Attachment A
NCSES Data Tools and Product Usability Testing
Usability Testing Draft Testing Plan/Script

We expect to conduct 10–20 tests, testing each data product during a minimum of two separate tests. At least two products or tools will be focused on during each test. We will execute the following cross-product test plan for all NCSES data products and tools. The consent form (contained in Attachment C) will be emailed to the participant before the test and they will be asked to sign it and return via email. If they are unable to do this, first the participant will be asked if they can be recorded, then the recording will start and then the participant will confirm they have consented to the recording and have read and agree to the provided statement of consent.

Cross-Product Test Plan/Script

Facilitating the test session:

1. Begin the session.
    a. Ensure the participant understands the session will be recorded (as voice audio, and video of the screencast), then begin recording. If verbal consent is sought, ask participant to confirm they consent to recording and that they read and agree to the provided consent after recording has started.
    b. Take notes throughout the session labeled with the participant's name, organization, and job title if available.
2. Introduce the scope and goal of this project. Gather information on user.
    a. "We are performing usability research on NCSES's web-based data products and tools, not you as a user. At times, it may feel like we are testing you, but we are testing the website. There are no right or wrong answers to these questions. Based on this research, we will provide recommendations for future improvements to these products. We'd appreciate hearing any thoughts you have for improvements as well."
    b. "Do you have any questions before we get started?"
    c. "Please tell us about your job responsibilities, a bit generally and specifically how they relate to science and engineering statistics."
    d. "Which of the NCSES products or tools have you used in the past?" List them if the user is unfamiliar with the available tools. (Academic Institution Profiles, State Profiles, SESTAT, WebCASPAR, SED Tabulation Engine, eTables, Public Use Files). Explain in greater detail as applicable to users who are unfamiliar with these tools.
    e. "How often do you use the product(s), if ever? What information are you typically looking for when you get to the NCSES website? How did/do you decide which products/tools to use?
    f. "Can you tell us about your skill-level with data analysis?" (probe – more than Excel? Which packages? Use with NCSES data? Not even Excel? Why?)

    g. "What other data tools do you use online?" (Census.gov, BLS, others?)
3. Begin the screenshare.
    a. "In order to see how you use the tools, I'm going to be able to watch your computer screen by passing you the 'Presenter' mode in GoToMeeting. Just click 'Show My Screen' when you see the dialog."
    b. Confirm that the participant is sharing their screen.
4. Present task
    a. "Now I'm going to ask you to perform a task. I'll watch you perform the task on your screen. While you work, please talk me through what you are doing. Please elaborate on your thought process, anything you find confusing, and features you like or dislike as you go. We're also interested to hear if you have ideas for improvement"
    b. Read an appropriate task from the task list based on the users' participant group and skill level or functionality we want to test. (In addition, the task will be provided in the GoToMeeting chat window so that the user is able to read and review the task on their own.)
    c. If the user has no idea which tool to use, or suggests a tool that does not contain the correct data for the task, suggest the appropriate tool.
5. Launching the tool
    a. Ask the user to access the tool using their web browser. If the user is unable to open the product, provide the user with a link through the GoToMeeting chat window.
        i. Does the user have trouble opening the product?
        ii. Does the tool load promptly, or take a while?
    b. "Would you ever use the 'Help' or 'FAQ' for this product?"
    c. "Can you find 'help' or 'FAQ' on the screen?"
6. Watch the user perform the task.
    a. "Can you please 'walk me through' the steps as you are performing this task?"
        i. He or she should elaborate on any likes, dislikes, or ideas for improvement as they go.
        ii. If the user isn't very talkative, ask them what they are doing, and have them explain why they take certain steps, their anticipated results, and so on.
        iii. If the participant is unable to perform the task in a timely manner, the facilitator will ask them to move on to another task.
        iv. When it's time to move onto the next task, ask the participant, "Do you have any comments about this task before we move on?" At this time, invite comments on particular frustrations, ideas for improvement, likes and dislikes, etc.
7. For each tool covered ask how satisfied they were with the tool using the following scale:
    1, very dissatisfied
    2, somewhat dissatistfied
    3, neither dissatisfied
    4, somewhat satisfied

5, very satisfied
(Paste scale in chat window.)

8. Repeat steps 4–7 with as many tasks as time allows varying tools and products as appropriate.
9. Closing the session.
    a. “We are approaching the end of our scheduled time. Are there any particular tasks you’d like to walk through with me before we close, or particular frustrations you’d like to share?”
    b. “Do you have any other comments?”
    c. “Once I close the meeting, the screenshare and recording will end automatically.”
    d. Thank the participant and tell them how much we appreciate their time and how helpful it has been to have their observations to inform our forthcoming recommendations.
    e. Say goodbye and end the session.

Tasks

Tool	Question(s)	Associated Instructions	Functionality Investigating	Skill/knowledge level
Academic Profiles	How many full-time science, engineering, and health graduate students are at Syracuse University? (in the most recent year for which data is available)	Navigate to AIP page Click List of Institutions CTRL+F search for Syracuse Click link Scroll down to and click link for Full-Time Grad Students in SE&H Download table in Excel format. Open in excel.	Find/view Individual Institutions; Download	Low
Academic Profiles	Where did Georgia Tech rank in terms of number of earned doctorates in 2013? Where did this data come from?	Navigate to AIP page Under the rankings heading, click Number of Earned Doctorates link CTRL+F search for Georgia Institute of Technology Scroll to bottom of page to find source information	Find/View individual institutions; Link to data sources	Low
Academic Profiles/WebCASPAR	What were the total R&D expenditures at Georgetown University in 2010 and 2006?	Navigate to AIP page Click List of Institutions CTRL+F search for Georgetown Scroll down to R&D expenditures by field and click link Locate value for 2010 and 2006	Find/View; Link	Low
Academic Profiles	What was the 2009 ranking of institutions by total federal obligations?	Navigate to AIP page Under the rankings heading click link for Federal Obligations Find values for 2009 Sort by rank column for 2009	Find/view rankings; sort by year; download by sorted year; Link to data source	Medium
State Profiles	How does Oregon compare to Washington in SBIR awards?	Navigate to State Profiles page Select Washington or Oregon on map Add the other state to the profile CTRL+F search for SBIR Compare values	Find/view; Filter (add state); link to SBIR	Medium
State Profiles	What percentage of the total 2013 expenditures is for academic R&D in used for engineering research in Arkansas and how does this compare to Louisiana?	Navigate to State Profiles page Select Arkansas from the map Add Louisiana to the profile Scroll to Academic R&D expenditures and expand Compare values for Engineering	Find/view (map chart); filter (add state to chart); link to help	Low
State Profiles	Can you download the Virginia state profile in its entirety?	Navigate to State Profiles page Select Virginia on the map Click Download the Table link	Find; download	Low
State Profiles	Can you download all the state profiles from 2003–4?	Navigate to State Profiles page Click Previous Profiles tab Click link for 03-04 Click download link	Find	Low-Medium

WebCASPAR	How many research doctorates were awarded in broad academic fields in each state by institution in 2009?	Navigate to WebCASPAR home Select Survey of Earned Doctorates as data source Select Number of Doctorates Awarded by Doctoral Institution as analysis variable Click Modify Classification Variable Select State as a Classification Variable Select Academic Discipline (broad) as a Classification variable Under Year, change year to 2009 Click View Table	Find data source, modify classification variables, download table	Medium-High
WebCASPAR	Which agencies have more than $2 million in federal obligations (in constant dollars) during the 2000 to 2005 period? What is the top value for the Department of Energy (DOE) during that time?	Navigate to WebCASPAR home Select Survey of Federal Funds as the data source Select R&D as Analysis variable Select Agency (standardized) as CV Select years 2000-2005 Modify Table and move agency CV to column View table Click Filter AV link and select AV > 2000 Click DOE column heading and select sort descending	Find data source, modify format, top/bottom row selector, filter variable	Medium
WebCASPAR	What was the relationship between the amount of federally-financed R&D obligations at an institution and the number of full-time graduate students enrolled there in 2013? How many graduate students were enrolled at the top 10 institutions by federally-financed R&D obligations that year?	Navigate to WebCASPAR home Select Survey of Federal S&E Support… and Survey of Grad Students and Postdocs as data sources Select Federal Obligations for R&D and Number of Graduate Students as AVs Select Academic Institution as CV Select year 2013 View Table Sort Descending on Federal Obligations for R&D column	Finding and adding two different survey sources, modifying classification variable, selecting row	High
WebCASPAR	Which institutions are constructing the most new engineering space?	Navigate to WebCASPAR home Go to the Frequently Requested Tables dropdown Select New construction of S&E space… Planned Sort descending on the Engineering column	Saved table; Sort by column; access help	Medium
WebCASPAR	How many postdocs of each gender were there in each state in the most recent year for which data is available?	Navigate to WebCASPAR home Select Survey of Grad Students and Postdocs as data source Select Number of Postdocs as AV Select State and Gender as CVs Format table and move gender to column View table	Find/view variable; add classification variables, sort	Medium
WebCASPAR	What federal agency funded the most R&D Plant (Facilities and Mixed Equipment) by percentage in 1999?	Navigate to WebCASPAR home Select NSF Survey of Fed S&E Support… as data source Select Federal Obligations for R&D Plant as AV and set Statistics:	Find/view variable; add classification variables, sort	Medium

		Percent of Sum Select Federal Agency (standardized) as CV Select year 1999 View table		
SESTAT/SESTAT Metadata Explorer	Does the NSF publish data on the annual salary of engineers?	Navigate to SESTAT Tool Use National Survey of College Graduates Row Variable for Major type M_ED_MR_MAJOR_ED_GRP_MAJOR_NEW works Under population conditions select variable for employed A_JOB_STATUS_EMPLOYED_IND works for this Select Median salary as Data type Click Submit Table Request	Find/view	Medium
SESTAT/SESTAT Metadata Explorer	Does the NSF publish data on the job status of scientists and engineers?	Navigate to SESTAT tool Use NSCG again Row Variable is A_JOB_STATUS_EMPLOYED_IND Under population conditions, select variable to limit to engineers M_ED_MAJOR_ED_GRP_MAJOR_NEW works Select Data type NUMBER Submit table request	Find/view	High
SESTAT/SESTAT Metadata Explorer	What are the publically available variables in the Scientists and Engineers Statistical Data Systems?	Navigate to SESTAT tool Click the SESTAT Metadata Explorer button	Find/view	High
SESTAT	How does the job status of physical scientists differ between age groups?	Navigate to SESTAT tool Use NSCG Select A_JOB_STATUS_EMPLOYED_IND and A_JOB_STATUS_LABOR_FORCE_STATUS as column variables Select U_DEM_AGE_GROUP_5_YR_GROUPING as row variable Select M_ED_MAJOR_ED_GRP_MAJOR_NEW = 3 for population condition Select Data type NUMBER Submit table request	Find/view variable (needs to change description view), using weighted data	Medium-High
SESTAT	How has the annual salary changed from 1993 to 2003 for all engineers?	Navigate to SESTAT tool Use NSCG Select 2003 for year Use A_JOB_STATUS_EMPLOYED_IND for column variable Select M_ED_MAJOR_GRP_MAJOR_NEW = 5 for population condition Select Data Type Median of H_JOB_SALARY_ANN Submit Table Request Repeat with 1993 selected for year	Using help/variable search; find/view survey year, modify variables, filter population, generate table, using weighted data	Very High

SESTAT	How many respondents to the 2013 Survey of Earned Doctorates indicated they have a teaching faculty academic position and how many held an adjunct position? How did the median salary differ between respondents?	Navigate to SESTAT tool Use Survey of Doctorate Recipients as data source Use E_JOB_EMPLR_ACAD_POSITION_ADJUNCT as column variable Use E_JOB_EMPLR_ACAD_POSITION_TEACH_FACULTY as row variable Use Data type Median of H_JOB_SALARY_ANN Submit table request Look at cells where No and Yes columns/rows intersect	Find survey year, find and select variable (position), add salary, unweight data	High
SESTAT	According to the 2010 National Survey for Recent College Graduate what percentage of respondents who were not born in the US are US citizens? What percentage are not US citizens?	Navigate to SESTAT tool Use Recent College Graduates NSRCG 2010 as data source Select U_DEM_BIRTH_PLACE_REGION_US_NONUS as column variable Select V_DEM_CITIZENSHIP_US_CITIZEN as row variable Select Data type NUMBER (count) Choose % option "Include % down the column" Submit table request	Find survey, year, select variables, modify data type, table generator	High
SESTAT	In 2010, what as the minimum, median, and maximum salary of different types of Ph.Ds.?	Navigate to SESTAT tool Use SDR as data source Select M_ED_MAJOR_GRP_MAJOR_NEW as row variable Select A_JOB_STATUS_EMPLOYED_IND = YES for population condition Select Data type Median, Minimum and Maximum of H_JOB_SALARY_ANN Submit table request	Find survey, year, select variables (2),	High
SED Tabulation Engine	How many new 2008 life science doctorate recipients self identified their race as Native Hawaiian or Pacific Islander?	Navigate to SED tool Outer Row = Year Inner Row = Academic Discipline, Broad Column = Race/Ethnicity Filter = Discipline, Broad - Life Sciences Execute	Find, modify, Help (variable definition); Filter; download	High-very high (Guam = Pacific Islander)
SED Tabulation Engine	How many temporary residents obtain civil engineering doctorates from very high research universities (according to Carnegie classification)?	Navigate to SED tool Outer Row = Carnegie 2005 Inner Row = Discipline, Detailed Column = Citizenship Filter = Discipline, Detailed - Civil Engineering Execute	Modify, Download	Low
SED Tabulation Engine	How many women graduated from Harvard University in 2008 with a research doctorate in engineering?	Navigate to SED tool Outer Row = Year Inner Row = Discipline, Broad Column = Gender Filter = Institution - Harvard University Execute	Modify, Filter, Search	Medium

		NOTE - No gender specific results were given for Engineering doctorates at Harvard in 2008		
eTables	What is the 2013 median salary of employed U.S. scientists and engineers with a masters and work in computer applications?	Navigate to Recent Data Tables listing page SESTAT 2013 data table Look for table 12-3	Find	Low
eTables	What were the total R&D expenditures for life sciences and its subfields in 2013?	Navigate to Recent Data Tables listing page HERD Data Table Table 5	Find/download	Low
eTables	How many people with doctorates in an S&E field were unemployed?	Navigate to Recent Data Tables listing page SDR Data Table Table 1	Find, download	Low-Medium
eTables	When will data next be released from the Survey of Graduate Students and Postdoctorates in Science and Engineering?	Navigate to Recent Data Tables listing page Click schedule of next releases link in the left hand navigation menu	Help	Low
Public use files	Is the GSS (Survey of Graduate Students and Postdoctorates in Science and Engineering) public use microdata available for download?	Navigate to Public Use Files Click link to Survey of Graduate Students and Postdoctorates in S&E Select a download link	Find/view	Low
Public use files	Is the GSS (Survey of Graduate Students and Postdoctorates in Science and Engineering) public use microdata available for SAS?	See above	Find/view; Download	Medium-High
Public use files	What does the variable "_forgn_v" represent?	Navigate to Public Use Files Click link to Survey of Graduate Students and Postdoctorates in S&E Click Appendix C link Answer is on page 1 of PDF	Find documentation	High
Public use files	What variable(s) gives the number of full-time graduate student supported by a Department of Defense fellowship?	Navigate to Public Use Files Click link to Survey of Graduate Students and Postdoctorates in S&E Click Appendix C link Answer is on Page 7 of PDF	Download documentation	High