

## Alternate Data File

### **Study Information:**

**Title:** The Effect of School Report Card Design on Usability, Understanding, and Satisfaction

**URL:** <https://ies.ed.gov/ncee/edlabs/projects/project.asp?projectID=4632>

**Abstract:** Education policymakers view transparency and accountability as critical to the success of schools. To support these goals, the District of Columbia Office of the State Superintendent of Education (OSSE) has developed an online school report card for communicating information about the characteristics and performance of schools. To support OSSE's interest in making report cards more usable, this study assessed the effect of different designs on how easy the report cards are to use and understand, how easy it is to find information in them, and whether users would recommend the site to others.

The study found that moving the link to details of the district's School Transparency and Reporting (STAR) framework from the top of the page to beneath the STAR score improved the site's usability and that reporting the number of points possible for each metric led to a better understanding of how the score is calculated. The combination of design features that produced the best performance on all measures included these two design changes. Other designs had mixed effects. In particular, making year-over-year change in school performance salient made it easier to identify which schools had improved the most, but participants disliked this feature (demonstrated by lower ratings for usability and satisfaction). In general, participants who accessed the site with mobile devices had more difficulty using it. This study illustrates how policymakers and practitioners in other states can efficiently test school report card design changes at scale.

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### **Description of the Sample:**

Participants were a convenience sample of 824 United States residents older than 13 recruited from three sources: OSSE community outreach (6 percent of the analytic sample), a market research panel consisting mostly of District of Columbia residents (58 percent of the sample), and Amazon Mechanical Turk (an online labor market where people complete tasks such as surveys in exchange for pay; 36 percent of the sample, all of them United States residents). Across the analytic sample 55 percent of participants were district residents, 57 percent were parents, and 7 percent self-identified as educators. The sample was not statistically representative of D.C. residents or report card users because it was self-selecting, but it was diverse in terms of respondents' racial/ethnic identity, income, and education level.

### **Data Information:**

**Table 1. Sample characteristics**

<b>Variable Name</b>	<b>Variable Definition</b>
StartDate	Survey start date
EndDate	Survey end date
Status	Survey status
Duration in seconds	Respondent survey time to complete
ResponseId	Respondent identifier
UserLanguage	Respondent survey language
A00_Browser	Respondent survey browser
A4	Respondent age <ul style="list-style-type: none"> <li>• Under 20 years (1)</li> <li>• 20 to 24 years (2)</li> <li>• 25 to 34 years (3)</li> <li>• 35 to 44 years (4)</li> <li>• 45 to 54 years (5)</li> <li>• 55 years or above (6)</li> </ul>
A1	Respondent type <ul style="list-style-type: none"> <li>• A DC resident (2)</li> <li>• A parent, guardian or caretaker of a child under 18 (1)</li> <li>• A student attending a public school in DC (3)</li> <li>• An educator at a public school in DC (4)</li> <li>• None of the above (5)</li> </ul>
A2	Count of children in household
A3	Grade(s) of children in household <ul style="list-style-type: none"> <li>• Not yet in Pre-Kindergarten (1)</li> <li>• Pre-Kindergarten (2)</li> <li>• Kindergarten through 5th grade (3)</li> <li>• 6th through 8th grade (4)</li> <li>• 9th through 12th grade (5)</li> <li>• Not enrolled in school (6)</li> </ul>
A5	Respondent gender <ul style="list-style-type: none"> <li>• Male (1)</li> <li>• Female (2)</li> <li>• Transgender Male (3)</li> <li>• Transgender Female (5)</li> <li>• Other (4)</li> </ul>
A6	Respondent education level <ul style="list-style-type: none"> <li>• Less than high school (1)</li> <li>• High school diploma or GED (2)</li> <li>• Some college credit, but no degree (3)</li> <li>• Associate's Degree (4)</li> <li>• Bachelor's degree (5)</li> <li>• Master's degree, Ph.D., or other professional or graduate degree (6)</li> <li>• Prefer not to answer (7)</li> </ul>
A7	Respondent household income

<b>Variable Name</b>	<b>Variable Definition</b>
	<ul style="list-style-type: none"> <li>• \$80,000 or less (1)</li> <li>• \$80,001 or more (2)</li> </ul>
A7.1	<p>Respondent household income range 1</p> <ul style="list-style-type: none"> <li>• Less than \$10,000 (1)</li> <li>• 10,000 to \$14,999 (2)</li> <li>• \$15,000 to \$24,999 (3)</li> <li>• \$25,000 to \$34,999 (4)</li> <li>• \$35,000 to \$49,999 (5)</li> <li>• \$50,000 to \$74,999 (6)</li> <li>• \$74,999 to \$80,000 (8)</li> <li>• Prefer not to answer (7)</li> </ul>
A7.2	<p>Respondent household income range 2</p> <ul style="list-style-type: none"> <li>• \$80,000 to \$99,999 (1)</li> <li>• \$100,000 to \$124,999 (2)</li> <li>• \$125,000 to \$149,999 (3)</li> <li>• \$150,000 to \$199,999 (4)</li> <li>• \$200,000 to \$249,999 (5)</li> <li>• \$250,000 or more (6)</li> <li>• Prefer not to answer (7)</li> </ul>
A8	<p>Language other than English spoken at home</p> <ul style="list-style-type: none"> <li>• Yes (1)</li> <li>• No (2)</li> </ul>
A9	Other language spoken at home
A10	<p>Respondent ethnicity</p> <ul style="list-style-type: none"> <li>• Not Hispanic, Latino or Spanish origin (1)</li> <li>• Mexican, Mexican American, Chicano (2)</li> <li>• Puerto Rican (3)</li> <li>• Cuban (4)</li> <li>• Another Hispanic, Latino, or Spanish origin (5)</li> </ul>
A11	<p>Respondent race</p> <ul style="list-style-type: none"> <li>• White (1)</li> <li>• Black or African American (2)</li> <li>• American Indian or Alaska Native (3)</li> <li>• Asian (4)</li> <li>• Native Hawaiian or Pacific Islander (5)</li> <li>• Other (6)</li> </ul>
A12	Respondent zip code
A13	<p>Respondent internet use</p> <ul style="list-style-type: none"> <li>• Yes (1)</li> <li>• No (2)</li> </ul>
A14	Respondent internet use hours
A15	<p>Public school enrollment</p> <ul style="list-style-type: none"> <li>• Yes, one or more children are currently enrolled in a public school in DC (1)</li> </ul>

Variable Name	Variable Definition
	<ul style="list-style-type: none"> <li>• Yes, one or more children were previously enrolled in a public school in DC (2)</li> <li>• No (3)</li> </ul>
A16	MySchoolDC lottery use <ul style="list-style-type: none"> <li>• Yes - applied and enrolled in a school accessed through the lottery (1)</li> <li>• Yes - applied but enrolled in a by-right neighborhood school (e.g., neighborhood, feeder, or re-enrolled at current school) (2)</li> <li>• Yes - applied but enrolled in a private, or nonpublic, or non-DC school (3)</li> <li>• No (4)</li> </ul>
A17	Respondent website familiarity <ul style="list-style-type: none"> <li>• www.dcschoolreportcard.org (1)</li> <li>• www.myschooldc.org (2)</li> <li>• www.dcpesb.org/schoolquality (4)</li> <li>• www.greatschools.org (3)</li> <li>• None of these (5)</li> </ul>
A18	Respondent use of the DC School Report Card <ul style="list-style-type: none"> <li>• Never (1)</li> <li>• Once or Twice (2)</li> <li>• Between 3 and 5 times (3)</li> <li>• More than 5 times (4)</li> </ul>
A19	Respondent decision-making <ul style="list-style-type: none"> <li>• I am the main person who makes decisions about their education (1)</li> <li>• I share equally in the decision with someone else (my child or another adult) (2)</li> <li>• I am not involved in making decisions about their education (3)</li> </ul>

**Table 2. Overall usability measures**

Item	Item wording
USE_1	The site gave me the right information to compare the academic performance of schools.
USE_2	The site gave me the information I need to compare the nonacademic characteristics of schools.
USE_3	The site gave me the information I need about the programs offered by these schools.
USE_4	I could use these school report cards to find a school that is of interest to me and my child.
USE_5	I would feel comfortable talking about the information on this site with educators and/or school leaders.
USE_6	The school report card site was easy to use.
USE_7	The information presented was easy to understand.
USE_8	I was able to find the information I was looking for.
USE_9	I find the website to be attractive.
USE_10	The website has a clean and simple presentation.
USE_11	The site is too complex.
USE_12	I would need someone to help me use the site effectively.
USE_13	I found the site difficult to navigate.

**Table 3. Understanding measures**

Item	Item wording
Treatment factor: Report card organization	
UN_1	Which school has the highest STAR rating?
Treatment factor: Explanation of the STAR rating calculation	
UN_2	Based on your understanding of the STAR rating page of the school report card, what has a larger impact on a school's STAR total? (Different STAR metric scores)
UN_3	Based on your understanding of the STAR rating page of the school report card, what change has a larger impact on a school's STAR total? (Changes in rates outside of or inside floor and target score)
Treatment factor: Proficiency score chart format	
UN_4	Which of the following schools have above average 90% attendance rates? (must select two correct answers)
Treatment factor: Change over time	
UN_5	Which school saw the greatest improvement in students meeting or exceeding grade-level expectations in English language arts from last year to this year?
Treatment factor: School offerings	
UN_6	Based on the information contained in the school report cards, which school has the most school programs?
UN_7	Which school [does not offer interscholastic sports/offers STEM programs]

**Table 4. Ease of finding specific information**

Item	Item wording
Factor: Report card organization	
E_1	It is easy to find a school's STAR rating
Factor: Explanation of the STAR rating calculation	
E_2	It is easy to understand how the STAR rating is calculated
Factor: Proficiency score chart format	
E_3	It is easy to figure out which schools have students who score better on state assessments
Factor: Change over time	
E_4	It is easy to see how a school's performance has changed over time
Factor: School offerings	
E_5	It is easy to figure out whether a school has a particular extracurricular activity
E_6	It is easy to figure out which school has listed the most extracurricular activities

**Table 5. Willingness to recommend the site to others**

Item	Item wording
W_1	On a scale from 1 (not likely at all) to 10 (extremely likely), how likely are you to recommend the school report card website to a friend who is interested in learning about public schools in DC?

**Analysis Information:**

- **Data analyzed.** This study analyzed responses to a randomized factorial survey experiment conducted online by the District of Columbia Office of the State Superintendent of Education (OSSE). All participants provided biographical and demographic information. The survey used school report card data of real District of Columbia high schools, as displayed on the OSSE website, and de-identified them by using new names, pictures, and geographic locations.

- Participants’ responses to 26 items and questions about the report cards were used to calculate four outcome measures:
  - **Usability.** A measure of overall usability based on responses to 13 self-report items that focused on how easy the school report cards were to use (“The school report card site was easy to use”) and aesthetics (“I found the website to be attractive”). For each item participants used a six-point scale to indicate whether they disagreed strongly, disagreed, disagreed slightly, agreed slightly, agreed, or agreed strongly. The study team examined average effects on responses to these items.
  - **Understanding.** A measure based on responses to six comprehension questions with factually correct answers that could be determined from the school report cards. Each factor was tested using one or two questions about information that the business-as-usual design and the alternative designs displayed in different ways.
  - **Ease of finding specific information.** A measure based on responses to six self-report items that focused on how easy or difficult participants felt that it was to find specific information. Each factor was tested using one or two items about the ease of finding information affected by that factor.
  - **Willingness to recommend the site to others.** A measure based on responses to a single question: “On a scale from 1 (not likely at all) to 10 (extremely likely), how likely are you to recommend the school report card website to a friend who is interested in learning about public schools in DC?”
- The study team used hierarchical Bayesian analyses to analyze the data. Usability and ease of finding specific information were modeled as ordinal variables, but for simplicity differences in the proportion of participants who agreed at least slightly with these items are reported. Understanding was treated as a binary variable (correct or incorrect responses), and willingness to recommend the site to others was treated as a continuous variable. See appendix B in the [report](#) for details.
- **Data cleaning.** The study team performed the following data cleaning steps before conducting any analyses.
  - Excluded participants who completed the survey from non-U.S. IP addresses because they were unlikely to be U.S. residents.
  - Excluded participants who responded from IP addresses associated with data centers that allow people to run virtual private servers (cloud-based emulations of physical computers) under the assumption that these were either “bots” or non-U.S. residents attempting to circumvent location restrictions set by market research companies and Mechanical Turk.
  - Excluded participants who spent less than 45 seconds viewing the school report cards because it was unlikely that they could form a substantive impression of the report cards in so short a time.
  - Excluded participants who straight-lined (that is, selected the same response for all questions) through the usability questions. These questions were scaled in different directions such that higher or lower values could indicate usability issues, and two items were antonyms (“The school report card site was easy to use” and “I found the site difficult to navigate”). The reason for this exclusion was that anyone selecting the same response for all items was not answering them carefully.
  - Excluded completed surveys that included improbable responses (people who said they were both District of Columbia public school students and educators, and participants with 10 or more children) or nonsensical responses to open-ended questions.

**Table 6. Datasets Used to Obtain Report Findings**

<b>Dataset</b>	<b>Report finding</b>
Sample characteristics	Differences in average outcomes (table 3); Attrition by report card design (table b8); Demographic characteristics of the analytic sample (table c1); Subgroup differences in perceived usability (table c4); Subgroup differences in overall understanding (table c6)
Usability	Effect of proposed design changes (table 2); Differences in average outcomes (table 3); Usability items (table b3); Correlations of usability items (table b4); Effect of design decisions on overall usability and on specific usability items (table c2); Effect of two-way interactions between design decisions on overall usability (table c3); Subgroup differences in perceived usability (table c4); Changes to make for different outcomes (table c12)
Understanding	Effect of proposed design changes (table 2); Differences in average outcomes (table 3); Understanding items (table b5); Effect of design choices on understanding (table c5); Subgroup differences in overall understanding (table c6); Changes to make for different outcomes (table c12)
Ease of finding specific information	Effect of proposed design changes (table 2); Differences in average outcomes (table 3); Ease of finding specific information items (table b6); Effect of design choices on ease of finding information (table c7); Subgroup differences in reported ease of finding specific information (table c8); Changes to make for different outcomes (table c12)
Willingness to recommend the site to others	Effect of proposed design changes (table 2); Differences in average outcomes (table 3); Effect of design choices on willingness to recommend the site to others (table c9); Effect of two-way interactions between design decisions on willingness to recommend site to others (table c10); Subgroup differences in willingness to recommend site to others (table c11); Changes to make for different outcomes (table c12)

**Contact information:**

To request the study data, please contact the Office of the State Superintendent of Education (OSSE) at [OSSE.Datasharing@dc.gov](mailto:OSSE.Datasharing@dc.gov) before submitting a request through the data request portal at <https://osse.dc.gov/service/osse-data-request-portal>. In the request, ask for the data from the Effect of School Report Card Design on Usability, Understanding, and Satisfaction study and mention that the requested data are from the Data Use Agreement that was fully executed on December 3, 2019.