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Session 1: Statistical literacy

Census at School – Food Preference Survey

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Overview

1. Increasing statistical literacy in youth is an important way to develop the next generation of statisticians. The Census at School program (www.censusatschool.org.uk/) is an internationally developed school program for grades 4-12 that began in the United Kingdom in 2000 after a proposal was developed and tested in New Zealand. It uses information about students and is therefore of interest to them to teach statistics.
2. It is now fully operative in the U.K., New Zealand, Australia, Canada, South Africa, Korea, Ireland, and Japan. The American Statistical Association (ASA) with the Population Association of America launched the program in the Washington, DC area with a number of statistical partners in 2010. This paper is focused specifically on the development of a Food Preference Survey lesson plan of the U.S. Census at School program and the targeted effort increase the use of both.
3. The United States Department of Agriculture, National Agricultural Statistics Service (USDA NASS) joined the effort because it has a vested interest in increasing response to its data collection among the farm and rural population; increasing awareness and use of survey and census data; and to developing a next generation of statisticians. USDA NASS reached out to the National Agriculture in the Classroom (NAITC) organization and a sister agency, the USDA National Institute for Food and Agriculture, to expand and manage the program.
4. USDA NASS and ASA with guidance from the National Agriculture in the Classroom organization developed Food Preference Survey lessons, activities, and extensions that build on the existing Census at School survey with an agricultural tie-in. The Food Preference Survey was launched at the National Agriculture in the Classroom annual conference for teachers in June 2013.

Defining the Project

5. The partners wish to expand the use of Census at School program in the United States as a means to increase statistical literacy, raise awareness about the value of responding to surveys and enhance the use of statistics.
6. USDA NASS' Administrator and the Chief Statistician for the U.S. government were early champions of the project in the U.S. and began building partnerships to move the project forward. The U.S. Census Bureau had involvement as well.
7. By 2010, a program was in place and ready to "mainstream." There was a questionnaire that tied to the international Census at School; teacher training was available and conducted; a program test pilot was conducted with successful survey use; a repository was created for data at the ASA; and statistical expertise was at the ready. A website at ASA housed the survey and all resources.
8. There are 40 questions in all. The first 13 questions are the same across the international program; the remaining 27 are unique to the United States. The new Food Preference Survey uses three of the country-specific questions. Countries can add questions of importance or interest to their region, schools or students.
9. According to ASA, by 2011 there were 5,194 students from 33 states participating in the project and 249 registered teachers. By 2012 those numbers had increased to 7,967 students in 39 of the 50 U.S. states and 364 teachers though it looked like only 161 had student responses associated with their registration. As of April 2014, there were more than 20,000 students from 46 states plus Washington, DC and Guam who had participated and 931 registered teachers with 433 who have associated student data
10. The project needed a manager and an established network to make it more widespread in the education system.

Finding a Place in the U.S. Education System Structure

11. The U.S. education system is very large and diverse, with each state having its own standards.
12. New state-led standards known as the common core bring more commonality among school systems across the United States. Common core standards are high-quality academic standards in mathematics and English language arts/literacy that outline what a student should know and be able to do at the end of each grade. Most U.S. states have adopted them.
13. There is always a great deal of "competition" from different types of organizations to teach certain content in the schools. Schools are seen as a gateway to teaching our citizens information at an early age.
14. It is important that any lessons developed in Census at School integrate into the common core standards.

Finding Partners

15. USDA NASS reached out to the National Agriculture in the Classroom (<http://agclassroom.org>) organization as a possible education partner. NAITC had an established network of classroom teachers in all states and an interested national leadership.
16. The USDA National Institute for Food and Agriculture (NIFA) provided a collaboration point to bring ASA, NASS and NAITC together.

17. NAITC focus is on increasing agricultural literacy by using agricultural topics to teach various subjects. NASS wants to increase statistical literacy and saw the opportunity to develop lessons and activities that would meet both goals.

Developing the Lessons

18. NAITC, NASS and ASA discussed many options for lessons and decided to develop lessons and activities that would extend the learning opportunities using the existing questionnaire rather than develop additional survey questions. Maintaining the existing survey would enhance the program's use and the quality of the existing and future data.
19. The group focused on the three questions about food and beverage preferences and hired a curriculum development specialist to work with statisticians to develop the lessons.
20. The lesson plan needed to address common core standards. It teaches and addresses common core standards for grades 5-8 in Mathematics, Language Arts, Nutrition, Social Studies, National Family and Consumer Sciences.
21. Students complete a brief online survey, analyze their class census results on the three food and beverage questions, and compare their class with random samples from students in the United States and other participating countries.
22. Activity No. 1 looks at favorite foods and beverages for a class (questions 23 and 24), the variables for the class, numerical summaries for those variables, what type of graph would best show the data and more. The activity also links to the USDA federal nutritional guidelines called "my plate."
23. Activity No. 2 looks at question 22 which asks if a student is a vegetarian. The activity asks if there is a potential association between favorite food and whether someone is a vegetarian.
24. Activity extensions include planning an end of year party at school based on favorite foods, donations, etc. as well as determining what local foods could be purchased to improve student nutrition.
25. Important issues addressed in the introduction include security of Internet and personal identifying information.
26. Additional resources for agriculture, nutrition and food supply information that promote federal statistics and information are www.agcensus.usda.gov, www.Choosemyplate.gov, and www.fas.usda.gov/report.asp

Launching the Program

27. NASS, along with a partnering teacher, attended and conducted an instructional session about Census at School to a receptive audience at the annual National Agriculture in the Classroom Conference in June 2013.
28. The team used press releases, an article in an NAITC publication, cross links and features on all members' websites, a USDA blog, Twitter, and an article for the ASA website to launch the program and try to expand visibility and interest.
29. Next steps include project evaluation, promoting Census at School: Food Preference Survey at the 2014 NAITC conference, and continuing to expand publicity and partnerships.

Summary

30. Census at School and the use of the Food Preference Survey lesson plan in the United States has grown and has the potential to expand greatly with additional outreach, network building, introductions to teacher organizations and development of champions to advance it. A project manager is still needed.
31. By expanding introduction to and use of statistics of interest to students, USDA NASS hopes to encourage a next generation of statisticians.
32. USDA NASS hopes that understanding the value of responding to surveys and the resulting statistics to real life situations will work toward increasing response to its data collection among the farm and rural population.
33. The U.S. Census at School team is learning from the success of other countries and is encouraging expanded use of the program to further build statistical literacy worldwide.