is no obvious way for the program to recruit students since traditional means of recruitment like recruitment fairs have not been successful. The students who do enter the program tend to either be former BSN students from the undergraduate program at ATU or have heard of the program online or through word of mouth. A major obstacle for recruitment of new students is that most prospective students for graduate nursing programs are interested in positions as advanced practice nurses (APN), although job market trends suggest that there are more entries into the labor force than available positions. One possible conjecture is that in the coming years, prospective students will gain interest in administration jobs due to a shortage of APN positions over the next decade.

In order to resolve the recruitment conundrum, ATU is currently trying to recruit more students from the military. The introduction of more new courses that are jointly planned by faculty members from both the nursing and EM departments is currently underway, with one of these being appropriately titled “epidemics and pandemics” given current events. It seems likely that EM courses will have more emphasis on healthcare issues as well, thereby better overlapping with the nursing curriculum.

The program is also currently using older core competencies as development frameworks for the program which need to be updated. These older competencies tend to be focused on nursing during mass casualty cases. The updating of nursing accreditation requirements means that undergraduate nursing programs are now required to teach some level of disaster management. Though the integration of disaster management into undergraduate nursing curriculums may vary

widely in terms of quality, this trend may help future prospective students understand the relevance of an EM focused curriculum.

Graduates from the program tend to experience positive academic and professional outcomes. All graduates leave with full-time employment, with most remaining in their positions and subsequently moving into management roles if that outcome was consistent with their professional goals. Some students from the hybrid program chose topics in EM for their final research theses or non-thesis projects. The program can be completed in as few as two years, although most students tend to graduate after four or four and a half years. Given that most students are part-time students throughout the program due to their ongoing professional responsibilities, the maximum time allowed to graduate following matriculation is six years.

In conclusion, the ATU graduate nursing program utilizing nursing administration and EM together in the fully online curriculum has numerous lessons useful for other universities with similar programs or plans to create similar programs. The current pandemic has forced many universities to rush to adapt their undergraduate and graduate curriculums to fit an online system of delivery, and as a result many departments could benefit from the lessons learned from a program that was not conceived under such precarious circumstances. Students who may previously have been hesitant to enroll in an online only program may now be more willing to embrace this mode of education. Of course, this potential growth in students is also mirrored by an increasing number of universities offering online programs, making it crucial for universities to differentiate themselves if traditional advantages such as campus locations are diminished.

Likewise, although not all institutions of HiEd may plan to combine EM and nursing together, this specific hybrid program showcases some of the challenges and strengths that a program spanning multiple academic departments is likely to face. Joint planning and support from both department faculty and administrators are crucial for both the establishment and the continued viability of such a program. Nursing and EM are two fields that are likely to be of great importance in the decades to come, and academics in both fields can gain lessons from examining the joint program at ATU.

Pre-Symposium Workshops

FEMA Disaster Recovery Case Studies

- Laura O'Connell-Calton, Program Analyst, GDO, ICD, Recovery Directorate, FEMA
- Mary Anne Lyle, Branch Chief, Guidance Development Office (GDO), Interagency Coordination Division (ICD), Recovery Directorate, FEMA
- Kim Torbert, Deputy Branch Chief, GDO, ICD, Recovery Directorate, FEMA
- Dianne Walbrecker, Training Specialist, Emergency Management Institute (EMI)

Description of Presentation:

The FEMA Recovery Directorate Guidance Development Office (GDO) led an interactive presentation on disaster recovery case studies. GDO has worked over the last three years to formalize a case study development program because disaster recovery is often very complex and difficult to grasp through doctrine alone. Telling stories about successful recoveries make important concepts relatable, increasing the likelihood that students will remember the lessons learned from the field when they need them most in the future. Teaching through case studies also helps EM students develop critical thinking and decision-making skills, as well as spurs innovation and new ideas.

Participants were asked to describe their focus within EM and how they currently used case studies through interactive poll questions. Their answers helped inform the discussion amongst themselves and with GDO about current uses of recovery case studies and any gaps that might exist. Throughout the discussion, participants shared examples of their own use of case studies in their classrooms/programs, helping to share best practices with each other.

GDO team members also reviewed their current case study development methodology and solicited feedback on ways they could improve that methodology based on the expertise in the virtual room. GDO seeks to inform its case study topic selection process through a data-driven algorithm which is currently in the pilot phase. At the end of the session, participants reviewed a case study on the recovery of Ellicott City, MD from a devastating flash flooding event.

FEMA recovery case studies are available online: (fema.gov/multimedia-library?name=recovery%20case%20studies&bundle=All&field_keywords_target_id&field_related_locations_target_id=All&page=1). HiEd community members are always welcome to view these resources, use them in curriculum, and provide feedback on them to GDO.

Noted Outcomes:

After this session, two professors reached out to the GDO. One professor was interested in receiving more information about the FEMA recovery case study program and case studies developed by other FEMA program areas. The other professor is a specialist in the intersection of disaster recovery and business/economics at the University of Kentucky and Vanderbilt University and is interested in collaborating on future case study developments. GDO is currently coordinating with the National Business Emergency Operations Center (NBEOC) and

this professor to identify opportunities for collaboration on developing COVID-19 economic and business recovery cases or best practice documentation.

GDO has also begun collaborating with a graduate student pursuing homeland security (HS) studies, who also reached out to GDO with interest in assisting in the development process of future case studies. Given the student's interests, GDO may involve him in the development of a case study on the collaboration between the U.S. Virgin Islands and U.S. Naval Postgraduate School during a recent hurricane recovery.

The HiEd Symposium opened avenues for GDO to work with a broader set of academic professionals in the future as we continue to improve our case study development program and identify avenues for closer, regular collaboration between in-field practitioners and academia. As a result of the Symposium, we now have a contact list of members of academia who indicated during this session that they would be interested in collaboration in the future and on what topics, so that engagement can be tailored. As GDO announces newly published cases on fema.gov and through the HiEd newsletter, recipients are more likely to have had an introduction to these case studies and will be more likely to consider using them in the classroom. All of these outcomes ultimately help contribute to improving the way EM professionals are prepared for the complexities and challenges of disaster recovery.

Visualizing Community Challenges to Resilience: An Innovative and Holistic Approach to Disaster Preparedness

- Karen Marsh, FEMA National Integration Center
- Benjamin Rance, FEMA National Integration Center
- Carol Freeman, FEMA National Integration Center

Description of Presentation:

This panel presentation will introduce key updates to FEMA's Resilience Analysis and Planning Tool (RAPT). RAPT, an intuitive, free-to-use GIS web map allows users to combine layers of community resilience indicators, census data, infrastructure locations, weather, and hazard data. Recently updated census-tract data and analytic tools facilitate a more granular analysis. Real-time weather forecast outlook layers allow users to visualize populations and infrastructure at risk for near-term severe weather. Using RAPT to visualize data allows users to prioritize strategies to impact resilience, response, and recovery. Participants will view a live demo of RAPT.

Noted Outcomes:

Participants were interested in using RAPT within their curriculum. The user-friendly nature of this tool would help students build confidence with conducting GIS-based analysis as well as provide opportunities for real-world analysis of historic hazard and severe weather threats to populations and infrastructure.

Participants indicated that RAPT could support both a case study education format as well as provide students opportunities to work with local emergency managers to create community

resilience profiles and/or help them review emergency plans, including evacuation plans vis-a-vis population characteristics, such as access to a vehicle or individuals with a disability.

Overview of the DHS Science and Technology Directorate (S&T) and the Office of University Programs (OUP)

- Georgia Harrigan, Acting Director, DHS S&T OUP
- Eleanore Hajian, Program Manager, DHS S&T OUP

Description of Presentation:

The presenters provided an overview of DHS S&T, focusing on some key programs of interest to attendees. S&T (https://www.dhs.gov/science-and-technology/office-university-programs) was established when Congress authorized the Homeland Security Act of 2002 to serve the R&D arm of the Department. S&T's mission is to enable effective, efficient, and secure operations across all homeland security (HS) missions by applying scientific, engineering, analytic, and innovative approaches to deliver timely solutions and support departmental acquisitions. S&T works closely with components across the Department, spanning all mission areas, including the U.S. Coast Guard, FEMA, Customs and Border Protection, Transportation Security Administration, Countering Weapons of Mass Destruction, and the Cybersecurity and Infrastructure Agency. S&T conducts basic and applied research, development, demonstration, testing, and evaluation activities relevant to DHS. Read about the S&T's Strategic Plan (https://www.dhs.gov/publication/st-strategic-plan-2020).

S&T strives to address current capability gaps while preparing for future challenges. S&T's network of, DHS laboratories, DOE national laboratories, Federally Funded research and Development Centers (FFRDCs), and DHS university-led Centers of Excellence help to deliver an enduring capability in HS technology for future generations of Americans.

In addition, S&T also has programs that work to engage private and public sector partners. One of these is the Office of Industry Partnerships (OIP) – which offers opportunities to engage a broad range of partners. One mechanism IP uses are **Prize Competitions**, which are open to Citizen Inventors, University Students, and others who do not traditionally participate in government contracts. For example, an Opioid Detection Prize Challenge conducted last year (in February 2019), the U.S. Department of Homeland Security (DHS) Science and Technology Directorate (S&T), the White House Office of National Drug Control Policy (ONDCP), U.S. Customs and Border Protection (CBP), and the U.S. Postal Inspection Service (USPIS) launched a $1.55M multi-stage prize competition for rapid, non-intrusive detection tools that would help find illicit opioids in international mail. You can learn more at: (challenge.gov/).

Another mechanism is the **Long-Range Broad Agency Announcement** – a standing, open invitation to the scientific and technical communities to fund pioneering research and development (R&D) projects in support of our Nation's security. A traditional Broad Agency Announcement (BAA) is fairly specific in its subject matter requirements. The LRBAA is not. By design, it covers a wide range of subjects and is short on details. This enables S&T to contemplate

proposals for original research that fall outside the scope of its more narrowly defined BAAs. You can find a listing of S&T's current solicitations at: (baa2.st.dhs.gov/portal/BAA/).

There is also a Small Business Innovation Research (SBIR) Program, Silicon Valley Innovation Program (SVIP), and Technology Transfer and Commercialization Services.

OUP (https://www.dhs.gov/science-and-technology/office-university-programs) enables DHS components and their partners to bring innovation to operations by tapping into the expertise of the Nation's colleges and universities. OUP manages university partnerships with three key programs:

- Centers of Excellence (COEs) – (https://www.dhs.gov/science-and-technology/centers-excellence) University-led consortia, work with industry, DHS components, other government and HS agencies (federal, state, and local), and first responders to develop critical technologies and analyses to secure the homeland. COEs also develop HS-related curricula and training.
- Workforce and Professional Development Initiatives – (https://www.dhs.gov/science-and-technology/workforce-development-initiatives) Develop the current and future HS science and engineering workforce. OUP grants, internships, and fellowships expose students to advanced technical knowledge, training, and complex, real-world challenges, in order to become the next generation of HS leaders.
- Minority Serving Institutions Programs – (https://www.dhs.gov/science-and-technology/minority-serving-institutions-program) Provides grants and awards to build a diverse, highly capable, technical workforce for the HS enterprise.

A few COE highlights:

- Led by the **University of Illinois Urbana-Champaign**, Critical Infrastructure Resilience Institute (CIRI) (https://ciri.illinois.edu) conducts research and education to enhance the resiliency of the Nation's critical infrastructures and the businesses and public entities that own and operate those assets and systems. CIRI explores the organizational, policy, business, and technical dimensions of critical infrastructure's dependence on cyber assets. They also examine how cyber assets both contribute to and threaten resiliency and how industry makes decisions about cyber risk management.
- Led by **Arizona State University**, the Center for Accelerating Operational Efficiency (CAOE) (https://caoe.asu.edu) develops innovative approaches to enhance and streamline HS operations. The research, systems, and technology created at CAOE provide the U.S. DHS with dynamic information and predictive tools to help resource and response planning, risk analysis and real-time decision-making.
- Led by the **University North Carolina at Chapel Hill in partnership with Jackson State University in Jackson Mississippi,** the Coastal Resilience Center (CRC) (https://coastalresiliencecenter.unc.edu) conducts research and education to enhance the resilience of people, infrastructure, economies, and the natural environment to the impacts of coastal hazards such as floods and hurricanes.
- Looking forward, DHS S&T OUP will establish a COE at an accredited U.S. university that will offer a concentration in **Security Technology Transition (STT) within its Master of Business Administration (MBA)** program. Note: This COE was launched

July 6. The press release is available here: (dhs.gov/science-and-technology/news/2020/07/06/news-release-dhs-selects-gwu-pilot-new-coe-security-technology-transition#).

Noted Outcomes:

DHS S&T OUP received some follow-on inquiries from universities interested in working with them. Opportunities for additional coordination with the FEMA HiEd Program were identified. For example, OUP will confirm that the Centers of Excellence announcement and mailing lists for "Request for Proposals/White Papers" include FEMA HiEd community members.

What to Teach in Emergency Management: Thoughts for New Instructors in the Disaster Discipline

- David McEntire, Ph.D., Dean, College of Health and Public Service, Utah Valley University

Description of Presentation:

This year, as in other years, I taught a workshop at the FEMA HiEd Symposium. Prior to the Symposium, I reviewed the literature and updated the slides with new information (which included an update of Claire Rubin's *History of Emergency Management* textbook, Jessica Jensen's article on the National Incident Management System (NIMS), information about the Natural Hazards Workshop, mass fatalities, and information related to COVID-19). The slide deck continues to expand each year with over 175 slides of valuable concepts, examples, and resources.

During the four-hour presentation/discussion, several topics were covered including:

- Definitions of emergency management (EM)
- Phases of disasters/EM
- Mission, vision and principles of EM
- Concepts of hazards, risk, vulnerability and disaster
- Historical views of disasters (how they have changed over time)
- History of EM
- The challenges facing EM, including Wayne Blanchard's Dirty Baker's Dozen
- Resources made available from the FEMA HiEd Program, the Natural Hazards Center, etc.
- Journals in and related to the discipline
- Foundational books on disasters and EM
- Diverse schools of thought (e.g., natural hazards, radical/critical, administrative, social vulnerability, homeland security (HS), etc.).
- Topical or functional studies including aspects of disasters (e.g., mitigation, insurance, planning, emergency planning committees, training, exercises, warning, evacuation, sheltering, triage, mass fatality management, debris management, social media, ICS, EOC, etc.)

- Disaster paradigms (e.g., natural hazards, civil defense, technological hazards, comprehensive EM, disaster resistance, disaster resilience, sustainable hazards mitigation, HS, whole community, comprehensive vulnerability management, etc.)
- A case study of the response to the Ebola outbreak in Dallas, Texas
- A discussion of planning, improvisation and spontaneous planning

Noted Outcomes:

I believe everyone was educated further about disasters and EM, and those attending will be better instructors because of this experience.

Student Report:

Prepared By: Calvin Delisle, Disaster and Emergency Management, Northern Alberta Institute of Technology

The presentation began with a discussion of the four phases or the disaster life cycle. Mitigation is defined as preventing or reducing the probability of disasters. Preparedness is conducted through planning, training and exercises. Responding includes life saving measures, and recovery is about rebuilding bigger and better. Dr. McEntire mentioned an article by David Neal titled *Reconsidering the Phases of Disaster*. The article is published in the International Journal of Mass Emergencies and Disasters and identifies how phases overlap. As someone who is instructing for the first time on EM, this is something to consider when presenting to your students. Dr. McEntire used a great analogy to demonstrate the overlapping phases. An umbrella can symbolize mitigation since it can prevent you from getting wet. You can also prepare yourself by checking the weather and taking an umbrella for the possibility of rain. If it rains, you have the umbrella to respond with and you can recover quicker due to an umbrella because you won't be as wet. Dr. McEntire mentioned that Homeland Security (HS) has added prevention and protection as phases. Prevention is an effort to understand who the terrorist is by using intel and by employing counterterrorism measures. Protection includes hardening targets and taking steps to defend critical infrastructure. The question is, could both not fall under mitigation? That could be determined by where you are coming from (whether it is EM or HS).

What is EM? That depends on who you ask, and the answer may vary. One definition is about risk and risk avoidance. However, EM is much more than risk assessment and avoidance. An academic definition says EM is the study of humans and institutions and how they react to disasters. Another definition defines EM as a discipline and profession of science, technology, and planning to deal with extreme events that could destroy communities and kill a massive amount of people. EM is all of these things, and it is a profession that requires education, standards, and associations to name a few. EM requires the use of technology, GPS, and other technical systems. It requires administration and land use planning too.

The FEMA Principles Working Group defines EM as the managerial function charged with creating the framework within which communities reduce vulnerability to hazards and cope with disasters. This definition focuses on the management function. As an emergency manager you need to manage a budget, resources, and personal. There are eight principles of EM. Comprehensive includes all hazards, all phases, all actors, and all impacts. It looks at the big

picture which includes infrastructure and the economy. Progressive means to be proactive and not reactive. Risk driven focuses on the major threats. What is the priority? Should we focus on natural hazards versus human-induced disasters? Integrated is another principle which gets everyone on the same page. Collaborative is about having the right attitude when working with others. Coordinated is the sharing of information and communicating – to work together to solve the problem. Flexibility is being able to adapt to the situation. Professional looks at the knowledge, skills, and abilities of the individual or group.

Dr. McEntire discussed the important concepts of EM, including hazards, risks, vulnerability, and disasters. Hazards can be natural, technological, and civil. Hazards are often natural phenomenon which can be fatal and cause extensive damage, such as tornadoes and hurricanes. They can be further defined by their characteristics. The magnitude refers to various scales, dependent on the hazard. Areal extent focuses on the location and how widespread it is. Temporal spacing looks at the seasonal aspect. Speed of onset is understanding if it slow moving or if the hazard appears suddenly. The duration of the hazard addresses long-lasting events such as major floods or those shorter in length. Frequency is knowing if it is common or rare. As a teacher, we need to able to fully explain the hazards to the students and the various characteristics. Risks are the probability of a disaster occurring. With risk we must look at potential losses, risk assessment, risk communication, and the consequences associated with risk. Vulnerability looks at proneness or the ability to withstand an event or the effects of a disaster, the decisions we make, policies put in place, or how we build can be deciding factors.

A disaster is a "deadly, destructive, and disruptive event that occurs when a hazard interacts (or multiple hazards interact) with human vulnerability" (McEntire 2007, 2). Disasters are disruptive to our daily lives and can destroy homes. Other definitions mention that disasters are accidental which is not always the case. Not all disasters are accidental. Dr. McEntire briefly mentions the evolution of the term disaster, mentioning acts of god (which are covered under some insurance policies), natural hazards, socially disruptive events, and socially constructed events. The presentation looked at the scale of events and when an emergency manager is required. Is an emergency manager required at a motor vehicle accident? Most likely not. However, they are involved in major emergencies and disasters.

There have been many examples of EM throughout history, some of which had no government involvement. The Bible for example, tells the story of Noah's ark. Over time, the need for formal EM was increasingly required and at first was pieced together as went along. Eventually, laws were created, and legislation was introduced. The Carter administration created FEMA which evolved into a greater focus on HS after 9/11.

The Disaster Research Center, the Natural Hazards Center, and the FEMA HiEd websites provide valuable resources for new instructors when preparing a presentation to their students. There are other resources from around the world which include websites and journals that provide extensive information on EM. There are various schools of thought, and they look at specific aspects of EM. They may be focused on natural hazards, administrative issues, security, human behavior, and radical or critical perspectives which are about those at risk or those that profit from disasters. There are numerous foundational works that cover case studies that focus

on human response and the effects of disasters on society. The list of resources on EM is extensive. Topical studies focus on one specific issues. Functional studies cover important activities related to early warning systems, planning, and preparedness or exercises. There are important case studies that provide valuable information and insight to what happened. They also provide a discussion of lessons learned.

The presentation looked at multiple disaster paradigms. The natural hazards perspective is based on the most commonly occurring events and helps us to better understand the natural hazards and how to be proactive. However, by putting too much emphasis on any single type of hazard we have the potential to forget about others. We looked at the various strengths and weaknesses of the Civil Defense, Industrial Hazards, Comprehensive EM, Social Vulnerability, Disaster Resistance, Disaster Resilience, Sustainability/Sustainable Hazards Mitigation, HS, and Whole Community perspectives. There are many paradigms. No single paradigm is the answer and they all need to be given our attention. Invulnerable development suggests that we intentionally reduce risk and susceptibility while also raising resistance and resilience to disaster. Invulnerable Development considers all four phases, takes an all hazards approach, and includes public, private, and nonprofit and the public. Given that nothing is truly invulnerable, Dr. McEntire suggested that Comprehensive Vulnerability Management may integrate other perspectives.

We examined a case study about the Ebola outbreak. The timeline shows how it spread from Guinea to Liberia to the United States. We must be aware of false assumptions. There was no clear communication about the lead agency and the Nation's public health experts had little involvement in the overall response. There was misinformation, political disagreements, a lack of privacy for those in quarantine, and some unwillingness to follow quarantine orders. Other major concerns also involved the medical debris or waste and the patient's dog who may or may not have Ebola. The cost of treating and caring for the dog with two vets on staff was over $200,000. For the number of people potentially infected and the overall cost, it is clear to see that we were not as prepared as we should have been.

Dr. McEntire then discussed planning, improvisation, and the concept of spontaneous planning. When it comes to planning, we must be comprehensive, assign responsibility, base our efforts on actual behavior, facilitate coordination, avoid common pitfalls, and update them accordingly. It is important to recognize that planning is different from managing. We also must therefore be flexible when responding and be able to improvise. Dr. McEntire gives us the example of a football play in which the play breaks down despite the planning and practice before the play occurs. This is where the quarterback must improvise to make something of the play. However, Dr. McEntire also noted that both planning and improvising may occur during response. For this reason, emergency managers may wish to consider the benefit of spontaneous planning (planning the response as it occurs in order to maximize success).

Survey of Geographic Information Systems for Disaster Management, Research, Teaching and Service

- Kevin Mickey, Director Professional Development and Geospatial Education, The Polis Center at IUPUI
- Unai Miguel Andres, GIS and Data Analyst, The Polis Center at IUPUI
- Marianne Cardwell, GIS Project Coordinator, The Polis Center at IUPUI

Description of Presentation:

This workshop offered a survey of how Geographic Information Systems (GIS) software and methods can be used to support disaster management teaching, research, and practice. It began by introducing how desktop GIS tools can support visualizing and exploring the population, infrastructure, buildings, and other aspects of a community, as well as the hazards that impact them.

Next, it explored examples of publicly accessible web-based GIS tools and discussed how these resources and others like them can offer opportunities for internships, classroom instruction, community engagement, and research. Examples included using GIS to communicate information related to the COVID-19 pandemic; modelling and communicating the economic and social impacts of natural disasters; and a collection of custom web-based tools with over 12,000 data indicators that support research about decision-making for communities in Indiana.

In the final portion of the workshop, guidance was provided on where to find GIS teaching resources, additional instruction on GIS software and methods, and opportunities for getting involved in the GIS community through professional and academic organizations.

Noted Outcomes:

The workshop achieved the stated objectives.

Appendix A: Alternate Text

First page image:
Silhouettes of a group of people with a large thought balloon above them containing the following text: Continual Learning, Governance and Civics, Sociocultural Literacy, Technological Literacy, Possess Critical Thinking, Geographic Literacy, Community Engagement, Systems Literacy, Operate Within the EM Framework, Professional Ethics, Disaster Risk Management, Leadership, and Scientific Literacy.