

Case Study of Experiential Learning through a Training Model at the Science and Policy Interface: The National Animal Health Policy and Food Security Course¹

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Abstract

Experiential learning provides an opportunity for students to bridge classroom and research knowledge and experiences with the realities of creating solutions for difficult policy issues. Experiential learning becomes even more powerful for capacity building when it involves cultural and geographic diversity and multiple public and private institutions. Our next generation of leaders will need these bridging experiences to address and solve global challenges like climate change, food security and transboundary diseases. These challenges cannot effectively be solved by individual countries or institutions and require creating new frameworks and partnerships that are transdisciplinary and global. The objectives of this paper were 1) to describe an experiential learning experience through the National Animal Health and Food Security Policy course conducted in Washington DC and 2) discuss ways the curriculum of this multi-institutional course could be internationalized and adopted globally. The paper discusses possible ways of internationalizing this course including: formation of partnerships with institutions that are already involved in multi-institutional global courses; involvement of international agencies whose missions align with the national health and food security policy course; and signing memoranda of

understanding among governments to use this course for capacity building for their public servants.

Key words: Animal production, animal health, food security, science, policy, global higher education

Introduction

Experiential learning involves a number of approaches and practices but in all instances focus on the things the learner brings to the experience as well as what they gain from the experience (Stanton and Grant, 2002). Experiential learning provides an opportunity for students to gain tangible experience while still enrolled at their schools or universities; it combines classroom knowledge with real world experience (Brandeis University, 2013). Experiential learning provides a practical approach to learning (Stanton and Grant, 2002), and has been reported to be an effective way for students to share their experiences with others (Brandeis University, 2013). Through this mode of training, students acquire confidence to apply the knowledge they have attained (Brandeis University, 2013). Additionally, experiential learning is an opportunity for students to convert their class work into life experiences (Brandeis

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University, 2013) as it enables students to network with several professionals in their field of study (UNESCO, 2012), and offers an opportunity to obtain career related experiences (UNESCO, 2012). According to Stanton and Grant (2002), experiential learning can be implemented through: planning for the experience, increasing the participant's awareness of the experience, assisting the learner to reflect upon the experience and providing experiences to the participants.

A multi-institutional approach of offering jointly planned and implemented courses comes with many advantages but importantly the formation of partnerships and collaborations. Currently, funding organizations are encouraging institutions to follow that approach (Golsmith and Manly, 2003) by preferentially awarding funds to support research and education initiatives. One of the perceived advantages of multi-institutional partnerships, particularly those with globally diverse partners, is enhancing capacity of our next generation of scientists and leaders to address issues that have global contexts (Golsmith and Manly, 2003). It also enhances the quality of the outcomes from projects being run by these institutions (Golsmith and Manly, 2003) as different institutions have different capacities and specialties. Therefore, this pedagogical method provides a platform for different institutions to tap into each other's resources thereby improving efficiency (Anderson et al., 2008). Additionally, this approach enables students to easily tap into new available career opportunities (Anderson et al., 2008). The model provides enhanced networking opportunities for students, faculty and institutions. It contributes to professional development among the faculty through multi-institutional peer interaction (Anderson et al., 2008) and is an opportunity for faculty to extend their specialty to a diverse student audience globally (Anderson et al., 2008). The multi-institutional approach enables student's access and choice among the different academic programs while enhancing the outsourcing of services, materials and technical help among the member institutions (Anderson et al., 2008).

Over the past decades, globalization of instruction, outreach and research has been a major focus for higher education institutions (AIEA, 2013). In particular, educational institutions are attempting to address global issues, such as transboundary diseases that move globally and cause serious socio-economic damage across national borders. These types of issues can only be effectively addressed by applying a global approach (FAO, 2013). Establishing international courses to build capacity worldwide is one of the ways to confront these complex global problems. Several courses have been developed to address global issues, including the global animal health course offered by Washington State University described elsewhere (Ekiri et al., 2013). The outreach efforts resulting from such global programs have been credited for contributing to the building of a healthier world.

Washington State University, in collaboration with the University of Minnesota, University of California Davis

and North Dakota State University, offers a National Animal Health and Food Security Policy (NAHFSP) course. This is a one week experiential learning course conducted in Washington DC. This program evaluates the roles of science, politics and beliefs on the development and implementation of policy at the intersection of animal health and food security. Each program is built around a specific topic at that intersection and has included antibiotic use in animal production, animal care standards and climate change. The course is not focused on creating policy but to have participants work with legislators, agency personnel, advocacy groups, media and interest groups to understand the processes of policy development and implementation and how they differ across organizations. The course promotes the development of leadership and communication skills and provides opportunities for participants to network with leaders in food security, public health, agriculture (WSU, 2013a).

The NAHFSP course was developed using U.S. institutions and its processes as a model, but the issues are global and the participants bring diverse backgrounds and viewpoints. The 2012 and 2013 course participants were nationals of seven countries (Canada, Ethiopia, India, Indonesia, Japan, Uganda and US), and three continents (North America, Asia and Africa).

The objectives of this paper are 1) to describe the NAHFSP course conducted in Washington DC and 2) discuss ways the curriculum of this multi-institutional experiential learning course could be internationalized and possibly adopted globally.

Materials and Methods

National Animal Health and Food Security Policy (NAHFSP) Course: 2013

The 2013 NAHFSP course was offered in Washington DC between March 25 and 29, 2013. The thematic topic for discussion was "Climate Change and Livestock; the Science, Politics and Beliefs and how they affect Food Security" (WSU, 2012). A total of 10 students (Washington State University-2, University of Minnesota-1, University of California, Davis-1 and North Dakota State University-6) attended the course. Academic disciplines of the participating students included Masters in International Infectious Disease Management – 6, Masters in Public Health – 1, Masters in Veterinary Preventive Medicine – 1, Masters in Applied Statistics – 1 and Doctoral student in Food Safety – 1.

Course Objectives

The course objectives were to: understand the governmental processes for creating laws and regulations associated with climate change, food security, trade and animal health; determine the roles the U.S. government, non-governmental organizations, professional bodies and trade organizations have in policy formulation; to distinguish among "scientific findings, personal and organizational beliefs and political agendas as policy

is implemented”; define the different ways how policy can be created and implemented; and effectively communicate facts and opinions to a diverse audience (WSU, 2013a).

It is expected that on completion of the course, participants would be able to: comprehend the responsibilities of the national government for food security, trade and animal health; know and differentiate the various strategies used by groups when informing and influencing policy makers; appreciate the roles played by the private sector in enhancing global food security and animal health systems; and be in position to create policy briefs and present them to policy makers (WSU, 2013a).

Learning Strategies of the Course

The course has four learning strategies which include: 1) “Background readings” (WSU, 2013a); 2) Directed discussions and debate around a current issue (WSU, 2013a); 3) “Experiential learning through interactions with key officials” (WSU, 2013a); and 4) Group task discussions; development and delivery of presentations to inform and persuade policy makers (WSU, 2013a).

Background Reading Material The 2013 course participants received course materials to read prior to travel to Washington DC. The course materials included topics that addressed the theme for that year (climate change), and in 2013, these included; Legislative activity, 113th Congress, SB7, a bill addressing formulations of strategies to improve the resilience of the US towards the effects of climate change and those which would reduce or prevent the worsening of extreme weather conditions (GAO, 2013). The following materials were also provided:

- a) Government Accountability Office (GAO)’s 2013 high risk series update that provided the current high risk list of topics that Congress needed to address. Climate Change was among the topics on this list. This document provided an insight on the role of GAO in identifying which projects US Congress spends funds on (GAO, 2013).
- b) GAO documents on climate change. A website available to all students which contained reports on climate change addressed by GAO to congress. This link gave students an idea of the current situation concerning climate change on Capitol Hill (WSU, 2013b).
- c) United States Department of Agriculture (USDA) climate change adaptation plan, June 2012. This document highlighted the USDA 2010-2015 strategic adaptation plan for addressing climate change (USDA, 2012).
- d) National Climate Assessment document on adaptation. This highlighted the need and involvement of the different federal agencies in formulating climate change adaptation plans (Blair et al., 2013).

- e) Environmental Protection Agency (EPA) report on the impact of climate change on agriculture (EPA, 2013).

The 2013 Washington DC based program was focused on U.S. legislative and agency activity associated with adaptation and mitigation strategies to address climate volatility. Climate change poses unprecedented challenges to U.S. agriculture because of the sensitivity of agricultural productivity and costs to changing climate conditions (USDA 2013). Animal health and livestock production systems have an important role in food security and are being affected by climate volatility. The 2013 program focused on both risk management and mitigation strategies for livestock and poultry value chain systems to address the long term viability of the industries. Examples of adaptation strategies relevant to animal health and livestock production include developing drought, pest and heat stress resistance in crops and animals, integrating livestock with crop production systems, improving soil quality and minimizing off-farm flow of nutrients and pesticides (USDA 2013).

While it was still early in the legislative cycle for the 113th legislative session, there were opportunities for students to share their experience and perspectives through interactions with committees, agencies and various interest groups on the topic of climate change. This group of students focused on risk management strategies for the food system with an emphasis on animal health and food production and how these strategies impact both food security and mitigation proposals. By the end of the week, participants drafted a set of policy statements which they delivered to congressional representatives and strategic agency officials. The positions of students were based on published research, advice from experts within and outside government with a variety of viewpoints and data and participant expertise. In addition, course participants developed and delivered comments on the EPA’s proposed climate Adaptation Plan and/or the National Climate Assessment Report.

Experiential learning through interactions with key officials. During the 2013 one-week program, several interactive meetings were held between students and key officials of selected agencies and organizations. The various agencies that students visited included: The American Veterinary Medical Association (AVMA), The Environmental Protection Agency (EPA), The US Department of Agriculture (USDA), The US Government Accountability Office, The National Academies of Sciences, The U.S. Congress (a few selected members of the Senate and House of Representatives), The American Farm Bureau, Food Research and Action Center and The Star Tribune (McClatchy Newspapers). A schedule of the 2013 one-week program is attached (Table 1).

On the first day, the program co-coordinator provided an overview on the theme of the 2013 course and defined the course outcomes followed by an open discussion on climate change, animal health and food security. The science on climate change was discussed.

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Table 1: Schedule for the National Animal Health Policy and Food Security Course in Washington DC, March 25 to 28, 2013.

	Monday March 25	Tuesday March 26	Wednesday March 27	Thursday March 28
8.30 - 9:00	Introduction to Program, organizing groups and defining outcomes American Veterinary Medical Association (AVMA) GRD, 1910 Sunderland Place NW	US Department of Agriculture NRCS, WSU Government Relations 655 15 th St NW #225 Washington, DC 20005		National Academy of Sciences
10:00 - 10:30	AVMA US Government 101 Lecture		McClatchy Newspaper 700 12 th Street NW, Suite 1000,	
10:45		American Farm Bureau. 600 Maryland Ave SW, Suite 1000		
11:00				Congressional Visits
11:30 - 12:30				Congressional Visits
1:00	AVMA Federal Relations. 655 15th St NW #225 Washington, DC 20005	Congressional Visits	Food Research and Action Center, 1875 Connecticut Ave Suite 540 NW	
2:30 - 3:00				Program Debrief
3:30	Environmental Protection Agency, 1301 Constitution Ave NW		Government Accountability Office (GAO), AVMA GRD Office, 1910 Sunderland Place NW	Congressional Visits
4:00 - 5:30				Program Debrief

The Assistant Director of AVMA gave a presentation on the organization of the U.S. government and an insight on how AVMA affects policy formulation directed to animal health and welfare. This enlightened the participants on the roles of the different arms of the US government, policy formulation and the roles of AVMA and how it interfaces with policy makers on Capitol Hill to influence policy regarding animal issues. The AVMA federal relations officer provided an overview of how his office represents different organizations and institutions (for instance universities) to Congress. This talk on lobbyists helped course participants understand the role of lobbying to policy makers and the need to maintain a good working relationship with policy makers in order to advance your agenda to the legislative assembly. This interface also helped course participants understand the role of forming public-private partnerships to ease lobbying for certain bills.

The Director of the EPA Innovative Pilots Division explained the role played by EPA and its operations including the EPA's adaptation plan. This visit helped students understand the roles played by EPA on the issue of climate change and the challenges they are facing. A senior scientist at the USDA Natural Resources Conservation Service briefed the group on the USDA climate change adaptation strategies implemented by different USDA departments in coordination with various agencies. A meeting with the Director of Public Policy Congressional Relations at the American Farm Bureau provided the position of this organization on climate change. This discussion helped students comprehend the need for involving stakeholders who would be affected by the proposed bill. It was clear that their views are vital in coming up with policies which would benefit the nation.

Several visits were made with various congressional staffers. A meeting was held with the AVMA fellow at Senator Susan Collins' office who worked primarily on food safety and public health issues; he discussed how to make policy briefs and how to utilize science to influence public policy. Visits were made with other congressional staffers from different states and political parties to discuss climate change and the need to have adaptation and mitigation strategies in place. Participants had an opportunity to present their policy briefs to legislative representatives.

A visit to the McClatchy group provided an opportunity to learn how to use the media to communicate science and other issues. The need to make communication simple and the use of compelling personal stories to communicate was highlighted. Media as a common communication channel with the public plays a significant role in driving policy formulation.

Students visited The Food Research and Action Center Supplemental Nutrition Assistance Program (SNAP) (FRACS, 2012) offices. The FRACS program deals with food security issues and given that climate change has an impact on agricultural productivity, FRACS emphasized the relevance of having lobbyists to help advance an agenda to congress on climate change mitigation and adaptation. The FRACS Director emphasized the need to build relationships with people in congressional offices who would assist with advancing issues.

Also, participants learned about the activities of the Government Accountability Office (GAO) and the role it plays in auditing government agencies (GAO, 2013). At the National Academy of Sciences, course participants met with the Chair of the Board on Agriculture and Natural Resources, who provided a brief on the role of the academy as an independent body that advises

government on science matters (NAS, 2013). Literature exists to show that the issue of climate change was still a puzzle for many people (Keohane, 2013). Therefore, it would be beneficial to all if federal agencies worked with the academy to do comprehensive research on the reality of climate change. Perhaps the results from these studies would aid in formulation of policy towards climate change mitigation and adaptation strategies.

The sessions with key officials of selected agencies and organizations involved presentations and or talks with key officials in the different agencies and organizations. The participants got involved in the discussions by asking questions and providing their views on the issues that were discussed which revolved around climate change mitigation and adaptation. Evening sessions were used by course participants to summarize what had been learned in the day.

Group task discussions. Each student was assigned a group where they held discussions and formulated a policy brief based on literature review, their experience and research. Participants then made oral presentations to the various congressional representatives on Capitol Hill.

Multi-institutional aspect of the course. This course is a joint collaborative effort of several higher educational institutions including: 1) Paul G. Allen School for Global Animal Health and College of Veterinary Medicine at Washington State University; 2) Wildlife Health Center at University of California, Davis; 3) Global Initiative for Food Systems Leadership and the Center for Animal Health and Food Safety at University of Minnesota; and 4) Department of Veterinary and Microbiological Sciences, North Dakota State University. In 2013, six international exchange students from Makerere University, College of Veterinary Medicine, Animal Resources and Biosecurity, Uganda attended the course.

Potential for Internationalizing the Course

Currently this course was developed with a national focus on the US, examining U.S. policies at the intersection of environment, animal agriculture and food security (WSU, 2012). However course participants have normally taken on a global nature. In 2013, course participants were from three different countries (Indonesia, Uganda and US) while in 2012, course participants were from six countries (Canada, Ethiopia, India, Japan, Uganda and U.S.). By nature of the institutions and programs participating in the course, the global nature of the course is likely to grow. For instance, the students enrolled at the Paul G. Allen School for Global Animal Health and College of Veterinary Medicine at Washington State University are globally focused. Also, international programs such as Global Initiative for Food Systems Leadership at the University of Minnesota and the Master of Science in International Infectious Disease Management and Biosecurity offered

by the Department of Veterinary and Microbiological Sciences, North Dakota State University and College of Veterinary Medicine, Animal Resources and Biosecurity Makerere University in Uganda are global by nature.

Currently informal exchange of information occurs between participants. An international component of the course could be introduced to the curriculum in the future to tap into the already existing pool of international course participants. For instance, a comparative aspect of the course could be added to allow participants to contrast policies and processes in different countries and regions. For programs with themes such as climate change that are global issues (Houghton, 2007), comparative approaches to governance and approaches for informing policy will broaden participant's understanding of creating global policy. A clear outcome from this approach is appreciation that global issues with important worldwide consequences are still greatly influenced by national interests. Further, the processes that scientists working within a country can use to facilitate national participation in solving global issues can and should be informed by local, regional and global governance processes. The U.S. based policy example underscores the complicated process of policy formulation, the difficulty the US faces in joining with the world on global climate change policies such as the Kyoto Protocol.

Comparison with Existing International Programs

Michigan State University Program. The University of Michigan offers a global scholars program that gives an opportunity to students to learn and associate with other international students on campus and around the globe (The University of Michigan, 2012). This course enhances the multicultural aspect while equipping students to be in position to work with different cultural groups. These students are encouraged to apply for jobs abroad and gain from the rewards of the program (The University of Michigan, 2012). The National Animal Health and Food Security Policy course could be modified based on existing models such as the Michigan State University Program to add an international aspect to the course which is currently absent. This addition would add value and enrich the course.

The National Policy Process seminar offered by Portland State University in Washington DC. This is a policy course for professionals and students from the Pacific Northwest (Portland State University (PSU), 2013). This course is conducted in Washington DC where participants personally meet with policy experts, congressional members, President's staff and lobbyists and with national agency representatives (PSU, 2013). It is a one week program which mainly focuses on the policy formulation process and how this affects their work in the Northwestern U.S. (PSU, 2013). This course only targets professionals from one region of the US, and is limited to only policy issues. However it is similar to the National Animal Health Policy course in that both

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provide an opportunity to the participants to meet with congressional representatives and also focuses on the process of policy formulation (PSU, 2013; WSU, 2012a). Both courses use a case study approach and give participants a chance to personally meet with the key officials on Capitol Hill (PSU, 2013; WSU, 2012a).

Ways of Internationalizing the National Policy course

A number of ways of internationalizing the NAHFSP course are suggested. First is formation of partnerships with institutions that are already involved on a global scale. This requires identification of institutions of higher learning in the different regions of the world that are involved in offering such a course. Many international programs have been established through formation of partnerships. For instance, a master's degree in International Infectious Disease Management was developed through the formation of partnerships between U.S. and African institutions (Ekiri et al., 2013; COVAB, 2013).

Second, involving international agencies whose mission aligns with the NAHFSP course objectives. International agencies are key players in promoting higher education on a global scale (Spring, 2008; Shahjahan, 2013). These agencies play a significant role in introducing changes to the national education system thus influencing educational debates in the world (Shahjahan, 2013). Organizations like Food and Agriculture Organization (FAO) (FAO, 2013), United Nations Education, Scientific and Cultural Organization (UNESCO) (UNESCO, 2012) and World Health Organization for Animals (OIE) have their missions aligning with the objectives of this food security course thus can be helpful in supporting this course. Finally, signing agreements among different governments (Noris, 2005). Governments should be encouraged to incorporate this course as a capacity building tool for public servants.

Assessment of Student Learning Outcomes

At the end of the NAHFSP course, students were expected to have mastered the following outcomes: 1) Explain the legal authorities of a National government as it relates to food security, trade and animal health, 2) Distinguish various strategies that groups use to inform and influence policy, 3) Demonstrate a role that the private sector has in enhancing global food security and animal health systems, 4) Synthesize a policy perspective utilizing a complex knowledge base that includes scientific findings, beliefs and politics, 5) Demonstrate an ability to understand the multiple dimensions of policies and synthesize diverse opinions and data to create informed policy and 6) Present a cogent argument that informs policy that would be understood across a diverse audience (WSU, 2013a). The learning outcomes were assessed in various ways. At the end of each day, a debriefing session was conducted where students and

faculty were able to review what had been learned that day. Additionally, students were given specific group assignments that helped them comprehend materials that were presented at the various sessions held. Students were then required to summarize the assignments and share with the class. Students prepared policy briefs and presented them to Congressional staff from the two main US political parties. Student exit interviews were conducted at the end of the course and documented in form of video clips which were transcribed and included in reports submitted to course instructors and to funding agencies. Student rating of instructors (SROI) evaluation system was utilized in an anonymous manner where applicable and ratings for the instructors and the course reported.

The 2013 NAHFSP course utilized a Problem Based Learning (PBL) approach by identifying climate change as the problem and letting students address the problem using the experiential learning conducted in Washington DC while interacting with staff from various national agencies. This approach of teaching (PBL) has been described as effective and resource efficient as it allows one or two staff members to facilitate up to 30 students at any one time (Hyams and Raidal, 2013). Also utilizing small groups (up to six) or teams of students affords important pedagogical benefits derived from uniform facilitation across multiple groups, enhanced discussion and debate between groups and the development of self-facilitation skills in students (Hyams and Raidal, 2013). This model has been reported to be effective provided that several requirements are addressed including a suitable venue, large whiteboards and a structured approach to support student engagement with each disclosure, a detailed facilitator guide and an open, collaborative and communicative environment. Most of these requirements were provided by the NAHFSP course.

Conclusions and Recommendations

The National Animal Health and Food Security Policy course is an experiential multi-institutional course that has been addressing issues of global significance at a national level. The course curriculum could be internationalized, expanding its scope to address these topics at an international level. As currently structured, the course already has elements such as an international pool of participants that could be easily utilized to add an international scope to the course. Also, a similar experiential learning model could be supported in the developing world possibly through already existing networks and partnerships such as The Africa-US Higher Education Initiatives of Higher Education for Development (HED) funded by the US Agency for International Development (USAID), and involving international agencies whose missions align with the national health and food security policy course objectives.

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