INNOVATION IN HOMELAND SECURITY ONLINE EDUCATION

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ABSTRACT

In response to the dynamic security threats of the 21st century, U.S. colleges and universities developed homeland security programs that prepare students for the field. Embry Riddle University revised its homeland security bachelor's degree curriculum to develop the soft skills and homeland security competencies employers seek. The University collaborated with government and private security officials to identify the needs of the field. It employed the most recent innovations in pedagogy, including red-teaming, scenario-based, the science of teaching and learning (SoTL), and team-based learning.

Keywords: *red-teaming, scenario-based learning, the science of teaching and learning (SoTL), team-based learning*

INTRODUCTION

Embry-Riddle Aeronautical University Worldwide's Department of Security and Emergency Services updated its homeland security bachelor curriculum to meet the challenges of the 21st century. The revised curriculum was based on market research, government and industry feedback, and recent innovations in higher education pedagogy, including experiential learning, red-teaming, scenario-based, the science of teaching and learning (SoTL), and team-based learning. The goal was to develop the homeland security competencies and soft skills that the field demands. This article delineates the steps and results of revising the curriculum.

PROBLEM STATEMENT

The demand for highly educated professionals has increased as security threats increased globally. The demand has resulted in the establishment of hundreds of homeland security programs in universities across the United States. These programs include intelligence, terrorism, cybersecurity, border protection, safety, and decision-making (Aydiner, 2022). As the security and emergency management fields evolve with threats and technology, revising and updating academic programs to prepare students for careers is mission-critical.

THEORY

The scholarship of teaching and learning (SoTL) literature offers insights into practical pedagogical approaches across all disciplines and fields of study. Homeland security and emergency management higher education programs have responded by incorporating SoTL in

their curricula (Feldmann-Jensen et al., 2019). Engaging pedagogies and approaches such as simulations increase student learning, enthusiasm, engagement, and applying theory to real-world situations students will encounter in the field (Austin et al., 2006; Corbin, 2018; Gorton & Havercroft, 2012; Shellman & Turan, 2006).

The general education competencies, including critical thinking, information literacy, team collaboration, and effective communication, are crucial learning skills for future professionals (World Economic Forum, 2020). These essential skills are appreciated by most of the higher education programs teaching intelligence. However, there is a lack of a structured approach to developing these skills in the curricula of many academic programs. Some of the main reasons are substandard teaching methods and instructor deficiencies (Aydiner, 2022). The direct approach of teaching general education competencies as separate courses is not standard in academia (Bellaera et al., 2021). In addition, some scholars argue that instructors are not ready to develop and teach general competencies as part of their disciplines (Stansberry et al., 2003).

As Dale (1969) described in his famous cone of experience pyramid, people are likely to forget teaching topics unless they have a frame of reference. Thus, experiential education provides the opportunity to create an authentic learning environment for students. Scenario-based e-learning (SBeL) provides this environment by creating flexibility and preparing students for agile and timely decisions in uncertain situations (Clark, 2012). SBeL includes real-world tasks, goals, teamwork, and expectations beyond discussion board engagement in our mistake-free online teaching environment. Red teaming is an effective tool to eliminate group thinking and other barriers to critical thinking. It provides out-of-the-box thinking to students and can be used in case studies and SBeL.

METHODOLOGY

To prepare students for the field, we developed red-teaming, scenario-based, and team-based exercises and included them throughout the curriculum. In addition, we developed experiential learning exercises in collaboration with our industry partners.

FINDINGS

Based on the SoTL literature and our research for market needs, we adopted a direct approach to teaching general education competencies as part of general education in our program. We developed a department-specific online introduction course to teach general education competencies. We incorporated these competencies into our higher-level undergraduate and graduate courses with the help of the University's instructional design and development team so students could apply critical thinking directly. For example, we developed an introductory course, *Critical Thinking in Contemporary Problems*. Students examined press releases and other artifacts to identify potential future security risks while developing their critical thinking and information literacy competencies. They read critically, identifying assumptions, biases, and potentially misleading texts.

Another example of the direct approach method in our teaching is the experiential learning framework (Kolb, 1984). We offer an online core course, *Professional Skills in Homeland Security*, to provide students with "learning by doing" exercises in their second year. Our research with alums and industry professionals showed that many students are not ready to transition to the job market in their new field right after graduation. In this course, we taught business and professional skills and found the most suitable profession that matches the students' personalities. Throughout the coursework, students learn from successful industry leaders about current industry needs, job application preparation, and job interview tips in their target fields. With the help of our department's Industry Advisory Board, we support students in obtaining onsite and virtual internships in their target fields.

In addition, we developed the core course, *Emergent Topics in Homeland Security*, and incorporated the development of team collaboration skills to cope with current and future challenges. We used innovative techniques (learning from professionals, taking a role consistent with students' expertise in teamwork), team activities (international collaboration scenarios), and new tools and software (i.e., Credly, Perusall) plugged into our online learning system. We are confident that these course improvements and redevelopments will strengthen the integration and development of general education competencies in teaching intelligence and security programs and support future professionals' mindsets.

We focused on developing students' decision-making by creating realistic scenarios and using special techniques like red teaming. To provide a structured and systematic approach to teaching, we taught the 12 most common methods: devil's advocacy; key assumptions check; outside-in thinking; pre-mortem analysis; what-if analysis; analysis of competing hypotheses; high-impact and low-probability analysis; alternative future analysis; brainstorming; stakeholder mapping; argument deconstruction; and strengths, weaknesses, opportunities, and threats analysis (Aydiner, 2022). While implementing innovative pedagogies into our curriculum, we used every opportunity to establish and develop relationships with professionals, practitioners, scholars, educators, program directors, decision-makers, national and international partners, and partner organizations for the best educational experiences for the students.

CONCLUSION

Using best practices from SoTL research in political science, homeland security and emergency management, and online teaching, we have significantly updated our curriculum to prepare students for successful homeland security careers. Innovations include teaching and learning tools of red-teaming techniques, scenario-based learning, and team-based learning in our online intelligence and security courses. Our courses develop general education competencies employers seek in graduates for security careers, including critical thinking, information literacy, team collaboration, and effective communication. Because our students are primarily adult learners already working as practitioners in the security fields, our program curricula bridge practitioner and scholar perspectives. Collaborations with government and industry professionals inform our teaching, course development, and provide opportunities for students. We used real-world examples, tabletop exercises, and simulations to create a realistic learning environment

and support students' higher complexity skills, "creating, evaluating, and analyzing" at the top of Bloom's (1956) taxonomy by applying the selected red-teaming techniques. Preliminary survey data indicates that program alums are highly successful in their careers. In 2019, one hundred percent of our program alums were employed in occupations that were somewhat or closely related to their degree, and the degree directly led to a promotion.

Graduates are actively serving in the homeland security and criminal justice fields. Although we do not yet have longitudinal data for comparison because we are a new program, initial results are promising, suggesting that the effects of these pedagogical practices are preparing students for their career goals. In the future, we will track longitudinal data trends of graduates and plan to build a robust alum network. Security practitioners, scholars, and educators can use these pedagogies to adapt them to their programs.

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