

## INTEGRATING THEORY INTO EMERGENCY MANAGEMENT COURSES

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### ABSTRACT

Theory serves multiple purposes in undergraduate curricula. Theory provides predictive and explanatory frameworks that improve students' comprehension of the unique characteristics of disaster and disaster management contexts. This greater understanding expands students' ability to effectively apply critical thinking to multiple situations. This article examines the integration of multiple theoretical frameworks and models into a Vulnerable Populations in Disasters course. Using team-based learning and case studies as primary pedagogical and instructional strategies, these models, frameworks, and interdisciplinary approaches are explored.

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### INTRODUCTION

Emergency management and disaster science program educators confront a common problem as they develop undergraduate courses. While different programs may fulfill different missions, educators are charged with producing graduates well-prepared to enter a profession that demands a broad knowledge base, multiple competencies, and the ability to think critically in a frequently and rapidly evolving context. Creating rigorous content and learning activities challenges the constraints of the typical 16- or 8-week course structure. Some educators default to adopting a training approach in service to expediency. Instead, the integration of key theories and theoretical frameworks and models can facilitate deeper learning and critical thinking while providing students with mental "shortcuts" when assessing multiple disaster scenarios (Osborn et al., 2020). Liu (2006) concluded that incorporating theory, especially with practical application opportunities, improved student learning outcomes and content retention. Previous research identifies critical thinking skills as essential for all emergency management graduates (Albanese & Paturas, 2018). Through the study and application of theory, students bring a critical perspective to the processes and systems practitioners navigate. They are better prepared to learn the required practical tasks they master through internships or other experiential learning activities.

### THE COURSE

Vulnerability is an interdisciplinary concept that facilitates students' understanding and analysis of complex extreme event contexts and outcomes. Exploring theory from diverse disciplines allows students to fully comprehend the distributed function's universal nature (Jensen et al., 2014) of emergency management. As they adopt this understanding that every individual, organization, and community holds a role in disaster management, theory provides an opportunity to add context to course content. While the North Dakota State University (NDSU) curricular approach integrates theory into every course, this paper focuses on the *Vulnerable*

*Populations in Disaster* (EMGT 445) course. The course was designed to reflect the highest level of undergraduate academic rigor.

EMGT 445 is one of the courses emergency management majors may select to complete their degree. The course is also offered as an upper-level general education elective, fulfilling graduation requirements for students majoring in all other disciplines at NDSU. The course also fulfills the following NDSU requirements: upper-level (300-400 level) and social and behavioral science and diversity electives. To be designated a general education course, EMGT 445 underwent a rigorous review from a select committee of faculty and staff representing every college within the university and offices associated with accreditation and assessment. As a result of the general education qualification, enrollment in the course averages about 50, with a majority of non-emergency management majors. The course is offered asynchronously online and in the on-campus traditional classroom.

### **TOPICAL FOCUS AND COURSE CONTENT**

Differential disaster experiences and outcomes are well-documented (Bittle, 2023; Kelman et al., 2017; Quarantelli, 2005; Thomas et al., 2013; Tierney, 2014; Wisner et al., 2004), as are the consequences for emergency management practitioners (Waugh, 2013). Students are immediately informed of the focus of the class and the course learning objectives through the syllabus, as presented below. This information is also reviewed verbally during the first class. The course syllabus is available through the author.

#### **Course Overview**

The emergency management profession, discipline, and distributed function are making exceptional advancements in the capability to predict, plan for, respond to, and recover from extreme events due to well-developed emergency management systems. The history of disasters reveals that disasters disproportionately impact some individuals. These individuals tend to be labeled as members of a larger group or category of people, such as the elderly, children, disabled or health impaired, poor, or racial or ethnic groups. The concept of “vulnerable population” (or “special population”) has been leveraged within many service organizations (e.g., nursing homes, schools, nonprofits, emergency management organizations, etc.) to bring a closer focus on the vulnerabilities of members of these groups, the impacts members of these groups might suffer, and the ways that organizations and government can help prepare for and respond to their needs.

The purpose of this course is to familiarize students with the historical concept of vulnerable populations and its relationship to disasters, the ways members of various populations can be impacted disproportionately by disasters, what the functional and access needs of some members of these groups are, and what organizations and government can or should be doing to help prepare for and respond to the needs of the whole community before, during, and after a disaster.

This course offers collaborative learning opportunities through case study analysis and team exercises.

### **Bulletin Description**

The purpose of this course is to familiarize students with the concept of vulnerable populations and their relationship to disasters, the ways members of various populations can be impacted disproportionately by these events and needs that arise as a result, and what can or should be done to help prepare for and respond to these needs.

### **Course Objectives**

Following completion of this course, students will be able to

1. Articulate the ways and reasons why members of various so-called vulnerable populations can be disproportionately impacted by disasters based on evidence from the research literature (Gen Ed Outcome 6);
2. Explain what needs some members of these groups might have in disaster based on evidence from the research literature (Gen Ed Outcomes 2 and 6);
3. Demonstrate the ability to analyze contexts in which issues related to so-called vulnerable populations must be addressed for opportunities and constraints (Gen Ed Outcome 2);
4. Assess the potential of current policy and practice to address issues related to so called vulnerable populations based on evidence from the research literature (Gen Ed Outcome 2).

Students are informed immediately that the course will involve empirical research, theory, and collaboration. The required texts and readings emphasize the role of theory in analyzing different disaster contexts. The syllabus review process also introduces the course's pedagogical approach and how it informs the vulnerability problem.

### **PEDAGOGICAL APPROACH**

EMGT 445 is offered asynchronously online and as a traditional face-to-face (F2F) class. The pedagogical approach is the same in both learning environments. The course reflects the team-based learning (TBL) structure (Michaelsen et al., 2004). Students are randomly assigned to small teams, which remain consistent throughout the semester. While an integral piece of the TBL approach, team consistency is critical for asynchronous students. Within their team, students negotiate team roles, communication strategies, and policies for holding each other accountable. They also negotiate the weighting of the grade calculations among individual activities, collaborative activities, and peer review scores. It should be noted that both asynchronous and F2F students are concerned about working collaboratively in an asynchronous environment. However, as they begin to move through the course and become familiar with the rhythm of the class, the collaboration tools provided, and their team members, their feedback

indicates a highly satisfying experience. By requiring multiple forms of interaction, students participate in sustainable discussion and high levels of engagement with each other and the course content. These patterns of interaction support deeper learning, especially in online courses (Lee, 2012; Thompson & Lamanna, 2020). Through formal student evaluations and an internal course evaluation, students consistently indicate their appreciation for the opportunity to connect with other students, perceive value in the exchange of multidisciplinary perspectives, and believe they learned more than they typically do in other courses. These outcomes reflect the positive findings regarding interdisciplinary learning (Lattuca et al., 2004). From the instructional perspective, creating an effective TBL course requires exceptional design and development before delivery.

### **Case Study**

In addition to the TBL structure of the course, the use of the current case study is unique. Crossman (2021) supports using case-based learning to help students find meaning in the course's content and create “sticky” learning. Other research supports using case studies to develop students’ ability to effectively problem-solve through context analysis (Desha et al., 2021; Gravett et al., 2017). In this course, students examine multiple U.S.-centric extreme events that occurred within two years of taking the class. The two-year window allows students to follow the event and its consequences from impact through initial recovery. In many of these cases, mitigation efforts are also underway at the time of the class. In every case, students apply theory to identify how the disaster was predictable, the role of our social systems in creating the disaster, and key strategies to mitigate and prepare for similar hazards and hazard events. They accomplish this by studying the impacted community in some depth. Students learn to navigate community demographic data, review empirical research to identify key vulnerability indicators and place their findings in the context of a disaster or extreme event. As they move through each case study, students are prompted to apply multiple theoretical frameworks and models to the case. This task is cumulative as the semester progresses and more theories and models are introduced.

When students apply theoretical frameworks to actual events, they comprehend the complexity of vulnerability. As students come to this class from multiple disciplinary backgrounds, previous work with discipline-specific theoretical frameworks informs their work and that of their team members. As a result, students work through complex, even wicked, situations and consider practical strategies. Once students propose strategies to apply to a case and its community, they must support their solutions and effectively predict potential problems and unintended consequences. The presentation of key concepts, theoretical frameworks, and models is cumulative. Learning activities are similarly “stacked” so that one activity informs the next. Additionally, students move between individual and collaborative assignments to ensure that all team members are prepared to contribute meaningfully to a collaborative activity.

## VALUE OF THEORY

Using theory within undergraduate education deepens students' learning and prepares them to broaden their scope of consideration (Rittinger, 2020). Incorporating theory into an emergency management curriculum provides a vehicle for students to comprehend how multiple facets of a social system interact throughout the disaster cycle. Vulnerability is present throughout the cycle: it is not just a problem in recovery or another single phase. Decisions made and actions taken in one phase immediately impact different individuals, households, and communities differentially. Perry (2005) asserts that theory allows us to capture and share meaning through empirical examination. He states that theory provides explanations and opportunities for prediction. Unfortunately, emergency management scholars have not created a "theory of disasters." Instead, theories and frameworks developed in other disciplines are applied to the disaster context. While this is not a perfect situation, many highly skilled scholars have tested these theories in multiple disaster contexts, so their relevance to our field is not questioned.

### Specific Theories, Frameworks, and Models Incorporated

Because we do not have an over-arching "theory of disasters," students begin this course by studying key concepts so everyone uses a common vocabulary. All emergency management courses, whether designed for majors or as a general education course, include an introductory module on threshold concepts. This list includes the concept of vulnerability, defined as

The quality or state of being exposed to hazards. Vulnerability can be assessed at the individual, household, community, state, regional, national, and global level. Vulnerability can be a result of personal, social, physical, and/or constructed factors. (NDSU EMDS Threshold Concepts Definition List, available on request)

### Vulnerability Paradigm

This definition is used to explore factors impacting levels of vulnerability. Beginning with Thomas et al.'s (2013) discussion regarding social vulnerability and the factors that impact it, students explore more of these factors in greater depth. Students are provided with additional readings and associated learning activities that explore the development of an actual theory of vulnerability (Zakour & Gillespie, 2013) and individual variables identified as contributing to vulnerability (Bittle, 2023; Kailes & Enders, 2007; Tierney, 2014). Students participate in learning activities that provide practice working within a theoretical framework, navigating publicly accessible databases, including the U.S. Census, and discussing the interaction among multiple factors that produce vulnerability. Formative feedback techniques are used in reviewing these activities to create a safe environment for students to stretch their understanding without damaging their final grade assessment. These exercises provide a foundation for navigating the following theories and models from a vulnerability perspective.

## **Systems Theory**

Using Mileti's (1999) presentation of systems theory provides a fundamental structure from which students can explore the interaction of multiple factors within the disaster context. Students must understand that disaster is created by a mismatch between at least two of the three "systems" (built, social, and environmental). However, it is more important that students embrace the concept of systems that include multiple components. For example, students learn that the "social system" includes overt social factors and factors representing the economic and political systems. Initially working individually, students are asked to apply systems Theory to multiple, relatively simple case studies from the past six months. Following individual formative feedback, they move to a collaborative activity demanding a more nuanced review and application.

## **Socio-Political Ecological Theory**

Socio-Political Ecological Theory (SPET) is overtly developed from the foundation of systems theory. Developed by Bates and Pelanda (1994), this theory presents the concept of our social systems existing within an ecological network that includes the built and natural environments. More importantly, this theory introduces the concept of competition for finite resources among different social systems/communities/individuals. In the basest terms, Bates and Pelanda introduce the concept of winners and losers within a social system. Applied throughout the disaster cycle, this concept of competition allows students to examine the processes by which some are more vulnerable than others. Students explore the differential impacts of policy and economic decisions within a community. The concept of access to political power and its role in continuing vulnerability is key in the case studies selected for this module. Students consistently demonstrate significant gains in understanding the complexity of vulnerability, the influence of multiple factors, and the ability to analyze a disaster scenario in an explanatory and predictive manner. The demonstrable gains in comprehension indicate that applying this theory is key to the deep learning that students later report.

## **Pressure and Release Model**

Wisner et al.'s (2004) Pressure and Release (PAR) model was initially developed for application to international contexts. However, a model that simplifies the impact of "root causes" on disaster vulnerability is also valuable for examining U.S. events. Students continue to build on the previous theories but expand their examination and application of data in a predictive manner. Students again begin their work individually to prepare for a larger collaborative activity. Using a large disaster event, students are prompted to apply each theory to the case. At each stage, students explore how regional, state, and local data predicts the level of vulnerability an impacted community experiences. They also examine the role of vulnerability in the event outcomes and what intervention (if any) might address vulnerability at the level of a root cause.

## Access Model

An outgrowth of the PAR model, Wisner et al. (2004), developed the Access model to provide increased insight into the role of vulnerability in recovery and how differential impacts increase vulnerability through multiple disaster events. Again, this model was developed within the international setting. However, students have little trouble applying it to the U.S. case study assigned. Its direct relationship to the PAR model provides students with a method of articulating the connection between the theories listed here and vulnerability. Identifying multiple factors that impact vulnerability levels and the predictive and explanatory value of PAR and the Access model allows students to analyze a complex disaster event in the context of the community in which it occurred. Outcomes are not shocking but expected.

## CONCLUSION

At the conclusion of the case study in which students are asked to apply the theories and models presented in class, they demonstrate a strong comprehension of vulnerability, its role in emergency management, and the complex challenges required to address vulnerability equitably. The final learning activity involves a reflective essay in which students explore their understanding of vulnerability in the disaster context. Students must support their assertions with citations from the readings and overt references to the theory or model on which they base their statements. As part of this final activity, students also prepare a presentation to explore their learning process and the evolution of their understanding of vulnerability in the disaster context.

Review of student performance, assessment regarding the achievement of stated learning outcomes, and examination of students' evaluations of their engagement and learning within this course support integrating theory into undergraduate emergency management courses. The results support Albanese and Paturas's (2018) assertion of the need to design courses to purposefully improve students' critical thinking ability. Additionally, the structure of this course increases the opportunity for "moments of meaning" as presented by Bernstein (2018). Developing the ability to consider multiple factors and their interaction within the context of vulnerability benefits all students (Desha et al., 2021). Disaster provides a unique setting in that it emphasizes the differential impacts influenced by vulnerability. Disaster case studies are one approach that effectively bridges theory and practice (Lange et al., 2018). The level of learning and evolution of understanding demonstrated and reported by students strongly supports the integration of key theories and models into undergraduate courses.

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