

Theory for Homeland Security

JOHN COMISKEY, Monmouth University
jcomiske@monmouth.edu

ABSTRACT

This study identified and analyzed the utilization of theory in college homeland security curricula in the United States. Faculty and program directors with diverse academic and professional backgrounds actively teach theory from multiple fields and disciplines to help prepare students for the field, address homeland security problems, and to grow and mature the field. The most prevalent theories which are taught as part of college homeland security curricula constellate around leadership, risk management, security, social identity, and terrorism themes. Homeland security, however, lacks a grand theory or overarching framework. Essentially, homeland security is an eclectic discipline or field of study that seeks to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risks to the Nation.

INTRODUCTION

The September 11, 2001 terrorist attacks upon the United States helped evolve the Homeland Security Era (Homeland Security Act of 2002, P.L. 107-296; National Commission on Terrorist Attacks upon the United States, 2004; S. Rep. No. 107-351, 2002; White House, 2002). Following the 9/11 terrorist attacks, disasters such as Hurricane Katrina in 2005, the 2008 breach of the Department of Defense's classified computer network systems, and the Deepwater Horizon explosion and oil spill in 2010 policy makers and practitioners adapted an all-hazards approach to homeland security (Department of Homeland Security, [DHS] 2010, 2011; S. Rep. No. 109-322, 2006; White House, 2007, 2010).

As was the case of homeland security policy makers and practitioners, academics tried to keep up with the rapidly evolving threat landscape. Since the terrorist attacks of September 11, 2001, at least 315 of the Nation's colleges and universities have offered over 700 degree-offering homeland security curricula at the undergraduate and graduate levels (Center for Homeland Defense and Security [CHDS], 2017a). Hereafter, the term colleges will denote colleges and universities. Homeland security college-level curricula mostly focused on criminal justice, emergency management, political science/public administration, and national security problems, but also included components from multiple fields of study. The curricula purported to prepare students for the field help, and to help solve homeland security problems (Rollins & Rowan, 2007; Smith, 2005; Supinski, 2011).

Homeland security academics as well as practitioners have an obligation to the evolving discipline to identify, develop, and test theories and methodologies that will prepare practitioners for the field and to address homeland security problems. Specifically, they must introduce, explain, analyze, test, develop, and generate theory and other methodologies that will grow and mature the field. The

purpose of this exploratory study was to determine how college homeland security curricula utilized theory. The study begins with an examination of homeland security policy and academia's response to the emerging field. The study continues with an analysis of theory and its multiple manifestations and limitations. The analysis is followed by a description of the study's methodology, results, and a discussion about the use of theory in college homeland security curricula, and a conclusion section that offers ways forward for homeland security theory.

LITERATURE REVIEW

What is homeland security? Since the September 11, 2001 terrorist attacks upon the United States, homeland security evolved from a national counterterrorism strategy to a national strategy to prevent, protect against, mitigate, respond to, and recover from natural, technological/accidental, and adversarial/human caused threats and hazards (DHS, 2010, 2011, 2014; White House, 2007, 2010, 2015, 2017). Following the 9/11 terrorist attacks, events such as the penetration of a computer network at Ohio's Davis nuclear power plant in 2003, Hurricane Katrina in 2005, the H1N1 influenza pandemic in 2009, the West Fertilizer Plant explosion in 2013, the West African Ebola pandemic in 2014, and the California wild fires in 2017 forced policy makers and practitioners to focus their attention on natural, accidental, and cyber threats as well as terrorism. The result was at least seven different U.S. government definitions of homeland security that approached different threats with distinct policies (McInnis, 2017; Reese, 2013, 2014; Painter, 2017; See also Bellavita, 2008). Underlying the varied definitions was the "wicked" nature of homeland security's problems (Allen, 2012; Kahan, 2014; Treverton, 2008). *Wicked problems* were policy issues which could not be described definitively and did not have ultimate or objective answers. Solutions to wicked problems were at best good, bad, or reasonable, but never correct or false (Rittel & Weber, 1973). Wicked problems such as terrorism, natural disasters, and cyber-attacks were distinguished from *tame problems*. Tame problems were solved by specifying or adapting the knowledge of the disciplines and fields relevant to the problem (Fuller, 2017).

Colleges respond to homeland security. Colleges across the Nation responded to homeland security's problems with diverse curricula that purported to prepare students for the field and to help solve homeland security problems. The curricula featured various homeland security topics as well as the unique characteristics and attributes of particular disciplines and fields of study. Homeland security as a field of study was a place of multiple realities that lacked an agreed upon body of knowledge, theory, or overarching framework (Bellavita, 2012; Kiltz & Ramsay, 2012; Pelfrey & Kelley, 2013).

Pelfrey, Kelley, and May (2002), the Charting a Course for Homeland Security Studies Conference (2005), Bellavita and Gordon (2006), CHDS (2008, 2009, 2014), Winegar (2008), the Homeland Security and Defense Education Consortium Association (2009a, 2009b), Polson, Persyn, and Cupp (2010), and Alperen (2011) identified core topics and curricula for the emerging field of homeland security. The curricula and topics coalesced around all-hazard threats, critical infrastructure, critical thinking, collaboration, cyber security, emergency management, intelligence, law and policy, leadership, preparedness, risk management, strategy, and terrorism. Most recently, the International Society for Preparedness, Resiliency, and Security (INSPRS) (2017) identified nine *knowledge domains* which should be part of undergraduate homeland security curricula: critical infrastructure and resilience, emergency management, human and environmental security,

intelligence, law and policy, professionalism, risk management, strategic planning, and terrorism. Knowledge domains refer to the knowledge, skills, abilities, and behaviors that should be part of a discipline's curricula. Notwithstanding the above curricular initiatives, no grand theory or overarching framework of homeland security existed. This study continues with an examination of the relationship between theory and disciplines.

Theory. Theories or ways of beholding and explaining the wonders of the world abound in academia as well as in our everyday lives. They provide means to understand phenomena such as bureaucracies, climate change, evolution, human behavior, and security. Ideally, theories are means for humans to better their lives and to improve society. Academics as well as practitioners develop and test theories to help solve problems as well as to further their fields of study. Bothamley's *Dictionary of Theories* (2002) defined theory as "a general principle supported by a substantial body of scientific evidence which explains observed facts. As a probable explanation for observations, a theory offers an intellectual framework for future discussion, investigation and refinement (p.523)." The dictionary listed over 5,000 theories, principles, hypothesis, rules, paradoxes, laws, principles, and other conceptual frameworks. The rationale for the inclusion of the other terms was the problem of identifying what exactly constituted a theory. This study defined *theory* as a set of concepts, definitions, or relationships that project an evidenced-based and systematic view of phenomena/processes. The multiple purposes of theory necessitate typologies and levels. This study identified (a) four types of theory: *descriptive theory*, *explanatory theory*, *normative theory*, and *predictive theory* as well as the inductive process referred to as *grounded theory*; and (b) four levels of theory: *grand theory*, *macro-theory*, *meso-theory*, and *micro theory*.

Descriptive theory describes or classifies specific dimensions or characteristics of individuals, groups, situations, or events by summarizing the commonalities found in discrete observations (Godfrey-Smith, 2003; Joas & Knobol, 2009). Explanatory theory predicts precise or causative relationships between dimensions or characteristics of phenomena or differences between groups (Fawcett & Downes, 1986; Turner, 2017). Normative theories make value judgements; they prescribe what should be (Godfrey-Smith, 2003; Sjoberg & Nett, 1968). Predictive theory predicts outcomes (Betts, 1982; Bookstaber, 2017). Grounded theory is the product of inductive inquiries from which general theories of processes, actions, or interactions are derived (Glaser, 1967).

Grand theory attempts an overall explanation of social life, history, or human experience. It provides a general framework for many smaller theories (Ek & Tesfahuney, 2011; Mills, 1959; Skinner, 1985). Macro-level theories explain large societies, systems, processes, and institutions. Meso or mid-level theories are less ambitious than their macro-level counterparts; tend to be less abstract; emphasize mid-scale processes and interactions, and often link macro and micro theories (Creswell, 2009). Micro-level theories provide explanations of small societies or groups, systems, processes, and institutions (Ougaard, 2013). This study continues with an examination of the relationship between theory and academic disciplines.

Competing theories and academic disciplines. Kuhn (1962, 1996) found that theories rested upon dominant schools of thought embedded in scientific communities. Prevailing theories gained support from *paradigms* – scientific practice including theories, laws, applications, and instrumentations that were accepted by scientific communities. When confronted with anomalies or crises, scientists reexamined existing paradigms and theories. Untenable paradigms resulted in

scientific revolutions which produced new scientific communities or *disciplines* complete with their own research frameworks, methodologies, and novel theories. Mature disciplines include: shared symbolic generalizations; metaphysical presumptions; values such as acceptable evaluative standards, exemplars, theories, claims to a special place in academe; and specialized textbooks and journals. Foshay (1962) found that disciplines had three characteristics: an area of phenomena for which the person in the discipline takes responsibility; a set of rules that has to do with how truth is established; and having a history that may be described and that presumably ought to be known. King and Brownell (1966) concluded that disciplines had 11 essential characteristics: an active community of persons; an expression of human imagination; a domain; traditions; syntactical structure; conceptual structure; specialized language; a body of literature; a valuable and affective stance; an instructive community; and a projected demand for the discipline's knowledge. Abbot (2001) found that disciplines constellated around *fractal distinctions* – core principles and stable issues. Disciplines emerged and sometimes converged with other disciplines based upon common interests and theoretical and methodological links.

Conversely, Feyerabend (1975) found that theories and disciplinary methodologies inhibited thought and progress, and that most scientific breakthroughs were made in violation of prevailing norms. He promoted *theoretical anarchism* – seeking the best theories and practices independent of strict rules and especially the scientific method. Similarly, Larkins and McKinney (1980), Flinders and Mills (1993), Billigan (2008), and Kahneman (2011) found that while theory helped the development and organization of knowledge; it could privilege and legitimize certain practices while inhibiting others.

Theories and homeland security. Coupled with King and Brownell's (1966) essential characteristics of a discipline and the concepts of *legitimacy* and *interdisciplinary*, Falkow (2013) concluded that homeland security was an emerging discipline. The term legitimacy described the rating of academic disciplines by the triad of academia, industry, and government as valuable and justifiable. Interdisciplinary was defined as multiple disciplines working integrally on common problems. Falkow's (2013) conclusion that homeland security was an emerging discipline was supported by Comiskey (2015) who concluded that the field of study was an evolving discipline. He found that small but growing numbers of academics were identifying homeland security as their primary field of study. Colleges were actively creating new homeland security curricula the vast majority of which contained the same eleven core topics: all-hazards, collaboration, critical thinking, critical infrastructure, cyber security, emergency management, intelligence, preparedness, risk management, strategy, and terrorism. Similarly, Rollins and Rowan (2007), Palin (2010), Plant, Arminio, and Thompson (2011), Bellavita (2012), and Ramsay (2013) found that homeland security was an evolving field of study that must identify, develop, and test theories if the field is to be fully recognized as an academic discipline. Conversely, Pelfrey and Kelley (2013) argued that the "coagulation" of homeland security curricula did not evidence the development of a discipline. The field of study had not evolved to a point where idiosyncratic theories or research specific to homeland security were better paradigmatically than those of the disciplines initially producing and coming together to address or assess relevant issues.

Comiskey (2015) also found that the majority of all college homeland security curricula were either multidisciplinary or interdisciplinary. The purpose of multidisciplinary research was not to

integrate information, but to provide a comprehensive collection of information from different fields. Interdisciplinary research explicitly attempts to integrate the plurality of information (Pohl, Truffeer, & Hadron, 2017). Similarly, Church (2010), Simon (2009), Ramsay (2012), and the INSPRS (2017) found that homeland security was a meta-discipline, a discipline of disciplines with different functions and specialties that ranged from counter terrorism to national security, border security to intelligence, and critical infrastructure protection to environmental security. The meta-discipline's cumulative knowledge, inquiry methods, and resources could prepare people for the field and help solve homeland security's problems.

METHODOLOGY

In order to obtain data on the utilization of theory in current homeland security higher education curricula in the United States, an Internet-based survey was developed to determine the role of theory in colleges' homeland security curricula. The study asked college department heads and faculty to identify and explain how their colleges utilized theory in their undergraduate and graduate homeland security curricula in separate but identical sections of the study's survey instrument. The rationale for the separate sections was to identify any significant differences in the use of theory at the respective levels. Undergraduate and graduate curricula have distinct purposes. Undergraduate education lends itself to the liberalizing of students. Graduate education lends itself to specialization, intensity, and preparing students for learned professions (Cassuto, 2015; Opperman, 2011).

The survey was designed to identify research participants with "comprehensive knowledge" about their college's homeland security curricula. Prospective participants were solicited from the membership rolls of the Center for Homeland Defense and Security's University and Agency Partnership Initiative (UAPI). The UAPI is a network of colleges and other organizations that are dedicated to advancing homeland security education. As of July 2017, UAPI has at least 1,389 participants and 371 partner institutions (CHDS, 2017a, 2017b, 2017c).

To help ensure that research participants had comprehensive knowledge about their colleges' homeland security curricula, the survey announcement, informed consent, and survey question #1 were designed to discourage or filter out unqualified participants. An email solicitation was sent to: (a) UAPI members who were identified as faculty having an association with a college that had a homeland security curriculum; and (b) department heads of UAPI-affiliated colleges that had a homeland security curriculum. The solicitation and informed consent advised prospective participants that the study would survey college homeland security department heads and faculty to determine the role of theory in their programs' curricula. In addition, survey question #1 asked participants how knowledgeable they were about their colleges' homeland security curricula. Participants who responded "not at all knowledgeable" were filtered out of the study.

Survey participants were asked how their colleges utilized theory in their homeland security curricula. Additional questions included which levels and types of theory were utilized, the names of theories, and whether or not theory was empirically tested. Participants were also asked to provide demographic data on their colleges. The survey contained fixed response multiple-choice questions some of which offered the response option "other" with space to comment if

none of the fixed answers were applicable. The survey was approved by an accredited Institutional Review Board of a Northeastern United States university.

RESULTS

In March 2017, the Internet-based survey was forwarded via e-mail to 953 college department heads and faculty that were affiliated with the UAPI (CHDS, 2017b) as delineated in the methodology section above. The administration of the survey resulted in a response rate of 13.7% ($n=131$). While there is no agreed upon standard for a minimum acceptable survey response rate for survey research (Baruch, 1999; Fowler, 2009), response rates can impact the validity of a study.¹ This study's seemingly low response rate can be explained by (a) the study's rigorous participant criteria; and (b) prospective participants: being too busy, experiencing survey fatigue; concerns about Internet security such as "junk mail" and spam; not considering the subject to be relevant; and institutional policy to not complete surveys (Dillman, Smyth, & Christian, 2009; Groves, Ciadlino, & Couper, 1992; Sills & Song, 2002).

The study sought the largest number of participants with "comprehensive" knowledge about their college's homeland security curricula. Ordinarily, such information is under the purview of a limited number of persons such as department heads and senior full-time faculty. At the same time, the study acknowledged that certain faculty with special duties may have comprehensive knowledge about their colleges' homeland security curricula. In the way of an example, Comiskey (2015) found that some specialist and adjunct homeland security faculty served as part of curricula focus groups/advisory councils. Surveys were sent to 953 prospective participants. An unknown number of prospective participants did not join the study because they sensed that they were not fully qualified. One hundred and seventy-nine prospective research participants (18.8%) responded to the survey. Thirty-nine research participants either opted out or were filtered out of the survey during the informed consent process. In addition, nine participants were found to not be at least "somewhat knowledgeable" about the curricula, and were not included in the analysis. The final sample population was $n=131$ research participants.

Demographics. Ninety four (71.8%) of the 131 research participants were full-time faculty, 20 participants (15.3%) were part-time faculty, 8 (6.1%) participants were retired faculty, and nine (6.9%) participants did not identify their faculty status. One hundred and eleven (84.7%) of the survey participants, were "very knowledgeable" and 20 (15.3%) were "somewhat knowledgeable" about their college's homeland security curricula. Nine of the 131 research participants declined to provide responses to the vast majority of demographic questions. Unless otherwise noted the following demographic data reflects $n=122$ research participants.

Fifty-five (45.1%) of research participants' colleges were four-year private institutions, 46 (37.7%) of the colleges were four-year public institutions, 15 (12.3%) of the colleges were two-year public or private institutions, and six (5%) of the colleges were military institutions. Sixty-three (51.6%) of the participants described their colleges as teaching colleges, 15 (12.3%) participants described their colleges as research colleges, and 44 (36.1%) participants described

¹ Justifiable response rates for internet academic surveys ranged from a low of 20-30% (Dennison & Mishra, 1995; Kaplowitz, Hadlock, & Levine, 2004) to near 60% (Dillman, 2007) to as high as 80% (Fincham, 2008).

their colleges as having equal teaching and research foci. Thirteen of the colleges were designated by DHS as a Center of Excellence.² Research participants' colleges were dispersed throughout the nation with the largest percentages residing in the South-South Atlantic 23.8% ($n=29$) and the Northeast-Mid Atlantic 22.1% ($n=27$) U.S Census regions. One hundred and twenty-one (99.2%) of the colleges were accredited by one of the six U.S. Department of Education recognized regional accreditors.

Research participants reported that the names of the departments that housed their colleges' homeland security curricula varied with the largest percentages specified as criminal justice/criminology (20.5%, $n=25$), political science/public administration (12.3%, $n=15$), and emergency management (8.1%, $n=10$). Faculty from departments that housed colleges' homeland security curricula had varied academic backgrounds. The majority (56.5% or higher) of research participants reported that the departments that housed their colleges' homeland security curricula had some faculty with criminal justice/criminology (81.1%, $n=99$), emergency management (78.7%, $n=96$), homeland security (77.9%, $n=95$), intelligence (67.2%, $n=82$), law and justice (66.4%, $n=81$), and political science/public administration (56.5%, $n=69$) academic backgrounds. Faculty from departments that housed colleges' homeland security curricula also reported professional backgrounds other than their academic credentials. As was the case of the faculty's academic backgrounds, the professional backgrounds varied. The majority (52.5% or higher) of research participants reported that the departments that housed their colleges' homeland security curricula had some faculty with professional backgrounds that included emergency management (63.9%, $n=78$), criminal justice/criminology (59.9%, $n=73$), homeland security (59%, $n=72$), and law and justice (52.5%, $n=64$). Near majorities (50%, $n=61$) of the faculties had intelligence or military professional backgrounds.

In addition to the names of academic departments and academic and professional backgrounds listed above, research participants reported affiliations with: anthropology, architecture, aviation, behavioral sciences, business, computer science, cyber security, economics, education, emergency medical service, engineering, fire science, geography, history, homeland security, international affairs, law and justice, leadership, management, medical, military affairs, national security, philosophy, professional education, psychology, risk management, public health, security studies, sociology, and urban planning fields of study/professional practice.

Research participants provided data on a total of 193 graduate and undergraduate homeland security curricula, 79 participants reported that their colleges offered graduate curricula, 114 participants reported that their colleges offered undergraduate curricula, and 59 participants reported that their colleges offered both graduate and undergraduate curricula. As the study found little in the way of significant differences between graduate and undergraduate homeland security curricula with respect to the teaching of theory, research participants survey responses were reported in the aggregate ($n= 193$). Graduate and undergraduate curricula that demonstrated significant variances were reported.

² DHS (2015a) recognizes 18 colleges nationwide as centers of excellence based upon their ability to develop multidisciplinary, customer-driven, homeland security science and technology solutions that help train the next generation of homeland security experts.

Theory is taught throughout college homeland security curricula. Theory was taught in the vast majority (88.9%, $n=167$) of research participants' college homeland security curricula.³ Theory was taught throughout the curricula including introductory courses (79.4%, $n=132$), thesis/capstone courses (64%, $n=107$), research courses (50.8%, $n=85$), theory courses (50.3%, $n=84$), and experiential courses (44.3%, $n=74$). College homeland security curricula that had a theory-teaching component utilized multiple types and levels of theory. The curricula used a variety of types of theory ranked as follows: descriptive theory (82%, $n=137$), explanatory theory (82%, $n=137$), normative theory (60.5%, $n=116$), and predictive theory (50.9%, $n=85$). The curricula also used multiple levels of theory ranked as follows: macro-theory (77.2%, $n=129$), grand theory (58%, $n=97$), midlevel theory (57.4%, $n=96$), and micro level theory (42%, $n=85$).

Theory-inclusive homeland security curricula included theories from multiple fields/disciplines. The majority (53.9% or higher) of the curricula included theory from emergency management (79.6%, $n=133$), criminal justice/criminology (62.2%, $n=117$), cyber security (64.7%, $n=108$), intelligence (59.9%, $n=100$), national security (58%, $n=97$), security studies (56.9%, $n=95$), political science (55.7%, $n=93$), and law and justice (53.9%, $n=90$). In addition, the majority (59.2% or higher) of the theory-inclusive homeland security curricula included theory from eight of the nine homeland security knowledge domains that were identified by INSPRS (2017) as follows: terrorism (91%, $n=152$), emergency management (90.4%, $n=151$), law and policy (79%, $n=132$), critical infrastructure (79%, $n=132$), professionalism/leadership (79%, $n=132$), risk management (72.5%, $n=121$), intelligence (71.3%, $n=119$), and strategic planning (65.9%, $n=110$). The ninth knowledge domain, human/environmental security was included in 46.1% ($n=77$) of the curricula.

Theories most likely to be taught in college homeland security curricula. Asked to identify three theories that were "most likely" to be taught in their colleges' homeland security curricula, research participants provided the names of multiple and varied theories identified here in alphabetical order: constructivism and realism theories; critical theory; emergency management theory; enterprise theory; game theory; general hard science theory; social theory; human behavioral identity theory; human security theory; intelligence theory; leadership theory; management theory; national security theory; network theory; political theories: radicalization models; rationale choice theory; resiliency and self-efficacy theory; risk and probability theory; security theory; social identity theory; social vulnerability theory; strain theory; strategy-decision making theory; strain theory; systems theory; and terrorism theory. The most frequently used theories were related to leadership, risk management, security, technology, and terrorism.

Empirical testing of theory in college homeland security curricula. Thirty-three percent ($n=56$) of college homeland security curricula that included a theory-component empirically tested theory. Theory was more likely to be tested in graduate homeland security curricula (45.2%, $n=33$) as compared to undergraduate homeland security curricula (24.5%, $n=23$).⁴ College homeland security curricula used multiple and various research methodologies to empirically test theory. The majority (57.1% or higher) of the curricula used the following research methodologies to empirically test theory: risk/vulnerability assessments (78.6%, $n=44$),

³ $n=188$ (5 research participants did not respond to this question)

⁴ Based upon an aggregate of $n=167$ curricula that included a theory component: graduate $n=73$ and undergraduate $n=94$

statistical analysis of archival data (71.4%, $n=40$), surveys (69.6%, $n=39$), statistical analysis of original research data (69.6%, $n=39$), policy assessments (66%, $n=37$), case studies (64.3%, $n=36$), and comparative theory analysis (57.1%, $n=32$).

The research outcomes of colleges' empirical testing of theory in homeland security curricula varied. The majority (55.3% or higher) of the curricula which empirically tested theory experienced the following research outcomes: practical recommendations (78.6%, $n=44$), existing theory was not confirmed (58.9%, $n=33$), existing theory was developed/refined (57.1%, $n=32$), and existing theory was confirmed (55.4%, $n=31$). Research outcomes also included academic recommendations (48.2%, $n=27$) and the generation of new theory (44.6%, $n=25$).

Research participants who reported that the empirical testing of theory generated new theories were asked to identify/describe the theories that were generated. Descriptions of the new theories included: conceptual models based upon technology adaptation; theory related to unmanned aircraft systems and emergency management; theories involving human-data interactions, vulnerabilities to information security, and continuity of operations in the public; predictive analysis; and psychological and sociological theories related to why people resist change. Notable research participant's comments included: "homeland security is a multidisciplinary field that must draw on a number of both social and hard science theories to explain and predict human behavior, the earth's behavior, and the weather;" and "sometimes theories are wrong or better yet not created to match the ever evolving global homeland security environment."

The future of theory in college homeland security curricula. Research participants reported that theory was very useful (37.3%, $n=63$) or somewhat useful (50.3%, $n=84$) in the vast majority (88%, $n=147$) of their colleges' homeland security curricula.⁵ Theory was more likely to be very useful (46.4%, $n=33$) in graduate than undergraduate (34.5%, $n=30$) homeland security curricula.

Forty-one percent ($n=73$) of research participants reported that their colleges planned to incorporate "more theory" in their homeland security curricula.⁶ They were more likely to incorporate additional theory in their graduate (48%, $n=37$) than their undergraduate homeland security curricula (34.3%, $n=36$). Research participants' explanations of how their colleges planned to incorporate more theory clustered around three themes: (a) public and private sector organizations identifying applicable theory from practice; (b) academic-government-private sector research partnerships; and (c) educating existing faculty in theoretical approaches to study and hiring new faculty with theoretical backgrounds.

DISCUSSION

College undergraduate and graduate homeland security curricula include theory from multiple disciplines and fields of study. The theories describe, explain, judge, and predict homeland security related phenomena and processes such as the effectiveness of security programs and how people and organizations adapt to new technologies. The most prevalent theories constellate around leadership, risk management, security, technology, and terrorism each of which have

⁵ $n=167$ (26 research participants declined to respond to the respective survey questions [#22/#45])

⁶ $n=182$ (11 research participants omitted responses to the respective survey questions [#25 & #48])

been foci of federal, State, and local government homeland security policy (McInnis, 2017; National Association of Counties, 2017; National Governors Association, 2010; National League of Cities, 2017; Reese, 2013, 2014; Painter, 2017). However, no grand theory or overarching framework of homeland security is taught in U.S. colleges. Essentially, homeland security is an eclectic field of study/discipline that seeks to prepare students for various positions of responsibility in the field and to solve homeland security's problems.

Faculty members with diverse academic and professional backgrounds teach theory from multiple disciplines and fields of study in their colleges' homeland security curricula. They believe that homeland security is a dynamic and evolving field of study. As homeland security matures, theory related to the field will develop "naturally." Near a third of college homeland security curricula empirically test theory. The testing of theory has resulted in practical and academic recommendations, and the generation of new theory. In addition, 40 percent of college homeland security college department heads and faculty members plan to use more theory in their curricula. They will identify theory from practice, and encourage faculty members to incorporate theory into their courses.

This study's findings support the growing sense that homeland security is an evolving discipline (CHDS, 2012; Comiskey, 2015; Homeland Security Academic Advisory Council, 2015; Kiltz & Ramsay, 2012; Palin, 2010; Rollins & Rowan, 2007; Ryan, 2009; Supinski, 2011). First, three hundred and fifteen U.S. colleges offer over 700 homeland security degree-offering curricula. The colleges are embedded in a community (UAPI) of over 1,300 partners and 370 institutions including government and private sector agencies and organizations that are committed to advancing homeland security education (CHDS, 2017a, 2017b). Second, while college homeland security curricula include theory from a broad array of disciplines, the theories focus on leadership, risk management, security, social identify, and terrorism issues. The empirical testing of theory in homeland security curricula has resulted in practical and academic recommendations, and the generation of new theories. Third, college homeland security curricula include theory from all nine of INSPRS' (2017) homeland security knowledge domains which suggest the development of a distinct body of knowledge.

Coupled with the publication of at least three academic journals dedicated primarily to homeland security (*Homeland Security Affairs*, *Journal of Homeland Security Education*; *Journal of Domestic Preparedness*); at least 180 textbooks that identify homeland security as a field of study (Amazon.com, 2018); the creation of the DHS and a multitude of State and local level homeland security agencies; and the establishment of national level associations such as the UAPI, the INSPRS, the National Homeland Security Association, and the National Homeland Security Consortium; homeland security as a field of study meets Foshay's (1962), King and Brownell's (1966), and Falkow's (2013) requirements for an academic discipline. Furthermore, the study's findings support the claim that homeland security is a meta-discipline (Church, 2008; INSPRS, 2017; Simon, 2009; Ramsay, 2012). Considering the range of threats and vulnerabilities inherent to homeland security the study's findings are not surprising. Recent natural disasters, terrorist attacks and plots, mass shootings, and cyber-attacks in 2017 including the California Wildfires; Hurricane Marie; Hurricane Irma; Hurricane Harvey, the October 31st and December 11th terrorist attacks in New York City; the December San Francisco terror plot; the October 1st Las Vegas and the November 5th Sutherland Springs, Texas mass shootings and

the Wannacry ransomware attack illuminate the meta-disciplinary nature of the homeland security threat and hazard landscape.

The Nation's preparations, responses, and recovery operations for the 2017 events were largely guided by the all-hazards framework of the National Preparedness Goal (DHS, 2015b). In the aggregate, the operations reflect what Kettl (2003) referred to as *contingent coordination*, "a sophisticated approach that builds on existing administrative structures and policy capacity but which pulls them together, effectively, when they are needed, as they are needed." (p.254) Notably, preparatory, response, and recovery operations related to the 2017 natural disasters, terrorist attacks and plot, and cyber-attack have been associated with communications, climate change, critical infrastructure, economics, energy, law and order, mental health, psychology, public health, sanitation, social work, and urban planning problems all of which were identified by this study as having a homeland security nexus (Brown, 2017; Campbell, 2017; DHS, 2017a, 2017b; Federal Bureau of Investigation, 2017; Federal Emergency Management Agency, 2018; Insurance Information Institute, 2017a, 2017b; Horn, 2018; National Oceanic and Atmospheric Administration, 2018; Segal, Lieberman, May, & Warren, 2017; Swiss Re, 2017; World Meteorological Association, 2017).

CONCLUSIONS

This exploratory study found that theory is actively taught in the vast majority of homeland security curricula in U.S. colleges. A broad range of theories and methodologies from multiple disciplines and fields of study are helping to: prepare students for the field; solve homeland security's wicked problems; and mature the field. The results affirmed the conclusions of some academics that homeland security is an evolving discipline, and particularly that homeland security is a meta-discipline. As future homeland security challenges include cyber terrorism, transnational crime, nuclear proliferation, climate change, and a rapidly evolving techno-industrial society (Department of State, 2017; Coates, 2017; Kelly, 2017; National Intelligence Council, 2017); colleges should continue using multiple and varied theoretical and methodological approaches to describe, explain, judge, and predict homeland security related phenomena and processes.

There are some limitations to this study that should be addressed in future research. The study explored the experiences and perceptions of college homeland security department heads and faculty who were associated with the UAPI only. Future research on homeland security theory should focus on the experiences and perceptions of related industry and government partners, as well as academics. The research should identify industry and government homeland security-related practices that translate into theory and methodologies. Researchers should catalogue theories and methodologies that are employed in homeland security and related journals, professional publications, government documents, textbooks, theses, and dissertations. Finally, homeland security would be well served by multidisciplinary and interdisciplinary textbooks that focus on theory and research methodologies that will prepare students for the field, address homeland security's wicked problems, and mature the evolving discipline.

REFERENCES

Abbot, A. (2001). *Chaos of disciplines*. Chicago, IL. University of Chicago Press.

- Allen, T. W. (2012). Confronting complexity and leading unity of effort. *Public Administration Review*, 72(3), 320–321.
- Alperen, M. J. (2011). *Foundations of homeland security: Law and policy*. Hoboken, NJ. Wiley & Sons.
- Amazon.com. (2018, January 15). Website search for “homeland security textbooks.” Retrieved from https://www.amazon.com/s/ref=nb_sb_noss?url=search-alias%3Dstripbooks&field-keywords=Homeland+Security+Text&rh=n%3A283155%2Ck%3AHomeland+Security+Text
- Baruch, Y. (1999). Response rate in academic studies-A comparative analysis. *Human Relations*, 22(4).
- Bellavita, C. (2008). Changing homeland security: What is homeland security? *Homeland Security Affairs*, 4(2).
- Bellavita, C. (2012). Waiting for homeland security theory. *Homeland Security Affairs*, 8(15).
- Bellavita, C. & Gordon, E. (2006). Changing homeland security: Teaching the core. *Homeland Security Affairs*, 2(1).
- Betts, R. K. (1982). *Surprise attack*. Washington, D.C. Brookings Institute Press.
- Billigan, P. (2008). Critical theory. In Williams, P.D. (Ed.). *Security studies: An introduction*. New York, NY: Routledge.
- Bookstaber, R. (2017). *The end of theory: Financial crises, the failure of economics, and the sweep of human interaction*. Princeton, N.J. Princeton University Press.
- Bothamley, J. (2002). *Dictionary of theories*. New York, NY. Barnes & Noble Press.
- Brown, J. T. (2017). Natural disasters of 2017: Congressional considerations related to FEMA assistance. Congressional Research Service. Washington, D.C. Retrieved from <https://fas.org/sgp/crs/homsec/IN10810.pdf>
- Campbell, R. (2017). Puerto Rico and electric power restoration from Hurricane Maria. Congressional Research Service. Washington, D.C. Retrieved from <https://fas.org/sgp/crs/row/IN10785.pdf>
- Cassuto, L. (2015). *The graduate school mess: What caused it and how we can fix it?* Cambridge, MA. Harvard University Press.
- Center for Homeland Defense and Security. (2008). Education: The key to homeland security leadership, 2002-2008 report. Retrieved from <http://www.hsdl.org/?view&did=36304>
- Center for Homeland Defense and Security. (2009). Undergraduate curriculum: Recommended areas of focus [Power Point Slides]. Presented at the University and Agency Partnership Initiative conference. Naval Post Graduate School, Monterey, CA.
- Center for Homeland Defense and Security. (2012). The CHDS advantage: A decade of innovation in homeland security education. Retrieved from <http://www.hsdl.org/?view&did=734124>
- Center for Homeland Defense and Security. (2014). Graduate studies curriculum workshop: Overview and recommendations [power point]. Author.
- Center for Homeland Defense and Security. (2017a). University agency partnership initiative: Institutions and programs. [Password protected]. Retrieved from <https://www.uapi.us/programs/category/programs>
- Center for Homeland Defense and Security. (2017b). University agency partnership initiative: Partners list. [Password protected]. Retrieved from <https://www.uapi.us/partners-list>
- Center for Homeland Defense and Security. (2017c). University and Agency Partnership Initiative (UAPI). Fact sheet. Retrieved from https://www.chds.us/c/resources/uploads/2017/08/chds_2016_UAPI_fact_sheet_071017.pdf

- Charting a Course for Homeland Security Studies Conference. (2005). Multiple fairways: Developing a strategic studies program for DHS. (Conference report Charting a course for homeland security strategic studies, New London, CT, November, 15–18, 2004).
- Church, K. (2010). *Enhancing unity of effort in homeland defense, homeland security, and civil support through interdisciplinary education*. (Master's thesis). Retrieved from <http://www.hsdl.org/?abstract&did=25735>
- Coates, R. (2017). Statement for the record: Worldwide threat assessment of the U.S. intelligence community. Retrieved from <https://www.dni.gov/files/documents/Newsroom/Testimonies/SSCI%20Unclassified%20SFR%20-%20Final.pdf>
- Comiskey, J. (2015). How do college homeland security curricula prepare students for the field? *Journal of Homeland Security Education*, 4, 20–40. <http://www.journalhse.org/v4-comiskey.html>
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed method approaches* (3rd ed.). Los Angeles, CA. Sage.
- Department of Homeland Security. (2010). Quadrennial homeland security review report. Author. Washington. Retrieved from https://www.dhs.gov/xlibrary/assets/qhsr_report.pdf
- Department of Homeland Security. (2011). The strategic national risk assessment in support of PPD 8: A comprehensive risk-based approach toward a secure and resilient nation. Author. Retrieved from <https://www.dhs.gov/xlibrary/assets/rma-strategic-national-risk-assessment-ppd8.pdf>
- Department of Homeland Security. (2014). Quadrennial homeland security review report. Author. Washington, DC. Retrieved from <https://www.dhs.gov/sites/default/files/publications/2014-qhsr-final-508.pdf>
- Department of Homeland Security. (2015a). Where America's Universities and DHS Meet. [bulletin] Retrieved from <http://web-oup.s3-us-gov-west-1.amazonaws.com/showc/assets/File/OUP-Overview-Factsheet%281%29.pdf>
- Department of Homeland Security. (2015b). National preparedness goal. Retrieved from https://www.fema.gov/media-library-data/1443799615171-2aae90be55041740f97e8532fc680d40/National_Preparedness_Goal_2nd_Edition.pdf
- Department of Homeland Security. (2017a). DHS Statement on Las Vegas Shooting. [webpage]. Retrieved from <https://www.dhs.gov/news/2017/10/02/dhs-statement-las-vegas-shooting>
- Department of Homeland Security. (2017b). Potential impacts of Wannacry Ransomware on critical infrastructure. Author. Washington, D.C.
- Department of State. (2017) Country report on terrorism 2016. Washington, D.C. Author. Retrieved from <https://www.state.gov/documents/organization/272488.pdf>
- Dennison, D. R. & Mishra, A. K. (1995). Toward a theory of organizational culture and effectiveness. *Organization Science*, 6(2).
- Dillman, D. A. (2007). *Mail and Internet surveys: The tailored design method* (2nd ed.). New York, NY. John Wiley.
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, mail, and mixed-mode surveys: The tailored design method*. Hoboken, N.J. John Wiley & Sons.
- Ek, R. & Tesfahuney, M. (2011). Theorizing the earth. In Corvellec (Ed.) *What is theory?: Answers from the social sciences*. Copenhagen, Denmark. CBR Press.
- Falkow, M. D. (2013). *Does homeland security constitute an emerging homeland security discipline?* (Master's thesis). Retrieved from <https://www.hsdl.org/?view&did=736325>

- Fawcett, J. & Downs, F. (1986). *The relationship of theory and research*. Norwalk, CT. Appleton Century Crofts.
- Federal Bureau of Investigation. (2017). Recent Wannacry attribution to North Korea demonstrates persistent targeting of U.S. interests. Author. Retrieved from
- Federal Emergency Management Agency. (2018). Disasters (declarations “any January 1-2017-December 31, 2017”) [webpage]. <https://www.fema.gov/disasters>
- Feyerabend, P. (1975). *Against method: Outline of an anarchistic theory of knowledge*. London, England. New Left Books.
- Fincham, J.E. (2008). Response rates and responsiveness for surveys, standards, and the journal. *American Journal of Pharmaceutical Education*, 72(2).
- Flinders, D. J. & Mills, G. E. (1993). *Theory and concepts in qualitative research: Perspectives from the field*. New York, NY. Teachers College Press.
- Foshay, A. (1962). Education and the nature of a discipline. In Frazier, A. (Ed.), *New dimensions in learning: A multidisciplinary approach*. Washington, D.C. Association for Supervision and Curriculum Development.
- Fowler, R. J. (2009). *Survey research methods*. Los Angeles, CA. Sage Publications.
- Fuller, S. (2017). The military-industrial route to interdisciplinarity. In Frodeman, R., Klein, J. T., Pacheco, R. C. S. (Eds.). *The Oxford handbook of interdisciplinarity*. Oxford. Oxford Press.
- Glaser, B. G. (1967). *The discovery of grounded theory: Strategies for qualitative observations*. Chicago. Aldine Publishing.
- Godfrey-Smith, P. (2003). *Theory and reality: An introduction to the philosophy of science*. Chicago, IL. University of Chicago Press.
- Groves, R. M., Ciadlino, R., & Couper, M. P. (1992). Understanding the decision to participate in a survey. *Public Opinion Quarterly*, 56, 475–495.
- Homeland Security Academic Advisory Council. (2015). HSAC Compendium of Recommendations. Washington, D.C. Author. Retrieved from https://www.dhs.gov/sites/default/files/publications/Compendium%20of%20HSAAC%20Recommendations_October%202015.pdf
- Homeland Security Act of 2002, Pub. L. No. 107-296, 116 Stat. 2136 (2002). Retrieved from http://www.dhs.gov/xlibrary/assets/hr_5005_enr.pdf
- Homeland Security and Defense Education Consortium Association. (2009a). *HSDECA Self-study guidelines for graduate degree programs*. Lithia, FL: Author.
- Homeland Security and Defense Education Consortium Association. (2009b). *HSDECA Self-study guidelines for undergraduate degree programs*. Lithia, FL: Author.
- Horn, D. P. (2018). 21st Century Flood Reform Act (H.R.2874). Reforming the National Flood Insurance Program. Congressional Research Service. Washington, D.C. <https://fas.org/sgp/crs/homsec/R45019.pdf>
- Insurance Information Institute. (2017a). Facts + statistics: Hurricanes [webpage]. Retrieved from <https://www.iii.org/fact-statistic/hurricanes>
- Insurance Information Institute. (2017b). Facts + statistics: Wildfires [webpage]. Retrieved from <https://www.iii.org/fact-statistic/facts-statistics-wildfires>
- International Society for Preparedness and Resiliency. (2017). Development of competency based education standards for homeland security programs. Author.
- Joas, H. & Knobel, W. (2009). What is theory? In *Social theory: Twenty introductory lectures*. Cambridge, United Kingdom. Cambridge University Press.

- Kahan, J. H. (2014). Preparedness revisited: W(h)ither the PPD-8. *Homeland Security Affairs*, 10(2). Retrieved from <http://www.hsaj.org/?article=10.1.2>
- Kahneman, (2011). *Thinking fast and slow*. New York. Farrar, Straus, and Giroux.
- Kaplowitz, M. D., Hadlock, T. D., & Levine, R.(2004). A comparison of web and mail survey response rates. *Public Opinion Quarterly*, 68(1).
- Kelly, J. (2017). Home and away: DHS and the threats to America [speech]. George Washington University. Washington, D.C. Retrieved from <https://www.dhs.gov/news/2017/04/18/home-and-away-dhs-and-threats-america>
- Kettl, D. F. (2003). Contingent coordination: Practical and theoretical puzzles for homeland security. *American Review of Public Administration*, 33(3), doi: 10.1177/0275074003254472
- Kiltz, L. & Ramsay, J. D. (2012). Perceptual framing of homeland security, *Homeland Security Affairs*, 8(16). Retrieved from <http://www.hsaj.org/?article=8.1.16&fromemail=2>
- King, A. R. & Brownell. (1966). *The curriculum and disciplines of knowledge: A theory of practice*. New York, NY. John Wiley & Sons.
- Kuhn, T. S. (1962). *The structure of scientific revolutions*. Chicago, IL. University of Chicago Press.
- Kuhn, T. S. (1996). *The structure of scientific revolutions* (3rd edition). Chicago, IL. University of Chicago Press.
- Larkins, A. G. & McKinney, C. W. (1980). Four types of theory: Implications for research in social education. *Theory and Research in Social Education*, 8(10), 9–17.
- McInnis, K. J. (2017). The National Security Strategy: Issues for Congress. Congressional Research Service. Washington, D.C. Retrieved from <https://fas.org/sgp/crs/natsec/IN10842.pdf>
- Mills, J. S. (1959). *The sociological imagination*. Oxford: Oxford University Press.
- National Association of Counties. (2017). NACo 2016–2017 Annual Report. Washington, D.C. Author. Retrieved from http://www.naco.org/sites/default/files/documents/2017_AR_LoRes_combine.pdf
- National Commission on Terrorist Attacks Upon the United States. (2004). *The 9/11 commission report: Final report of the National Commission on Terrorist Attacks upon the United States*. Washington, D.C: Author.
- National Governors Association. (2010). A Governor’s guide to homeland security. Washington, D.C. Author. Retrieved from <https://www.nga.org/files/live/sites/NGA/files/pdf/1011GOVGUIDEHS.PDF>
- National Intelligence Council. (2017). Paradoxes of progress. Author. Retrieved from <https://www.dni.gov/files/documents/nic/GT-Full-Report.pdf>
- National League of Cities. (2017). National municipal policy and resolutions. (Adapted at the 2016 City Summit, Pittsburg, Pennsylvania, November 19, 2016). Retrieved from http://www.nlc.org/sites/default/files/2016-12/2017%20National%20Municipal%20Policy%20Book_0.pdf
- National Oceanic and Atmospheric Administration. (2018). U.S. Billion-dollar weather and climate disasters. Retrieved from <https://www.ncdc.noaa.gov/billions/>
- Opperman, M. (2011). *American studies in dialogue: Radical reconstructions between curriculum and cultural critique*. Frankfurt, Germany: Campus Verlag GmbH.
- Ougaard, M. (2013). What is theory in political science? In Corvellec. *What is theory? Answers from the social and cultural sciences*. Stockholm, Sweden: Copenhagen Business School Press.

- Painter, W. L. (2017). Selected issues in homeland security policy for the 115th Congress. Congressional Research Service. Washington. Retrieved from <https://fas.org/sgp/crs/homesecc/R44847.pdf>
- Palin, P. J. (2010). Homeland security: An Aristotelian approach to professional development. *Homeland Security Affairs*, 6(2). Retrieved from <http://www.hsaj.org/?article=6.2.2>
- Pelfrey, W. V. & Kelley, W. D. (2013). Homeland security: A way forward. *Homeland Security Affairs*, 9(3). Retrieved from <http://www.hsaj.org/?article=9.1.3>
- Pelfrey, W. V., Kelley, W. D., & May, J. W. (2002). The Office for Domestic Preparedness WMD training strategy. U.S. Department of Justice, Office of Domestic Preparedness.
- Plant, J. E., Arminio, T., & Thompson, P. (2011). A matrix approach to homeland security professional education. *Journal of Homeland Security and Emergency Management*, 8(2). doi: 10.2202/1547-7355.1883
- Pohl, C., Truffeier, B., & Hadron, G. H. (2017). Addressing wicked problems through transdisciplinary research. In Frodeman, R., Klein, J. T., Pacheco, R. C. S. (Eds.). *The Oxford handbook of interdisciplinarity*. Oxford, United Kingdom. Oxford University Press.
- Polson, C., Persyn, J. M., & Cupp, S. (2010). Partnership in progress: A model for development of a homeland security graduate degree program. *Homeland Security Affairs*, 6(2).
- Ramsay, J. (2012). Epilogue. In Logan, K. G. & Ramsay, J. D. (Eds.) *Introduction to homeland security*. Boulder, CO. Westview Press.
- Ramsay, J. (2013). The case to accredit homeland security programs: Why outcomes-based accreditation makes sense. *Journal of Homeland Security Education*, 2, 19–31.
- Reese, S. (2013). Defining homeland security: Analysis and congressional considerations. Congressional Research Service. Washington. Retrieved from <https://www.hsdl.org/?view&did=728387>
- Reese, S. (2014). 2014 Quadrennial homeland security review: Evolution of strategic review. Congressional Research Service. Washington. Retrieved from <http://fas.org/sgp/crs/homesecc/IN10127.pdf>
- Rittel, H. W., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Science*, 4, 155–169.
- Rollins, J. & Rowan, J. (2007). The homeland security academic environment: A review of current activities for consideration. Homeland Security Education Consortium.
- Ryan, J. F. (2009). *An evaluation of the Masters of Arts in Security Studies: Homeland security and defense degree at the Naval Post Graduate School*. Retrieved from http://edocs.nps.edu/npspubs/institutional/aboutnps/Fact%20Sheets/CHDS_Masters.pdf
- Segal, L. M., Lieberman, D., May, K., & Warren, M. (2017). Ready or not? Protecting the public's health from disease, disasters, and bioterrorism. *Trust for America's Health*. Washington, D.C.
- Sills, S. & Song, C. (2002). Innovations in survey research: An application of Web surveys. *Social Science Computer Review*, 20, 22–30.
- S. Rep. No. 107-351 (2002).
- S. Rep. No. 109-322 (2006).
- Simon, C. (2009). Safety first. *The New York Times*. Retrieved from <http://www.nytimes.com/2010/01/03/education/edlife/03homeland.html>
- Smith, R. W. (2005). What is homeland security? Developing a definition grounded in the theory. *Journal of Public Affairs Education*, 11(3), 233–46.

- Sjoberg, G. & Nett, R. (1968). *A methodology for social research*. New York, NY. Harper & Row Publishers.
- Skinner, Q. (1985). *The return of grand theory in the human sciences*. Cambridge, United Kingdom. Cambridge University Press.
- Supinski, S. (2011). Security studies: The homeland adapts. *Homeland Security Affairs*, 7. Retrieved from <http://www.hsaj.org/?article=7.2.6>
- Swiss Re. (2017). Swiss Re reports nine months loss of USD 468 million after large insurance claims from recent natural catastrophe events [News release]. Retrieved from http://media.swissre.com/documents/nr_20171102_nine_months_en.pdf
- Treverton, G. F. (2008). *Addressing “complexities” in homeland security*. Elanders, Vallingby. Swedish National Defence College. Retrieved from <http://www.fhs.se/Documents/Externwebben/nyheter/2009/addressingcomplexities-in-homeland-security.pdf>
- Turner, S. (2017). Knowledge formations: An analytic framework. In Froderman, R., Kline, J. T., & Pacheco, R. C. S. (eds.). *The Oxford handbook of interdisciplinarity* (2nd ed.). Oxford, United Kingdom. Oxford University Press.
- White House. (2002). National strategy for homeland security. Washington, D.C. Author. Retrieved from <https://www.dhs.gov/sites/default/files/publications/nat-strat-hls-2002.pdf>
- White House. (2007). National strategy for homeland security. Washington, D.C. Author. Retrieved from <http://www.hsdl.org/?view&did=479633>
- White House. (2010). National security strategy. Washington, D.C. Author. Retrieved from <http://nssarchive.us/NSSR/2010.pdf>
- White House. (2015). National security strategy. Author. Retrieved from <http://nssarchive.us/wp-content/uploads/2015/02/2015.pdf>
- White House. (2017). National security strategy. Washington, D.C. Author. Retrieved from <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>
- Winegar, S. (2008). *Developing the bench: Building and effective homeland security undergraduate program*. (Master's thesis). Retrieved from https://www.hsdl.org/?view=docs/theses/08Mar_Winegar.pdf
- World Meteorological Association. (2017). 2017 is set to be in top three hottest years, with record-breaking extreme weather [webpage]. Retrieved from <https://public.wmo.int/en/media/press-release/2017-set-be-top-three-hottest-years-record-breaking-extreme-weather>