Conclusion:
Perspectives on Effective Collaborative STEM Research Experiences Linked to DHS Centers of Excellence (COE)

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EXECUTIVE SUMMARY

The previous chapters in this book demonstrate how collaborative research linked to DHS Centers for Excellence support the overall mission of DHS, while at the same time support research by faculty and students at institutions of higher education. The value added and success of these programs highlight the importance of developing effective partnerships that can lead to quality research experiences for faculty, students, and teachers. In addition, the research highlighted stresses the importance of developing a strong workforce that begins long before students make the transition to institutions of higher learning. It is important that early career faculty researchers, experienced researchers, as well as undergraduate and graduate students understand DHS research priority areas that can effectively support the overall mission of DHS. The collaborative research that is linked to other federal and state agencies is important in addressing complex security issues that have an impact on the general public.

The Department of Homeland Security will lead the unified national effort to secure America. We will prevent and deter terrorist attacks and protect against and respond to threats and hazards to the nation. We will ensure safe and secure borders, welcome lawful immigrants and visitors and promote the free-flow of commerce.

— Mission of the Department of Homeland Security

SETTING THE STAGE

The Department of Homeland Security (DHS) Science & Technology Directorate (S&T) Centers of Excellence (COE) represent a large number of research universities nation-wide that develop innovative products that support the overall mission of DHS in protecting the homeland. The chapters in this book highlight a small sample size of quality research that were a result of funding provided through the Science and Technology's Directorate through the Office of University Programs. Although a small sample size, these efforts enable researchers at minority serving institutions as well as COEs to collaborate. These research efforts provide a "snap shot" of the research priority portfolio that address short and long-term needs of the Department of Homeland Security. It also demonstrates the importance of working with federal agencies, universities, as well as business and industry to solve complex problems associated with homeland security.

These efforts serve to train the next generation of faculty and student researchers who will become the future generation of homeland security professionals. This chapter summarizes these collaborative efforts (cases) as well as why these efforts are important in addressing DHS priority research areas. In addition, a discussion on qualitative assessment of faculty and student federally funded STEM research experiences are presented.

CASE DESCRIPTION CONCLUSIONS

Case 1: The Challenges of Obtaining Credible Data for Transportation Security Modeling

The Transportation Security Administration (TSA) was created in the wake of 9/11 to strengthen the security of the nation's transportation systems while ensuring the freedom of movement for people and commerce. This case was a direct link to transportation security and focused on the National Transportation Security Center of Excellence (NTSCOE) was established to develop new approaches to

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